

SIEMENS

SINAMICS

SINAMICS DCM

List Manual

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Answers for industry.

SIEMENS

SINAMICS

SINAMICS DCM

List Manual

Valid for

Drive

SINAMICS DCM

Firmware version

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Preface

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Legal information

Warning notice system

This manual contains information which you must observe to ensure your own personal safety as well as to avoid material damage. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to equipment damage have no safety alert symbol. Depending on the hazard level, warnings are indicated in a descending order as follows:

| |
|--|
|  DANGER |
| indicates that death or serious injury will result if proper precautions are not taken. |
|  WARNING |
| indicates that death or serious injury could result if proper precautions are not taken. |
|  CAUTION |
| indicates that minor personal injury can result if proper precautions are not taken. |
| NOTICE |
| indicates that property damage can result if proper precautions are not taken. |


If more than one level of danger is simultaneously applicable, the warning notice for the highest level is used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified personnel

The product/system described in this documentation may only be operated by **personnel qualified** for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

| |
|--|
|  WARNING |
| Siemens products are only permitted to be used for the applications listed in the catalog and in the associated technical documentation. If third-party products and components are used, then they must be recommended or approved by Siemens. These products can only function correctly and safely if they are transported, stored, set up, mounted, installed, commissioned, operated and maintained correctly. The permissible ambient conditions must be adhered to. Notes in the relevant documentation must be observed. |

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Disclaimer of liability

We have checked the contents of this publication for consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. The information given in this document is reviewed at regular intervals and any corrections that might be necessary are made in the subsequent editions.

Preface

Information about the SINAMICS documentation

The SINAMICS documentation is structured according to the following categories:

- General documentation/catalogs
- Manufacturer/service documentation

This documentation is part of the Technical Customer Documentation developed for SINAMICS.

In the interests of clarity, this documentation does not contain all the detailed information for all product types and cannot take into account every possible aspect of installation, operation or maintenance.

The contents of this documentation are not part of an earlier or existing agreement, a promise or a legal agreement, nor do they change this. All obligations on the part of Siemens can be found in the respective sales contract, which also contains the complete and sole warranty provisions. These contractual warranty provisions are neither extended nor restricted as a result of the statements made in this documentation.

Target group

This documentation addresses commissioning engineers and service personnel who use SINAMICS.

Objective

This manual contains information about all parameters, function diagrams, faults and alarms required to commission and service the system.

This manual should be used in addition to the other manuals and tools provided for the product.

Search tools

The following tools are provided to help you locate information in this manual:

1. Table of contents
 - Table of contents for the complete manual (Page 7)
 - Table of contents for function diagrams (Page 662)
2. List of abbreviations (Page 1183)
3. Index (Page 1193)

Technical Support

Country-specific telephone numbers for technical support are provided on the Internet at:
<http://www.siemens.com/automation/service&support>

SINAMICS

You can find information on SINAMICS at:
<http://www.siemens.com/sinamics>

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Fundamental safety instructions

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1.1 General safety instructions



WARNING

Risk of death if the safety instructions and remaining risks are not carefully observed

If the safety instructions and residual risks are not carefully observed in the associated hardware documentation, accidents involving severe injuries or death can occur.

- Observe the safety instructions given in the hardware documentation.
- When assessing the risk, take into account residual risks.



WARNING

Danger to life or malfunctions of the machine as a result of incorrect or changed parameter assignment

Machines can malfunction as a result of incorrect or changed parameter assignment, which in turn can lead to injuries or death.

- Protect the parameterization (parameter assignments) against unauthorized access.
- Respond to possible malfunctions by applying suitable measures (e.g. EMERGENCY-STOP or EMERGENCY-OFF).

1.2 Industrial security

Note

Industrial security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, solutions, machines, devices, and/or networks. They are important components in a holistic industrial security concept. With this in mind, Siemens products and solutions undergo continuous development. Siemens recommends strongly that you regularly check for product updates.

To ensure that Siemens products and solutions are operated securely, suitable preventive measures (e.g. cell protection concept) and each component must be integrated into a state-of-the-art holistic industrial security concept. Any third-party products that may be in use must also be taken into account. You will find more information about industrial security at:

<http://www.siemens.com/industrialsecurity>

To receive information about product updates on a regular basis, register for our product newsletter. You will find more information at:

<http://support.automation.siemens.com>



WARNING

Danger due to unsafe operating states caused by software manipulation

Software manipulation (e.g. by viruses, Trojan horses, malware, worms) can cause unsafe operating states to develop in your installation which can result in death, severe injuries and/or material damage.

- Update your software regularly.

You can find information and newsletters on this subject at:

<http://support.automation.siemens.com>

- Integrate the automation and drive components into a holistic, state-of-the-art industrial security concept for the plant or machine.

For more information, visit:

<http://www.siemens.com/industrialsecurity>

- Make sure that you include all installed products into the holistic industrial security concept.

Parameters

2

Content

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2.1 Overview of parameters




2.1.1 Explanation of the list of parameters

Basic structure of the parameter descriptions

The data in the following example have been chosen at random. The description of a parameter includes as a maximum, the information listed below. Some of the information is optional.

The "List of parameters" (Page 28) has the following structure:

----- **Start of example** -----

| pxxxx[0...n] | BICO: Full parameter name / abbreviated name | | | |
|---|---|---|--|-----------------|
| Drive object (function module) | Can be changed: C1(x), C2(x), U, T | Calculated: CALC_MOD_REG | Access level: 2 | |
| | Data type: Unsigned32 / Integer16 | Dyn. index: CDS, p0170 | Func. diagram: 8070 | |
| | P-Group: Closed-loop control | Unit group: 7_1 | Unit selection: p0505 | |
| | Not for motor type: ASM | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0.00 [Nm] | 10.00 [Nm] | 0.00 [Nm] | |
| Description: | Text | | | |
| Value: | 0: Name and meaning of value 0 1: Name and meaning of value 1 2: Name and meaning of value 2 etc. | | | |
| Recommendation: | Text | | | |
| Index: | [0] = Name and meaning of index 0 [1] = Name and meaning of index 1 [2] = Name and meaning of index 2 etc. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Name and meaning of bit 0 | Yes | no |
| | 01 | Name and meaning of bit 1 | Yes | no |
| | 02 | Name and meaning of bit 2 | Yes | no |
| | | etc. | | |
| Dependency: | Text Refer to: pxxxx, rxxxx Refer to: Fxxxx, Axxxx | | | |
| Danger: | Warning: | Caution: | Safety notices with a warning triangle | |
|  |  |  | | |
| Notice: | Safety notice without a warning triangle | | | |
| Note: | Information that might be useful. | | | |

----- **End of example** -----

The individual pieces of information are described in detail below.

pxxxx[0...n] Parameter number

The parameter number is made up of a "p" or "r", followed by the parameter number and the index (optional).

Examples of the representation in the parameter list:

- p... Adjustable parameters (read and write parameters)
- r... Display parameters (read only)
- p0918 Adjustable parameter 918
- p0099[0...3] Adjustable parameter 99, indices 0 to 3
- p1001[0...n] Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944 Display parameter 944
- r2129.0...15 Display parameter 2129 with bit field from bit 0 (smallest bit) to bit 15 (largest bit)

Other examples of the notation used in the documentation:

- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098, index 1 bit 3
- r0945[2](3) Display parameter 945, index 2 of drive object 3
- p0795.4 Adjustable parameter 795, bit 4

The following applies to adjustable parameters:

The parameter value "when shipped" is specified under "Factory setting" with the relevant unit in square parentheses. The value can be adjusted within the range defined by "Min" and "Max".

The term "linked parameterization" is used in cases where changes to adjustable parameters affect the settings of other parameters.

Linked parameterization can occur, for example, as a result of the following actions and parameters:

- Executing macros
p0015, p0700, p1000, p1500
- Setting a PROFIBUS telegram (BICO interconnection)
p0922
- Setting component lists
p0400
- Automatically calculating and preassigning
p0112, p0340, p3900
- Restoring factory settings
p0970

The following applies to display parameters:

The fields "Min", "Max" and "Factory setting" are specified with a dash "-" and the relevant unit in square parentheses.

Note:

The parameter list can contain parameters that are not visible in the expert lists of the particular commissioning software (e.g. parameters for trace functions).

BICO: Full parameter name / abbreviated parameter name

The following abbreviations can appear in front of the parameter name:

- **BI:** Binector Input
This parameter is used for selecting the source of a digital signal.
- **BO:** Binector Output
This parameter is available as a digital signal for interconnection with other parameters.
- **CI:** Connector Input
This parameter is used for selecting the source of an "analog" signal.
- **CO:** Connector Output
This parameter is available as an "analog" signal for interconnection with other parameters.
- **CO/BO:** Connector/Binector Output
This parameter is available as an "analog" and digital signal for interconnection with other parameters.

Note:

A connector input (CI) cannot be just interconnected with any connector output (CO, signal source).

When interconnecting a connector input using the commissioning software, only the corresponding possible signal sources are listed.

Drive object (function module)

A drive object (DO) is an independent, "self-contained" functional unit that has its own parameters and, in some cases, faults and alarms.

When carrying out commissioning using the commissioning software, you can select/deselect additional functions and their parameters by activating/deactivating function modules accordingly.

The parameter list specifies the associated drive object and function module for each individual parameter.

Example:

- **r61000:** PROFINET Name of Station
CU_DC (PROFINET)
The parameter is only available in the case of the CU_DC drive object with the "PROFINET" function module.

A parameter can belong to one, several, or all drive objects.

The following information relating to "Drive object" and "Function module" can be displayed under the parameter number:

Table 2-1 Data in the "Drive object (function module)" field

| Drive object (function module) | Type | Meaning |
|--------------------------------|------|--|
| All objects | - | This parameter is used by all drive objects. |
| CU_DC | 6 | Advanced Control Unit SINAMICS DCM (CUD) is to the left. |
| CU_DC_R | 6 | Advanced Control Unit SINAMICS DCM (CUD) is to the right. |
| CU_DC_S | 6 | Standard Control Unit SINAMICS DCM (CUD) is to the left. |
| CU_DC_R_S | 6 | Standard Control Unit SINAMICS DCM (CUD) is to the right. |
| CU_DC (PROFINET) | - | Control Unit SINAMICS DCM with "PROFINET" function module |
| DC_CTRL | 17 | DC closed-loop control general or DC closed-loop control on the Advanced CUD left. |
| DC_CTRL_R | 17 | DC closed-loop control extended on the Advanced CUD right. |
| DC_CTRL_S | 17 | DC closed-loop control on the standard CUD right. |
| DC_CTRL_R_S | 17 | DC closed-loop control extended on the standard CUD right. |
| DC_CTRL (PROFINET) | - | DC closed-loop control with "PROFINET" function module. |
| TM31 | 200 | Terminal Module 31. |
| TM31 (PROFINET) | - | Terminal Module 31 with "PROFINET" function module. |
| TM15DI_DO | 204 | Terminal Module 15 (for SINAMICS). |
| TM15DI_DO (PROFINET) | - | Terminal Module 15 (for SINAMICS) with "PROFINET" function module. |
| TM150 | 208 | Terminal Module 150. |
| TM150 (PROFINET) | - | Terminal Module 150 with "PROFINET" function module. |

Note:

The drive object type is used to identify the drive objects in the drive system (e.g. r0107, r0975[1]).

Can be changed

The "-" sign indicates that the parameter can be changed in any object state and that the change will be effective immediately.

The information "C1(x), C2(x), T, U" ((x): optional) means that the parameter can be changed only in the specified drive unit state and that the change will not take effect until the unit switches to another state. This can be a single state or multiple states.

The following states are available:

- C1(x) Device commissioning C1: Commissioning 1
 Device is being commissioned (p0009 > 0).
 Pulses cannot be enabled.
 The parameter can only be changed for the following device commissioning settings (p0009 > 0):
 - C1: Can be changed for all settings p0009 > 0.
 - C1(x): Can be changed only when p0009 = x.
 A modified parameter value does not take effect until the device commissioning mode is exited with p0009 = 0.
- C2(x) Drive object commissioning C2: Commissioning 2
 Drive commissioning is in progress (p0009 = 0 and p0010 > 0).
 Pulses cannot be enabled.
 The parameter can only be changed in the following drive commissioning settings (p0010 > 0):
 - C2: Can be changed for all settings p0010 > 0.
 - C2(x): Can only be changed for the settings p0010 = x.
 A modified parameter value does not take effect until drive commissioning mode is exited with p0010 = 0.
- U Operation U: Run
 Pulses are enabled.
- T Ready T: Ready to run
 The pulses are not enabled and the state "C1(x)" or "C2(x)" is not active.

Note

Parameter p0009 is CU-specific (belongs to the Control Unit).

Parameter p0010 is drive-specific (belongs to each drive object).

The operating state of individual drive objects is displayed in r0002.

Calculated

Specifies whether the parameter is influenced by automatic calculations.

The calculation attribute defines which activities influence the parameter.

The following attributes apply:

- CALC_MOD_ALL
 - p0340 = 1
- CALC_MOD_CON
 - p0340 = 1
- CALC_MOD_EQU
 - p0340 = 1
- CALC_MOD_LIM_REF
 - p0340 = 1, 5
- CALC_MOD_REG
 - p0340 = 1, 3

Note:

For p3900 > 0, p0340 = 1 is also called automatically.

Access level

Specifies the minimum access level required to be able to display and change the relevant parameter. The required access level can be set using p0003.

The system uses the following access levels:

- 1: Standard
- 2: Extended
- 3: Expert
- 4: Service

Parameters with this access level are password protected.

Note

Parameter p0003 is CU-specific (belongs to the Control Unit).

A higher access level will also include the functions of the lower levels.

Data type

The information on the data type can consist of the following two items (separated by a slash):

- First item
Data type of the parameter.
- Second item (for binector or connector input only)
Data type of the signal source to be interconnected (binector/connector output).

Parameters can have the following data types:

- Integer8 I8 8-bit integer number
- Integer16 I16 16-bit integer number
- Integer32 I32 32-bit integer number
- Unsigned8 U8 8 bits without sign
- Unsigned16 U16 16 bits without sign
- Unsigned32 U32 32 bits without sign
- FloatingPoint32 Float 32-bit floating point number

Depending on the data type of the BICO input parameter (signal sink) and BICO output parameter (signal source), the following combinations are possible when creating BICO interconnections:

Table 2-2 Possible combinations of BICO interconnections

| BICO output parameter | BICO input parameter | | | |
|---|------------------------|------------------------|------------------------------|---------------------|
| | CI parameter | | | BI parameter |
| | Unsigned32 / Integer16 | Unsigned32 / Integer32 | Unsigned32 / FloatingPoint32 | Unsigned32 / Binary |
| CO: Unsigned8 | x | x | – | – |
| CO: Unsigned16 | x | x | – | – |
| CO: Integer16 | x | x | r2050, r8850 | – |
| CO: Unsigned32 | x | x | – | – |
| CO: Integer32 | x | x | r2060, r8860 | – |
| CO: FloatingPoint32 | x | x | x | – |
| BO: Unsigned8 | – | – | – | x |
| BO: Unsigned16 | – | – | – | x |
| BO: Integer16 | – | – | – | x |
| BO: Unsigned32 | – | – | – | x |
| BO: Integer32 | – | – | – | x |
| BO: FloatingPoint32 | – | – | – | – |
| Legend: x : BICO interconnection permitted –: BICO interconnection not permitted rxxxx: BICO interconnection is only permitted for the specified CO parameters | | | | |

Dynamic index

For parameters with a dynamic index [0...n], the following information is specified here:

- Data set (if available).
- Parameter for the number of indices (n = number - 1).

This field can contain the following information:

- “CDS, p0170” (Command Data Set, CDS count)

Example:

p1070[0] → main setpoint [command data set 0]

p1070[1] → main setpoint [command data set 1], etc.

- “DDS, p0180” (Drive Data Set, DDS count)
- “EDS, p0140” (Encoder Data Set, EDS count)

Note:

Information on the data sets can be taken from the following references:

References: SINAMICS DC MASTER operating instructions
 “Data sets” Chapter

Function diagram

The parameter is included in this function diagram. The structure of the parameter function and its relationship with other parameters is shown in the specified function diagram.

P-Group (refers only to access via BOP (Basic Operator Panel))

Specifies the functional group to which this parameter belongs. The required parameter group can be set via p0004.

Note:

Parameter p0004 is CU-specific (belongs to the Control Unit).

Unit, unit group and unit selection

The standard unit of a parameter is specified in square parentheses after the values for “Min”, “Max”, and “Factory setting”.

Note:

The units cannot be switched over for SINAMICS DCM.

The information under Unit Group and Unit Selection has no relevance.

Parameter values

| | |
|-----------------|---------------------------------------|
| Min. | Minimum value of the parameter [unit] |
| Max | Maximum value of the parameter [unit] |
| Factory setting | Value when delivered [unit] |

In the case of a binector/connector input, the signal source of the default BICO interconnection is specified. A non-indexed connector output is assigned the index [0].

Not for motor type

This information is of no relevance for SINAMICS DC MASTER.

Scaling

Specification of the reference variable with which a signal value is automatically converted for a BICO interconnection.

The following reference variables are available:

- p2000 ... p2007: Reference speed, reference voltage, etc.
- PERCENT: 1.0 = 100 %
- 4000H: 4000 hex = 100 %

Expert list

Specifies whether this parameter is available in the expert list of the specified drive objects in the commissioning software.

1: Parameter is available in the expert list.

0: Parameter is not available in the expert list.

| |
|---|
| NOTICE |
| Users are responsible for using parameters that are marked "Expert list: 0" (parameter not included in the expert list). |
| These parameters and their functionalities have not been tested and no further user documentation is available for them (e.g. description of functions). Moreover, "Technical Support" (hotline) does not provide any support for these parameters. |

Description

Explanation of a parameter function.

Value

List of the possible values of a parameter.

Recommendation

Information about recommended settings.

Index

The name and meaning of each individual index is specified for indexed parameters.

The following applies to the values (Min, Max, Factory setting) of indexed adjustable parameters:

- Min, Max:

The adjustment range and unit apply to all indices.

- Factory setting:

When all indices have the same factory setting, index 0 is specified with the unit to represent all indices.

When the indices have different factory settings, they are all listed individually with the unit.

Bit field

For parameters with bit fields, the following information is provided about each bit:

- Bit number and signal name
- Meaning for signal states 0 and 1
- Function diagram (optional)

The signal is shown on this function diagram.

Dependency

Conditions that must be fulfilled in conjunction with this parameter. Also includes special effects that can occur between this parameter and others.

See also: List of other parameters to be additionally considered.

Safety instructions

Important information that must be observed to avoid the risk of physical injury or material damage.

Information that must be observed to avoid any problems.

Information that the user may find useful.

Danger



The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Warning



The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Caution



The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Notice

The description of this safety notice can be found at the beginning of this manual, see "Legal information" (Page 4).

Note

Information that the user may find useful.

2.1.2 Number ranges of parameters

Number ranges for SINAMICS in general

Note:

The following number ranges represent an overview of all parameters available for the SINAMICS drive family.

The parameters for the product described in this List Manual are described in detail in "List of parameters" (Page 28).

Parameters are grouped into the following number ranges:

Table 2-3 Number ranges for SINAMICS

| Range | | Description |
|-------|------|---|
| From | To | |
| 0000 | 0099 | Display and operation |
| 0100 | 0199 | Commissioning |
| 0200 | 0299 | Power section |
| 0300 | 0399 | Motor |
| 0400 | 0499 | Encoder |
| 0500 | 0599 | Technology and units, motor-specific data, probes |
| 0600 | 0699 | Thermal monitoring, maximum current, operating hours, motor data, central probe |
| 0700 | 0799 | Control Unit terminals, measuring sockets |
| 0800 | 0839 | CDS, DDS data sets, motor changeover |
| 0840 | 0879 | Sequence control (e.g. signal source for ON/OFF1) |
| 0880 | 0899 | ESR, parking, control and status words |
| 0900 | 0999 | PROFIBUS/PROFIdrive |
| 1000 | 1199 | Setpoint channel (e.g. ramp-function generator) |
| 1200 | 1299 | Functions (e.g. motor holding brake) |
| 1300 | 1399 | U/f control |
| 1400 | 1799 | Closed-loop control |
| 1800 | 1899 | Gating unit |
| 1900 | 1999 | Power unit and motor identification |
| 2000 | 2009 | Reference values |
| 2010 | 2099 | Communication (fieldbus) |
| 2100 | 2139 | Faults and alarms |
| 2140 | 2199 | Signals and monitoring |
| 2200 | 2359 | Technology controller |
| 2360 | 2399 | Staging, hibernation |

2 Parameters

2.1 Overview of parameters

Table 2-3 Number ranges for SINAMICS, continued

| Range | | Description |
|-------|------|---|
| From | To | |
| 2500 | 2699 | Position control (LR) and basic positioning (EPOS) |
| 2700 | 2719 | Reference values, display |
| 2720 | 2729 | Load gearbox |
| 2800 | 2819 | Logic operations |
| 2900 | 2930 | Fixed values (e. g. percentage, torque) |
| 3000 | 3099 | Motor identification results |
| 3100 | 3109 | Real-time clock (RTC) |
| 3110 | 3199 | Faults and alarms |
| 3200 | 3299 | Signals and monitoring |
| 3400 | 3659 | Infeed closed-loop control |
| 3660 | 3699 | Voltage Sensing Module (VSM), Braking Module internal |
| 3700 | 3779 | Advanced Positioning Control (APC) |
| 3780 | 3819 | Synchronization |
| 3820 | 3849 | Friction characteristic |
| 3850 | 3899 | Functions (e. g. long stator) |
| 3900 | 3999 | Management |
| 4000 | 4599 | Terminal Board, Terminal Module (e. g. TB30, TM31) |
| 4600 | 4699 | Sensor Module |
| 4700 | 4799 | Trace |
| 4800 | 4849 | Function generator |
| 4950 | 4999 | OA application |
| 5000 | 5169 | Spindle diagnostics |
| 5200 | 5230 | Current setpoint filter 5 ... 10 (r0108.21) |
| 5400 | 5499 | System droop control (e. g. shaft generator) |
| 5500 | 5599 | Dynamic grid support (solar) |
| 5600 | 5614 | PROFenergy |
| 5900 | 6999 | SINAMICS GM/SM/GL/SL |
| 7000 | 7499 | Parallel connection of power units |
| 7500 | 7599 | SINAMICS SM120 |
| 7700 | 7729 | External messages |
| 7770 | 7789 | NVRAM, system parameters |
| 7800 | 7839 | EEPROM read/write parameters |
| 7840 | 8399 | Internal system parameters |
| 8400 | 8449 | Real-time clock (RTC) |
| 8500 | 8599 | Data and macro management |

Table 2-3 Number ranges for SINAMICS, continued

| Range | | Description |
|-------|-------|---|
| From | To | |
| 8600 | 8799 | CAN bus |
| 8800 | 8899 | Communication Board Ethernet (CBE), PROFIdrive |
| 8900 | 8999 | Industrial Ethernet, PROFINET, CBE20 |
| 9000 | 9299 | topology |
| 9300 | 9399 | Safety Integrated |
| 9400 | 9499 | Parameter consistency and storage |
| 9500 | 9899 | Safety Integrated |
| 9900 | 9949 | topology |
| 9950 | 9999 | Diagnostics, internal |
| 10000 | 10199 | Safety Integrated |
| 11000 | 11299 | Free technology controller 0, 1, 2 |
| 20000 | 20999 | Free function blocks (FBLOCKS) |
| 21000 | 25999 | Drive Control Chart (DCC) |
| 50000 | 53999 | SINAMICS DC MASTER (closed-loop DC current control) |
| 61000 | 61001 | PROFINET |

2.2 List of parameters

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng
 Objects: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
 Product: SINAMICS DC MASTER OA, Version: 1401800, Language: eng
 Objects: DC_CTRL

| r0002 | | Control Unit operating display / CU op_display | | |
|--|---|---|----------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2651 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 99 | - | |
| Description: | Operating display for the Control Unit (CU). | | | |
| Value: | 0: Operation 10: Ready 20: Wait for run-up 25: Wait for automatic FW update of DRIVE-CLiQ components 31: Commissioning software download active 33: Remove/acknowledge topology error 34: Exit commissioning mode 35: Carry out first commissioning 70: Initialization 80: Reset active 99: Internal software error | | | |
| Notice: | For several missing enable signals, the corresponding value with the highest number is displayed. | | | |

| r0002 | | Drive operating display / Drv op_display | | |
|---|---|---|----------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2651 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 129 | - | |
| Description: | Operating display for the drive. | | | |
| Value: | 0: o0.0 No torque direction switched on 1: o0.1 Torque direction I switched on 2: o0.2 Torque direction II switched on 9: o0.9 Wait for enable from master 10: o1.0 Wait time for brake opening time running 11: o1.1 Wait for operating enable at terminal 13 12: o1.2 Wait for operating enable (signal source acc. to p0852) 13: o1.3 Wait time after withdrawing a jog command running 14: o1.4 Wait until the field has been reversed 15: o1.5 Wait for operating enable from the optimization run 16: o1.6 Wait for withdrawal of the immediate pulse inhibit 17: o1.7 Wait for SINAMICS DCM connected in parallel in status o0.0 18: o1.8 Operating state o1.8 19: o1.9 Operating state o1.9 20: o2.0 Wait for setpoint 21: o2.1 Operating state o2.1 22: o2.2 Operating state o2.2 30: o3.0 Wait for the thyristor check to be completed 31: o3.1 Wait for line supply symmetry 32: o3.2 Wait for a DC contactor to pick up 33: o3.3 Wait for the feedback signal "main contactor" 34: o3.4 Operating state o3.4 35: o3.5 Operating state o3.5 40: o4.0 Wait for voltage at 1U1, 1V1, 1W1 41: o4.1 Wait until fuse monitoring signals OK 42: o4.2 Operating state o4.2 | | | |

| | |
|------|---|
| 43: | o4.3 Operating state o4.3 |
| 44: | o4.4 Operating state o4.4 |
| 45: | o4.5 Wait until CCP pre-charged |
| 50: | o5.0 Wait for field current actual value |
| 51: | o5.1 Wait for voltage at 3U1, 3W1 |
| 52: | o5.2 Operating state o5.2 |
| 53: | o5.3 Operating state o5.3 |
| 60: | o6.0 Wait until auxiliaries have been switched on |
| 61: | o6.1 Wait for small setpoint |
| 62: | o6.2 Operating state o6.2 |
| 63: | o6.3 Operating state o6.3 |
| 70: | o7.0 Wait for power-on via terminal 12 |
| 71: | o7.1 Wait for power-on (signal source according to p0840) |
| 72: | o7.2 Stopping saved |
| 73: | o7.3 Wait for parallel master to power up |
| 74: | o7.4 Start of an optimization run |
| 75: | o7.5 Wait until SINAMICS DCM conn. in par. are rdy to switch on |
| 76: | o7.6 Operating state o7.6 |
| 77: | o7.7 Operating state o7.7 |
| 78: | o7.8 Operating state o7.8 |
| 79: | o7.9 Operating state o7.9 |
| 80: | o8.0 Switching on inhibited |
| 81: | o8.1 Simulation mode active |
| 82: | o8.2 Operating state o8.2 |
| 83: | o8.3 Operating state o8.3 |
| 90: | o9.0 Operating state o9.0 |
| 91: | o9.1 Quick stop (OFF3) (signal source acc. to p0848) present |
| 92: | o9.2 Quick stop (OFF3) (signal source acc. to p0849) present |
| 93: | o9.3 Quick stop (OFF3) saved |
| 94: | o9.4 SS1 command (Safe Stop 1) present |
| 95: | o9.5 Operating state o9.5 |
| 96: | o9.6 Operating state o9.6 |
| 97: | o9.7 Operating state o9.7 |
| 98: | o9.8 Operating state o9.8 |
| 99: | o9.9 Operating state o9.9 |
| 100: | o10.0 Operating state o10.0 |
| 101: | o10.1 Voltage disconnect (OFF2) (signal source acc. to p0844) |
| 102: | o10.2 Voltage disconnect (OFF2) (signal source acc. to p0845) |
| 103: | o10.3 E stop (safety shutdown) (terminal 105/106) |
| 104: | o10.4 STO command (Safe Torque Off) present |
| 105: | o10.5 Operating state o10.5 |
| 106: | o10.6 CUD right |
| 107: | o10.7 Operating state o10.7 |
| 108: | o10.8 Operating state o10.8 |
| 109: | o10.9 Operating state o10.9 |
| 110: | o11.0 Fault present |
| 120: | o12.0 Initializ. of line voltage sensing for field in progress |
| 121: | o12.1 Initializ. of line voltage sensing for armature in progr. |
| 122: | o12.2 Operating state o12.2 |
| 123: | o12.3 Reading out data of the gating modules |
| 124: | o12.4 Offset calibr. of curr. act. val. sensing being performed |
| 125: | o12.5 Read out data from the power unit |
| 126: | o12.6 Initializing the second processor (TMS320) |
| 127: | o12.7 Operating state o12.7 |
| 128: | o12.8 Operating state o12.8 |
| 129: | o12.9 Operating state o12.9 |

Dependency:

Refer to: r0046

Notice:

For several missing enable signals, the corresponding value with the highest number is displayed.

Note:

OC: Operating condition

RFG: Ramp-function generator

COMM: Commissioning

| | | | |
|---------------------|--|----------------------|--------------------------|
| r0002 | TM150 operating display / TM150 op_display | | |
| TM150 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 250 | - |
| Description: | Operating display for Terminal Module 150 (TM150) | | |
| Value: | 0: Module in cyclic operation 40: Module not in cyclic operation 50: Alarm 60: Fault 70: Initialization 120: Module de-activated 200: Wait for booting/partial booting 250: Device signals a topology error | | |
| Notice: | For several missing enable signals, the corresponding value with the highest number is displayed. | | |

| | | | |
|---------------------|--|----------------------|--------------------------|
| r0002 | TM15DI/DO operating display / TM15D op_display | | |
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 250 | - |
| Description: | Operating display for Terminal Module 15 (TM15). | | |
| Value: | 0: Module in cyclic operation 40: Module not in cyclic operation 50: Alarm 60: Fault 70: Initialization 120: Module de-activated 200: Wait for booting/partial booting 250: Device signals a topology error | | |
| Notice: | For several missing enable signals, the corresponding value with the highest number is displayed. | | |

| | | | |
|---------------------|--|----------------------|--------------------------|
| r0002 | TM31 operating display / TM31 op_display | | |
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 250 | - |
| Description: | Operating display for Terminal Module 31 (TM31). | | |
| Value: | 0: Module in cyclic operation 40: Module not in cyclic operation 50: Alarm 60: Fault 70: Initialization 120: Module de-activated 200: Wait for booting/partial booting 250: Device signals a topology error | | |
| Notice: | For several missing enable signals, the corresponding value with the highest number is displayed. | | |

| p0003 | | BOP access level / BOP acc_level | | |
|--|---|---|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1, U, T | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 1 | 4 | 1 | |
| Description: | Sets the access level for reading and writing parameters via the Basic Operator Panel (BOP). | | | |
| Value: | 1: Standard 2: Extended 3: Expert 4: Service | | | |
| Note: | A higher set access level also includes the lower one. Access level 1 (standard): Parameters for simplest possible operations. Access level 2 (extended): Parameters to operate the basic functions of the drive unit. Access level 3 (experts): Expert know-how is required for these parameters (e.g. BICO parameterization). Access level 4 (service): For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950). | | | |
| p0004 | | BOP display filter / BOP disp_filter | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 99 | 0 | |
| Description: | Sets the display filter for parameters with the Basic Operator Panel (BOP). | | | |
| Value: | 0: All parameters 1: Displays, signals 2: Power unit 3: Motor 4: Encoder/pos enc 5: Technology/units 7: Digital inputs/outputs, commands, sequence control 12: Functions 14: Control 15: Data sets 20: Communication 21: Faults, alarms, monitoring functions 28: Free function blocks 47: Trace and function generator 50: OA parameters 90: Topology 98: Command Data Sets (CDS) 99: Drive Data Sets (DDS) | | | |
| Dependency: | Refer to: p0003 | | | |
| Notice: | The display filter via p0004 provides precise filtering and displays the corresponding parameters only when p0009 and p0010 = 0. | | | |

2 Parameters

2.2 List of parameters

Note: The set access level via p0003 is also relevant for the display filter via p0004.
 Examples (assumption: p0009 = p0010 = 0):
 p0003 = 1, p0004 = 3
 --> Only the parameters for the motor with access level 1 are displayed.
 p0003 = 2, p0004 = 3
 --> Only the parameters for the motor with access levels 1 and 2 are displayed.

| p0005[0...1] | BOP operating display selection / BOP op_disp sel | | |
|--|---|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | [0] 2 [1] 0 |
| Description: | Sets the parameter number and parameter index for display for p0006 = 4 for the Basic Operator Panel (BOP). | | |
| Index: | [0] = Parameter number [1] = Parameter index | | |
| Dependency: | Refer to: p0006 | | |
| Note: | Procedure: 1. The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object. If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0. 2. The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0. | | |

| p0005[0...1] | BOP operating display selection / BOP op_disp sel | | |
|---|---|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | [0] 50000 [1] 0 |
| Description: | Sets the parameter number and parameter index for display for p0006 = 4 for the Basic Operator Panel (BOP). | | |
| Index: | [0] = Parameter number [1] = Parameter index | | |
| Dependency: | Refer to: p0006 | | |
| Note: | Procedure: 1. The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object. If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0. 2. The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0. | | |

| | | | |
|---|---|--|--|
| p0005[0...1] | BOP operating display selection / BOP op_disp sel | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting [0] 2 [1] 0 |
| Description: | Sets the parameter number and parameter index for display for p0006 = 2, 4 for the Basic Operator Panel (BOP). Examples for the SERVO drive object: p0005[0] = 21, p0005[1] = 0: Actual speed smoothed (r0021) p0005[0] = 25, p0005[1] = 0: Output voltage smoothed (r0025) | | |
| Index: | [0] = Parameter number [1] = Parameter index | | |
| Dependency: | Refer to: p0006 | | |
| Note: | Procedure: 1. The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object. If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0. 2. The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0. | | |
| p0006 | BOP operating display mode / BOP op_disp mode | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 4 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 4 |
| Description: | Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation". | | |
| Value: | 4: p0005 | | |
| Dependency: | Refer to: p0005 | | |
| Note: | Mode 4 is available for all drive objects. | | |
| p0006 | BOP operating display mode / BOP op_disp mode | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 4 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 4 |
| Description: | Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation". | | |
| Value: | 4: p0005 | | |
| Dependency: | Refer to: p0005 | | |
| Note: | Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object. Mode 4 is available for all drive objects. | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|--|---|---|
| p0007 | BOP background lighting / BOP lighting | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: - Min 0 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2000 [s] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 [s] |
| Description: | Sets the delay time until the background lighting of the Basic Operator Panel (BOP) is switched off. If no keys are actuated, then the background lighting automatically switches itself off after this time has expired. | | |
| Note: | p0007 = 0: Background lighting is always switched on (factory setting). | | |
| <hr/> | | | |
| p0008 | BOP drive object after booting / BOP DO after boot | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2 |
| Description: | Sets the required drive object that is active at the Basic Operator Panel (BOP) after booting. | | |
| Note: | The value from p0008 initializes the display on the Basic Operator Panel (BOP) at the top left after booting. The drive object Control Unit is selected using the value 1. | | |
| <hr/> | | | |
| p0009 | Device commissioning parameter filter / Dev comm par_filt | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 55 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the device and basic drive commissioning. By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps. | | |
| Value: | 0: Ready 1: Device configuration 2: Defining the drive type/function module 3: Drive base configuration 4: Data set base configuration 29: Device download 30: Parameter reset 50: OA application configuration 55: OA application installation | | |
| Notice: | For p0009 = 10000 the following applies: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0. | | |
| Note: | The drives can only be powered up outside the device commissioning (the drive enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010). p0009 = 1: Device configuration At the first commissioning of the device, after booting, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic sampling time in p0110). | | |

p0009 = 2: Defines the drive type / function module

In this state, the drive object types and/or the function modules can be changed or selected for the individual drive objects. To do this, the drive object type can be set using p0107[0...15] and the function can be set using p0108[0...15] (refer to p0101[0...15]).

p0009 = 3: Drive basic configuration

In this state, after the device has been commissioned for the first time, basic changes can be made for the individual drive objects (e.g. sampling times in p0111, p0112, p0115 and the number of data sets in p0120, p0130, p0140, p0170, p0180).

p0009 = 4: Data set basic configuration

In this state, after the device has been commissioned for the first time, for the individual drive objects changes can be made regarding the assignment of the components (p0121, p0131, p0141, p0151, p0161) to the individual data sets and the assignment of the power unit, motor and encoder to the drive data sets (p0185, ...).

p0009 = 29: Device download

If a download is made using the commissioning software, the device is automatically brought into this state. After the download has been completed, p0009 is automatically set to 0 (ready). It is not possible to manually set p0009 to this value.

p0009 = 30: Parameter reset

In order to bring the complete unit into the "first commissioning" state or to load the parameters saved using p0977, to start, p0009 must be set to this value. p0976 can then be changed to the required value.

p0009 = 50: OA application configuration

In this state, after the device has been commissioned for the first time, changes can be made for the individual drive objects regarding the activity (p4956) of the OA applications.

p0009 = 55: OA application installation

OA applications can be installed and/or uninstalled in this state.

| p0010 | | Drive commissioning parameter filter / Drv comm. par_filt | | |
|---|--|--|--------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1), T | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 30 | 1 | |
| Description: | Sets the parameter filter to commission a drive. | | | |
| | Setting this parameter filters out the parameters that can be written into in the various commissioning steps. | | | |
| Value: | 0: Ready | | | |
| | 1: Quick commissioning | | | |
| | 4: Encoder commissioning | | | |
| | 15: Data sets | | | |
| | 29: Only Siemens int | | | |
| | 30: Reserved | | | |
| Note: | The drive can only be powered up outside the drive commissioning (drive enable). To realize this, this parameter must be set to 0. | | | |
| | By setting p3900 to a value other than 0, the quick commissioning is completed, and this parameter is automatically reset to 0. | | | |

| p0010 | | TM150 commissioning parameter filter / TM150 com par_filt | | |
|---------------------|--|--|--------------------------|--|
| TM150 | Can be changed: C2(1), T | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 30 | 0 | |
| Description: | Sets the parameter filter for commissioning a Terminal Module 150 (TM150). | | | |
| | Setting this parameter filters out the parameters that can be written into in the various commissioning steps. | | | |
| | For the BOP, this setting also causes the read access operations to be filtered. | | | |

2 Parameters

2.2 List of parameters

Value: 0: Ready
29: Only Siemens int
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM15DI/DO commissioning the parameterizing filter / TM15D com par_filt

| | | | |
|-----------|---------------------------------|----------------------|--------------------------|
| TM15DI_DO | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 30 | 0 |

Description: Sets the parameter filter for commissioning a Terminal Module 15 (TM15).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value: 0: Ready
29: Only Siemens int
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM31 commissioning parameter filter / TM31 comm par_filt

| | | | |
|------|---------------------------------|----------------------|--------------------------|
| TM31 | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 30 | 0 |

Description: Sets the parameter filter for commissioning a Terminal Module 31 (TM31).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value: 0: Ready
29: Only Siemens int
30: Parameter reset

Dependency: Refer to: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0011 BOP password entry (p0013) / BOP passw ent p13

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Functions | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |

Description: Sets the password for the Basic Operator Panel (BOP).

Dependency: Refer to: p0012, p0013

| | | | |
|--|--|----------------------|--------------------------|
| p0012 | BOP password acknowledgement (p0013) / BOP passw ackn p13 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Functions | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Acknowledges the password for the Basic Operator Panel (BOP). | | |
| Dependency: | Refer to: p0011, p0013 | | |

| | | | |
|----------------------|--|----------------------|--------------------------|
| p0013[0...49] | BOP user-defined list / BOP list | | |
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Functions | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the required parameters to read and write via the Basic Operator Panel (BOP). Activation: 1. p0003 = 3 (expert). 2. p0013[0...49] = requested parameter number 3. If required, enter p0011 = password in order to prevent non-authorized de-activation. 4. p0016 = 1 --> activates the selected user-defined list. De-activation/change: 1. p0003 = 3 (expert). 2. If required, p0012 = p0011, in order to be authorized to change or de-activate the list. 3. If required p0013[0...49] = required parameter number. 4. p0016 = 1 --> activates the modified user-defined list. 5. p0003 = 0 --> de-activates the user-defined list. | | |
| Dependency: | Refer to: p0009, p0011, p0012, p0976 | | |
| Note: | The following parameters can be read and written on the Control Unit drive object: - p0003 (access stage) - p0009 (device commissioning, parameter filter) - p0012 (BOP password acknowledgement (p0013)) The following applies for the user-defined list: - password protection is only available on the drive object Control Unit and is valid for all of the drive objects. - p0013 cannot be included in the user-defined list for all drive objects. - p0003, p0009, p0011, p0012, p0976 cannot, for the drive object Control Unit, be included in the user-defined list. - the user-defined list can be cleared and de-activated "restore factory setting". A value of 0 means: Entry is empty. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p0015 | Macro drive unit / Macro drv unit | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1 | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 999999 | 1 |
| Description: | Runs the corresponding macro files. The selected macro file must be available on the memory card/device memory. Example: p0015 = 6 --> the macro file PM000006.ACX is run. | | |

2 Parameters

2.2 List of parameters

Dependency: Refer to: p0700, p1000, p1500, r8570

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

p0015 Macro drive object / Macro DO

| | | | |
|--|---|---|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: C2(1) Data type: Unsigned32 P-Group: Commands Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 999999 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
|--|---|---|---|

Description: Runs the corresponding macro files.
The selected macro file must be available on the memory card/device memory.
Example:
p0015 = 6 --> the macro file PM000006.ACX is run.

Dependency: Refer to: p0700, p1000, p1500, r8570

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

When executing a specific macro, the corresponding programmed settings are made and become active.

No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

p0016 Activate BOP user-defined list / BOP user list act

| | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1, U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
|--|--|--|---|

Description: Setting for activating/de-activating the user-defined list for the Basic Operator Panel (BOP).
If p0016 = 1, then it is only possible to access parameters in the parameter list (p0013).

Value: 0: BOP user-defined list de-activated
1: BOP user-defined list activated

Dependency: Refer to: p0011, p0012, p0013

Note: The user-defined list can only be de-activated with p0011 = p0012

r0018 Control Unit basic firmware version / CU Basic FW Vers

| | | | |
|--|--|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4294967295 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
|--|--|---|---|

Description: Displays the basic firmware version of the Control Unit.
The version of existing firmware on the device memory is displayed in r7844.

Dependency: Refer to: r0148, r0158, r0197, r0198, r7844

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

| | | | | |
|---|---|-----------------------------------|------------------------------|-------------------|
| r0019.0...14 | CO/BO: Control word BOP / STW BOP | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9912 | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the control word for the Basic Operator Panel (BOP). | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | ON / OFF (OFF1) | ON | OFF (OFF1) |
| | 01 | No coast-down / coast-down (OFF2) | No coast down | Coast down (OFF2) |
| | 02 | No Quick Stop / Quick Stop (OFF3) | No Quick Stop | Quick Stop (OFF3) |
| | 07 | Acknowledge fault (0 -> 1) | Yes | No |
| | 13 | Motorized potentiometer raise | Yes | No |
| | 14 | Motorized potentiometer lower | Yes | No |
| | | | | FP |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| r0020 | Speed setpoint smoothed / n_set smth | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 | |
| | P-Group: Displays, signals | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Displays the actual smoothed speed setpoint at the speed controller input. | | | |
| Dependency: | Refer to: r0060 | | | |
| Note: | Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The speed setpoint is available smoothed (r0020) and unsmoothed (r0060). | | | |
| r0021 | CO: Actual speed smoothed / n_act smooth | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 | |
| | P-Group: Displays, signals | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Displays the smoothed actual value of the motor speed. | | | |
| Dependency: | Refer to: r0022, p0045, r0063 | | | |
| Note: | Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The speed actual value is available smoothed (r0021, r0022, r0063[1] with p0045) and unsmoothed (r0063[0]). | | | |
| r0022 | Speed actual value rpm smoothed / n_act rpm smooth | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Displays the smoothed actual value of the motor speed. r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over. | | | |
| Dependency: | Refer to: r0021, p0045, r0063 | | | |

2 Parameters

2.2 List of parameters

Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
The speed actual value is available smoothed (r0021, r0022, r0063[1] with p0045) and unsmoothed (r0063[0]).

| | | | |
|---|--|-----------------------|----------------------------|
| r0027 | CO: Absolute actual current smoothed / I_act abs val smth | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2002 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [A] | - [A] | - [A] |
| Description: | Displays the smoothed absolute actual current value. | | |
| Dependency: | Refer to: p0045, r0068 | | |
| Notice: | This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used. | | |
| Note: | Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The absolute value of the current actual value is available smoothed (r0027, r0068[1] with p0045) and unsmoothed (r0068[0]). | | |

| | | | |
|---|---|------------------------|------------------------------|
| r0031 | Actual torque smoothed / M_act smooth | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: Displays, signals | Unit group: 7_1 | Unit selection: p0505 |
| | Not for motor type: - | Scaling: p2003 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [Nm] | - [Nm] | - [Nm] |
| Description: | Displays the smoothed torque actual value. | | |
| Dependency: | Refer to: p0045, r0080 | | |
| Note: | Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The torque actual value is available smoothed (r0031, r0080[1] with p0045) and unsmoothed (r0080[0]). | | |

| | | | |
|---|--|--------------------------|------------------------------|
| r0032 | CO: Active power actual value smoothed / P_actv_act smth | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2450 |
| | P-Group: Displays, signals | Unit group: 14_10 | Unit selection: p0505 |
| | Not for motor type: - | Scaling: r2004 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [kW] | - [kW] | - [kW] |
| Description: | Displays the smoothed actual value of the active power. | | |
| Notice: | This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used. | | |
| Note: | Smoothing time constant = 100 ms The active power is available smoothed (r0032, r0082[1] with p0045) and unsmoothed (r0082[0]). | | |

| r0035 | | CO: Motor temperature / Mot temp | |
|---|--|---|----------------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 7008, 8017 |
| | P-Group: Displays, signals | Unit group: 21_1 | Unit selection: p0505 |
| | Not for motor type: - | Scaling: p2006 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |
| Description: | Display and connector output for the actual temperature in the motor. | | |
| Note: | For r0035 not equal to -200.0 °C, the following applies: - this temperature display is valid. - a KTY sensor is connected. For r0035 equal to -200.0 °C, the following applies: - this temperature display is not valid (temperature sensor error). - A PTC sensor or bimetallic NC contact is connected. | | |

| p0045 | | Display values smoothing time constant / Disp_val T_smooth | |
|---|--|---|----------------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810, 6850 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [ms] | 10000.00 [ms] | 1.00 [ms] |
| Description: | Sets the smoothing time constant for the following display values: r0063[1], r0068[1], r0080[1], r0082[1] | | |

| r0046.0...31 | | CO/BO: Missing enable sig / Missing enable sig | | | |
|---|--|---|----------------------------|-----------------|-----------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 2655 | | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output for missing enable signals that are preventing the closed-loop drive control from being commissioned. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | OFF1 enable missing | Yes | No | - |
| | 01 | OFF2 enable missing | Yes | No | - |
| | 02 | OFF3 enable missing | Yes | No | - |
| | 03 | Operation enable missing | Yes | No | - |
| | 10 | Ramp-function generator enable missing | Yes | No | - |
| | 11 | Ramp-function generator start missing | Yes | No | - |
| | 12 | Setpoint enable missing | Yes | No | - |
| | 16 | OFF1 enable internal missing | Yes | No | - |
| | 17 | OFF2 enable internal missing | Yes | No | - |
| | 18 | OFF3 enable internal missing | Yes | No | - |
| | 19 | Pulse enable internal missing | Yes | No | - |
| | 26 | Drive inactive or not operational | Yes | No | - |
| | 28 | Brake open missing | Yes | No | - |
| | 30 | Speed controller inhibited | Yes | No | - |
| | 31 | Jog setpoint active | Yes | No | - |
| Dependency: | Refer to: r0002 | | | | |
| Note: | The value r0046 = 0 indicates that all enable signals are present. Bit 00 = 1 (enable signal missing), if: - the signal source in p0840 is a 0 signal. - there is a "switching on inhibited". | | | | |

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Bit 01 = 1 (enable signal missing), if:

- the signal source in p0844 or p0845 is a 0 signal.

Bit 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching on inhibited" withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- the commissioning mode is selected (p0009 > 0 or p0010 > 0) or there is an OFF2 fault response or the OFF1 signal source (p0840) is changed.

r0049[0...3]

Encoder data set effective / EDS effective

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned8

Dyn. index: -

Func. diagram: 8565

P-Group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the effective Encoder Data Sets (EDS).

Index:

[0] = Reserved

[1] = Encoder 1 Encoder Data Set EDS effective

[2] = Encoder 2 Encoder Data Set EDS effective

[3] = -

Dependency:

Refer to: p0187, p0188

Note:

Value 99 means the following: No encoder assigned (not configured).

r0050.0

CO/BO: Command Data Set CDS effective / CDS effective

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned8

Dyn. index: -

Func. diagram: 8560

P-Group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the effective Command Data Set (CDS).

Bit field:

Bit **Signal name**

1 signal

0 signal

FP

00 CDS eff bit 0

ON

OFF

-

Dependency:

Refer to: p0810, r0836

Note:

The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.

r0051.0...1

CO/BO: Drive Data Set DDS effective / DDS effective

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned8

Dyn. index: -

Func. diagram: 8565

P-Group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the effective Drive Data Set (DDS).

Bit field:

Bit **Signal name**

1 signal

0 signal

FP

00 DDS eff bit 0

ON

OFF

-

01 DDS eff bit 1

ON

OFF

-

Dependency:

Refer to: p0820, p0821, r0837

| | | | | |
|---|---|-------------------------|--|-----------------|
| r0056.13 | CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2526 | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and BICO output for the status word of the closed-loop control. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 13 | Current/torque limiting | Active | Inactive |
| | | | | FP |
| | | | | 6060 |
| r0060 | CO: Speed setpoint before the setpoint filter / n_set before filt. | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 | |
| | P-Group: Displays, signals | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Displays the actual speed setpoint at the speed controller input. | | | |
| Dependency: | Refer to: r0020 | | | |
| Note: | The speed setpoint is available smoothed (r0020) and unsmoothed (r0060). | | | |
| r0061[0...1] | CO: Actual speed unsmoothed / n_act unsmoothed | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 1580, 4710, 6810 | |
| | P-Group: Displays, signals | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Displays the unsmoothed actual speed values sensed by the encoders. | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 | | | |
| r0063[0...1] | CO: Speed actual value / n_act | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 | |
| | P-Group: Displays, signals | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Displays the actual speed actual value for speed control. | | | |
| Index: | [0] = Unsmoothed [1] = Smoothed with p0045 | | | |
| Dependency: | Refer to: r0021, r0022, p0045, r0061 | | | |
| Note: | The speed actual value is available smoothed (r0021 with 100 ms, r0022 with 100 ms, r0063 with p0045) and unsmoothed (r0063[0], r0061). | | | |

| | | | |
|---|--|-------------------------|------------------------------|
| r0068[0...1] | CO: Absolute current actual value / I_act abs val | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2002 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [A] | - [A] | - [A] |
| Description: | Displays actual absolute current. | | |
| Index: | [0] = Unsmoothed [1] = Smoothed with p0045 | | |
| Dependency: | Refer to: r0027, p0045 | | |
| Note: | The absolute value of the current actual value is available smoothed (r0027 with 100 ms, r0068[1] with p0045) and unsmoothed (r0068[0]). | | |
| r0080[0...1] | CO: Torque actual value / M_act | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: Displays, signals | Unit group: 7_1 | Unit selection: p0505 |
| | Not for motor type: - | Scaling: p2003 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [Nm] | - [Nm] | - [Nm] |
| Description: | Display and connector output for actual torque value. | | |
| Index: | [0] = Unsmoothed [1] = Smoothed with p0045 | | |
| Dependency: | Refer to: r0031, p0045 | | |
| Note: | The value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]). | | |
| r0082[0...1] | CO: Active power actual value / P_act | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Displays, signals | Unit group: 14_5 | Unit selection: p0505 |
| | Not for motor type: - | Scaling: r2004 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [kW] | - [kW] | - [kW] |
| Description: | Displays the instantaneous active power. | | |
| Index: | [0] = Unsmoothed [1] = Smoothed with p0045 | | |
| Dependency: | Refer to: r0032 | | |
| Note: | The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]). | | |
| p0097 | Select drive object type / Select DO type | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 15 | 0 |
| Description: | Executes an automatic device configuration. In so doing, p0099, p0107 and p0108 are appropriately set. | | |
| Value: | 0: No selection 15: Drive object type DC_CTRL | | |
| Dependency: | Refer to: r0098, p0099 | | |
| Note: | For p0097 = 0, p0099 is automatically set to the factory setting. | | |

| r0098[0...5] Actual device topology / Device_act topo | | | |
|---|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the automatically detected actual device topology in coded form. | | |
| Index: | [0] = DRIVE-CLiQ socket X100 [1] = DRIVE-CLiQ socket X101 [2...5] = Reserved | | |
| Dependency: | Refer to: p0097, p0099 | | |
| Note: | Topology coding: abcd efgh hex a = 0 b = 0 c = 0 d = no. of motor encoders e = no. of additional encoders f = number of Terminal Modules g = number of Terminal Boards h = reserved if the value 0 is displayed in all indices, then components are not detected via DRIVE-CLiQ. If a value F hex occurs at a position of the coding (abcd efgh hex), then an overflow has occurred. | | |
| p0099[0...5] Device target topology / Device_target topo | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning. De-activated or non-available components are also counted | | |
| Index: | [0] = DRIVE-CLiQ socket X100 [1] = DRIVE-CLiQ socket X101 [2...5] = Reserved | | |
| Dependency: | The parameter can only be written into for p0097 = 0. To perform an automatic device configuration run, an index of the device target topology must be set to the value of the device actual topology in r0098 for acknowledgement. An index of the device actual topology with a value other than 0 must be selected. Refer to: p0097, r0098 | | |
| Note: | The parameter can only be set to the values 0, the value of the actual device topology, the value of the actual device target topology and FFFFFFFF hex. If the value 0 is displayed in all of the indices, then the system has still not been commissioned. The value FFFFFFFF hex indicates that the topology was not generated by the automatic device configuration but was commissioned using the commissioning software (e.g. using parameter download). | | |

| | | | |
|--|---|--|---|
| p0101[0...n] | Drive object numbers / DO numbers | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) Data type: Unsigned16 P-Group: Topology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 62 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | The parameter contains the object number via which every drive object can be addressed. The number of an existing drive object is entered into each index. Value = 0: No drive object is defined. | | |
| Note: | The numbers are automatically allocated. For the commissioning software, this object number cannot be entered using the expert list, but is automatically assigned when inserting an object. | | |
| r0102[0...1] | Number of drive objects / DO count | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: Topology Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the number of existing or existing and prepared drive objects. | | |
| Index: | [0] = Existing drive objects [1] = Existing and prepared drive objects | | |
| Dependency: | Refer to: p0101 | | |
| Note: | The numbers of the drive objects are in p0101. Index 0: Displays the number of drive objects that have already been set up. Index 1: Displays the number of drive objects that have already been set up and, in addition, the drive objects that still have to be set up. | | |
| p0103[0...n] | Application-specific view / Appl_spec view | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(2) Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 999 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | The application-specific view of an existing drive object is entered into each index. The parameter cannot be changed. | | |
| Dependency: | Refer to: p0107, r0107 | | |
| Note: | The application-specific views are defined in files on the memory card with the following structure: PDxxxxyy.ACX xxx: Application-specific view (p0103) yyy: Type of drive object (p0107) Example: PD052017.ACX --> "017" stands for the drive object of type DC_CTRL --> "052" is the number of the view for this drive object | | |


| | | | |
|---|--|--|---|
| r0103 | Application-specific view / Appl_spec view | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Closed-loop control Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the application-specific view of the individual drive object. | | |
| Dependency: | Refer to: p0107, r0107 | | |
| p0105 | Activate/de-activate drive object / DO act/deact | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Setting to activate/de-activate a drive object. | | |
| Value: | 0: De-activate drive object 1: Activate drive object | | |
| Dependency: | Refer to: r0106 | | |
| Notice: | The following applies when activating: If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed. | | |
| p0105 | Activate/de-activate drive object / DO act/deact | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Integer16 P-Group: Closed-loop control Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Setting to activate/de-activate a drive object. | | |
| Value: | 0: De-activate drive object 1: Activate drive object 2: Drive object de-activate and not present | | |
| Recommendation: | After inserting all of the components of a drive object, before activating, first wait for Alarm A01316. | | |
| Dependency: | Refer to: r0106 | | |
| Notice: | The following applies when activating: If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed. | | |
| p0105 | Activate/de-activate drive object / DO act/deact | | |
| TM150, TM15DI_DO | Can be changed: T Data type: Integer16 P-Group: Closed-loop control Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Setting to activate/de-activate a drive object. | | |
| Value: | 0: De-activate drive object 1: Activate drive object 2: Drive object de-activate and not present | | |

Recommendation: After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.

Dependency: When activating drive objects with the safety functions enabled, the following applies:
After reactivating, a warm restart (p0009 = 30, p0976 = 2, 3) or POWER ON should be carried out.
Refer to: r0106

Notice: The following applies when activating:
If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

Note: Re value = 0, 2:
When a drive object is deactivated it no longer outputs any errors.
If value = 0:
All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.
If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.
If value = 1:
All components of the drive object must be available for error-free operation.
If value = 2:
Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.
For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

| p0105 | | Activate/de-activate drive object / DO act/deact | |
|---|---|---|--------------------------|
| TM31 | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 1 |
| Description: | Setting to activate/de-activate a drive object. | | |
| Value: | 0: De-activate drive object 1: Activate drive object 2: Drive object de-activate and not present | | |
| Recommendation: | After inserting all of the components of a drive object, before activating, first wait for Alarm A01316. | | |
| Dependency: | Refer to: r0106 | | |
| Warning: | A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while this parameter is being changed over. | | |
|  | | | |
| Notice: | The following applies when activating: If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed. | | |
| Note: | Re value = 0, 2: When a drive object is deactivated it no longer outputs any errors. If value = 0: All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error. If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all. If value = 1: All components of the drive object must be available for error-free operation. If value = 2: Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line. For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value. | | |

| | | | |
|---------------------|---|----------------------|--------------------------|
| r0106 | Drive object active/inactive / DO act/inact | | |
| All objects | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | - |
| Description: | Displays the "active/inactive" state of a drive object. | | |
| Value: | 0: Drive object inactive 1: Drive object active | | |
| Dependency: | Refer to: p0105 | | |

| | | | |
|--|---|----------------------|--------------------------|
| p0107[0...n] | Drive object type / DO type | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(2) | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 600 | 0 |
| Description: | The type of an existing drive object is entered into each index. | | |
| Value: | 0: - 1: SINAMICS S 2: SINAMICS G 3: SINAMICS I 4: SINAMICS NX/CX32 6: SINAMICS DC 9: SINAMICS S110 10: ACTIVE INFEED CONTROL 11: SERVO 12: VECTOR 13: VECTORMV 14: VECTORGL 15: VECTOR3P 16: VECTORSL 17: DC_CTRL 18: VECTORM2C 19: VECTORDM 20: SMART INFEED CONTROL 21: RENEWABLE INFEED CONTROL 30: BASIC INFEED CONTROL 35: BRAKE MODULE M2C 40: ACTIVE INFEED CONTROLMV 41: BASIC INFEED CONTROLMV 42: ACTIVE INFEED CONTROLM2C 51: SINAMICS G120 230 (SingleDO-Drive which combines Device+Vector) 52: SINAMICSG120 240_2 (SingleDO-Drive which combines Device+Vector) 53: SINAMICS_G120_CU250S_V (SingleDO Drive combines Device+Vector) 54: SINAMICSG120 G120D(SingleDO-Drive which combines Device+Vector) 55: SINAMICS_G120_CU250S_S (SingleDO Drive combines Device+Servo) 56: SINAMICSG110M (SingleDO-Drive which combines Device+Vector) 57: SINAMICS ET200 58: Link variant for Sinamics Microbasissystem 70: HLA 100: TB30 (Terminal Board) 102: SINAMICS MV 150: DRIVE-CLiQ Hub Module 200: TM31 (Terminal Module) 201: TM41 (Terminal Module) 202: TM17 High Feature (Terminal Module) 203: TM15 (Terminal Module) | | |

2 Parameters

2.2 List of parameters

204: TM15 (Terminal Module for SINAMICS)
 205: TM54F - Master (Terminal Module)
 206: TM54F - Slave (Terminal Module)
 207: TM120 (Terminal Module)
 208: TM150 (Terminal Module)
 254: CU-LINK
 300: ENCODER
 600: SINAMICS V60-G2 V80-G2

Dependency:

Refer to: p0103, r0103

Caution:

If you change this parameter and exit the device commissioning mode, then the complete software will be set up again and all of the previous drive parameter settings are deleted.



Note:

The number (p0101) and the associated drive object type are in the same index.

r0107

Drive object type / DO type

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S, TM150,
 TM15DI_DO, TM31

Can be changed: -

Calculated: -

Access level: 2

Data type: Integer16

Dyn. index: -

Func. diagram: -

P-Group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

600

-

Description:

Displays the type of each drive object.

Value:

0: -
 1: SINAMICS S
 2: SINAMICS G
 3: SINAMICS I
 4: SINAMICS NX/CX32
 6: SINAMICS DC
 9: SINAMICS S110
 10: ACTIVE INFEED CONTROL
 11: SERVO
 12: VECTOR
 13: VECTORMV
 14: VECTORGL
 15: VECTOR3P
 16: VECTORSL
 17: DC_CTRL
 18: VECTORM2C
 19: VECTORDM
 20: SMART INFEED CONTROL
 21: RENEWABLE INFEED CONTROL
 30: BASIC INFEED CONTROL
 35: BRAKE MODULE M2C
 40: ACTIVE INFEED CONTROLMV
 41: BASIC INFEED CONTROLMV
 42: ACTIVE INFEED CONTROLM2C
 51: SINAMICS G120 230 (SingleDO-Drive which combines Device+Vector)
 52: SINAMICSG120 240_2 (SingleDO-Drive which combines Device+Vector)
 53: SINAMICS_G120_CU250S_V (SingleDO Drive combines Device+Vector)
 54: SINAMICSG120 G120D(SingleDO-Drive which combines Device+Vector)
 55: SINAMICS_G120_CU250S_S (SingleDO Drive combines Device+Servo)
 56: SINAMICSG110M (SingleDO-Drive which combines Device+Vector)
 57: SINAMICS ET200
 58: Link variant for Sinamics Microbasissystem
 70: HLA
 100: TB30 (Terminal Board)
 102: SINAMICS MV
 150: DRIVE-CLiQ Hub Module
 200: TM31 (Terminal Module)
 201: TM41 (Terminal Module)
 202: TM17 High Feature (Terminal Module)
 203: TM15 (Terminal Module)
 204: TM15 (Terminal Module for SINAMICS)

205: TM54F - Master (Terminal Module)
 206: TM54F - Slave (Terminal Module)
 207: TM120 (Terminal Module)
 208: TM150 (Terminal Module)
 254: CU-LINK
 300: ENCODER
 600: SINAMICS V60-G2 V80-G2

Dependency: Refer to: p0103, r0103

p0108[0...n] Drive objects function module / DO fct_mod

| | | | |
|--|------------------------------|----------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(2) | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin |

Description: The function module of an existing drive object is entered into each index (also refer to p0101, p0107).
 The following bits are available for the Control Unit (Index 0):
 Bit 18: Free function blocks
 Bit 31: PROFINET
 For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0108 of the drive object.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |
| | 16 | Bit 16 | ON | OFF | - |
| | 17 | Bit 17 | ON | OFF | - |
| | 18 | Bit 18 | ON | OFF | - |
| | 19 | Bit 19 | ON | OFF | - |
| | 20 | Bit 20 | ON | OFF | - |
| | 21 | Bit 21 | ON | OFF | - |
| | 22 | Bit 22 | ON | OFF | - |
| | 23 | Bit 23 | ON | OFF | - |
| | 24 | Bit 24 | ON | OFF | - |
| | 25 | Bit 25 | ON | OFF | - |
| | 26 | Bit 26 | ON | OFF | - |
| | 27 | Bit 27 | ON | OFF | - |
| | 28 | Bit 28 | ON | OFF | - |
| | 29 | Bit 29 | ON | OFF | - |
| | 30 | Bit 30 | ON | OFF | - |
| | 31 | Bit 31 | ON | OFF | - |

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

| | | | | |
|---|---|---------------------------------|--------------------------|-----------------|
| r0108 | Drive objects function module / DO fct_mod | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the activated function module for the particular drive object. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 16 | Techn controller / Tech_ctrl | Activated | Not activated |
| | 18 | Free function blocks / FBLOCKS | Activated | Not activated |
| | 31 | PROFINET CBE20 / PROFINET CBE20 | Activated | Not activated |
| | | | | FP |
| | | | | - |
| | | | | - |
| | | | | - |
| Note: | A "function module" is a functional expansion of a drive object that can be activated when commissioning. | | | |
| r0108 | Drive objects function module / DO fct_mod | | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the activated function module for the particular drive object. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 18 | Free function blocks / FBLOCKS | Activated | Not activated |
| | 31 | PROFINET CBE20 / PROFINET CBE20 | Activated | Not activated |
| | | | | FP |
| | | | | - |
| | | | | - |
| Note: | A "function module" is a functional expansion of a drive object that can be activated when commissioning. | | | |
| r0110[0...2] | Basic sampling times / t_basis | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0.00 [µs] | 10000.00 [µs] | - [µs] | |
| Description: | Displays the basic sampling times. The sampling times are set using p0112 and p0115. The values for the basic sampling times are determined as a result of these settings. | | | |
| Index: | [0] = Basic sampling time 0 [1] = Basic sampling time 1 [2] = Basic sampling time 2 | | | |
| r0111 | Basic sampling time selection / t_basis sel | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | - | |
| Description: | Displays the selected basic sampling time for this drive object. | | | |
| Dependency: | Refer to: r0110 | | | |

| | | | |
|---|--|----------------------|--|
| r0111 | Basic sampling time selection / t_basis sel | | |
| TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | - |
| Description: | Displays the selected basic sampling time for this drive object. | | |
| Dependency: | Refer to: r0110 | | |
| Note: | For TB30 and the Terminal Module, this parameter has no significance. For TB30 and certain Terminal Modules, the sampling times can be set using p4099 (see description of p4099 for the Module in question). | | |
| p0112 | Sampling times pre-setting p0115 / t_sample for p0115 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(3) | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 3 |
| Description: | Pre-assignment of the sampling times in p0115. The clock cycles for the current controller / speed controller / - / setpoint channel / - / - / technology controller are defined as follows: p0112 = 3: 1000 / 2000 / - / 4000 / - / - / 4000 µs | | |
| Value: | 0: Expert 3: Standard | | |
| Note: | For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted. | | |
| p0115[0] | Sampling time for supplementary functions / t_samp suppl_fct | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(3) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [µs] | 16000.00 [µs] | 4000.00 [µs] |
| Description: | Sets the basic sampling time for supplementary functions (DCC, free function blocks) on this object. Only setting values that are an integer multiple of 125 µs are permissible. | | |
| Index: | [0] = Basic sampl time | | |
| p0115[0...6] | Sampling times for internal control loops / t_sample int ctrl | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(3) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1000.00 [µs] | 16000.00 [µs] | [0] 1000.00 [µs] [1] 2000.00 [µs] [2] 8000.00 [µs] [3] 4000.00 [µs] [4] 8000.00 [µs] [5] 8000.00 [µs] [6] 8000.00 [µs] |
| Description: | Sets the sampling times for the control loops. | | |


2 Parameters

2.2 List of parameters

| | |
|--------------------|---|
| | The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert). |
| Index: | [0] = Current controller [1] = Speed controller [2] = - [3] = Setpoint channel [4] = - [5] = - [6] = Techn controller |
| Dependency: | The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms. Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. p0115[1] = N * p0115[0]; where N is an integer number). The sampling time of the speed controller (p0115[1]) can have as a maximum a value of 800% of the current controller sampling time (p0115[0]). Refer to: r0110, r0111, p0112 |
| Note: | For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned. The current controller sampling time (p0115[0]) is permanently set to 1 ms and cannot be changed. |

| | | | |
|------------------------|---|----------------------|--------------------------|
| p0115[0] | Sampling time for supplementary functions / t_samp suppl_fct | | |
| TM150, TM15DI_DO, TM31 | Can be changed: C1(3) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [µs] | 16000.00 [µs] | 4000.00 [µs] |
| Description: | Sets the sampling times for supplementary functions (DCC, free function blocks) on this object. Only setting values that are an integer multiple of 125 µs are permissible. | | |
| Index: | [0] = Basic sampl time | | |
| Note: | This parameter only applies to set the sampling times of possible supplementary functions. The sampling times for inputs/outputs must be set in p4099. | | |

| | | | |
|---|--|----------------------|--------------------------|
| r0116[0...1] | Drive object clock cycle recommended / DO_clock recom | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [µs] | - [µs] | - [µs] |
| Description: | Displays the recommended sampling time for the drive objects. r00116[0] = recommended sampling time: Recommended value which would then make the complete system operational. r00116[1] = recommended sampling time: Recommended value, which after changing other clock cycles on the DRIVE-CLiQ line, would result in an operational system. | | |
| Index: | [0] = Change only for the actual drive object [1] = Changing all objects on the DRIVE-CLiQ line | | |
| Dependency: | Refer to: p0115 | | |

| | | | |
|---|---|--|---|
| p0121[0...n] | Power unit component number / PU comp_no | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: - Min 0 | Calculated: - Dyn. index: PDS Unit group: - Scaling: - Max 199 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | The power unit data set is assigned to a power unit using this parameter. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a power unit. | | |
| Dependency: | Refer to: p0107, r0107 | | |
| p0124[0...n] | Main component detection using LED / M_comp detect LED | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned8 P-Group: Converter Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Detection of the main components of the drive object selected via the index. | | |
| p0125[0...n] | Activate/de-activate power unit components / PU_comp act/deact | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(4), T Data type: Integer16 P-Group: Data sets Not for motor type: - Min 0 | Calculated: - Dyn. index: PDS Unit group: - Scaling: - Max 2 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Setting to activate/de-activate a power unit component. | | |
| Value: | 0: De-activate component 1: Activate component 2: Component de-activate and not present | | |
| Recommendation: | After inserting a component, before activating, first wait for Alarm A01317. | | |
| Caution: | For a parallel connection, the following applies:  When deactivating individual power units using p0125, it is not permissible that the power units of the parallel connection involved are connected. Infeed units should be disconnected from the line supply (for example, using a contactor). Motor feeder cables should be disconnected. In addition, defective power units should be disconnected from the DC link. | | |
| Notice: | It is not permissible to de-activate drive objects with safety functions enabled. | | |
| Note: | The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited. For units connected in parallel, when one of the power units is de-activated, then the enable in p7001 is withdrawn. Re value = 0, 2: When a component is deactivated it no longer outputs any errors. If value = 0: The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error. If value = 1: The component must be available for error-free operation. If value = 2: A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the component is marked to be bypassed in the DRIVE-CLiQ line. For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value. | | |

| | | | |
|---|---|-------------------------------|----------------------------------|
| p0140 | Number of Encoder Data Sets (EDS) / EDS count | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(3) | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 8570 |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 16 | 1 |
| Description: | Sets the number of Encoder Data Sets (EDS). | | |
| Note: | When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1). | | |
| p0141[0...n] | Encoder interface (Sensor Module) component number / Enc_interf comp_no | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: EDS, p0140 | Func. diagram: 4704, 8570 |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 199 | 0 |
| Description: | This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC). This unique component number is assigned when parameterizing the topology. Only a component number can be entered that corresponds to an encoder evaluation. | | |
| Note: | If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical. For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142). SMC: Sensor Module Cabinet | | |
| p0142[0...n] | Encoder component number / Encoder comp_no | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: EDS, p0140 | Func. diagram: 4704 |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 199 | 0 |
| Description: | This parameter is used to assign the encoder data set to an encoder. This assignment is made using the unique component number that was assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an encoder. | | |
| Note: | If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical. For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142). | | |
| p0144[0...n] | Sensor Module detection via LED / SM detection LED | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Detects the Sensor Module assigned to this drive and data set. | | |
| Note: | While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module. | | |

| p0145[0...n] | Activate/de-activate encoder interface / Enc_intf act/deact | | |
|---|--|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(4), U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 1 |
| Description: | Setting to activate/de-activate an encoder interface (Sensor Module). | | |
| Value: | 0: De-activate component 1: Activate component 2: Component de-activate and not present | | |
| Recommendation: | After inserting a component, before activating, first wait for Alarm A01317. | | |
| Dependency: | Refer to: r0146 | | |
| Note: | The de-activation of an encoder interface corresponds to the "parking encoder" function and has the same effect. The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited. With the encoder interface for encoder 1 (motor encoder), the relevant drive object for writing the parameter must be in the "Ready for operation" state. With the encoder interface for encoders 2 and 3, the parameter can also be written during operation. Re value = 0, 2: When a component is deactivated it no longer outputs any errors. If value = 0: The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error. If value = 1: The component must be available for error-free operation. If value = 2: A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start. For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value. | | |

| r0146[0...n] | Encoder interface active/inactive / Enc_intf act/inact | | |
|---|--|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | - |
| Description: | Displays the "active" or "inactive" state of an encoder interface (Sensor Module). | | |
| Value: | 0: Component inactive 1: Component active | | |
| Dependency: | Refer to: p0105, p0145, p0480 | | |

| r0147[0...n] | Sensor Module EEPROM data version / SM EEPROM version | | |
|---|---|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the version of the EEPROM data of the Sensor Module. | | |
| Dependency: | Refer to: r0157 | | |

2 Parameters

2.2 List of parameters

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

| r0148[0...n] | Sensor Module firmware version / SM FW version | | |
|---|--|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the firmware version of the Sensor Module. | | |
| Dependency: | Refer to: r0018, r0158, r0197, r0198 | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |

| p0151 | Terminal Module component number / TM comp_no | | |
|---------------------------|---|----------------------|--------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: C1(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 199 | 0 |
| Description: | Sets the component number for the Terminal Module. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a Terminal Module. | | |

| p0154 | Terminal Module detection via LED / TM detection LED | | |
|---------------------------|---|----------------------|--------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Detects the Terminal Module assigned to this drive and data set. | | |
| Note: | While p0154 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Terminal Module. | | |

| r0157 | Terminal Module EEPROM data version / TM EEPROM version | | |
|---------------------------|--|----------------------|--------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the version of the EEPROM data of the Terminal Module. | | |
| Dependency: | Refer to: r0147 | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |

| | | | |
|---|---|--|---|
| r0158 | Terminal Module firmware version / TM FW version | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned32 P-Group: Terminals Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the firmware version of the Terminal Module. | | |
| Dependency: | Refer to: r0018, r0148, r0197, r0198 | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |
| p0170 | Number of Command Data Sets (CDS) / CDS count | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(3) Data type: Unsigned8 P-Group: Commands Not for motor type: - Min 2 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2 |
| Description: | Sets the number of Command Data Sets (CDS). | | |
| Note: | It is possible to toggle between command parameters (BICO parameters) using this data set changeover. | | |
| p0180 | Number of Drive Data Sets (DDS) / DDS count | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: - Min 4 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4 | Access level: 2 Func. diagram: 8565 Unit selection: - Expert list: 1 Factory setting 4 |
| Description: | Sets the number of Drive Data Sets (DDS). | | |
| p0187[0...n] | Encoder 1 encoder data set number / Enc 1 EDS number | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 99 | Access level: 3 Func. diagram: 8570 Unit selection: - Expert list: 1 Factory setting 99 |
| Description: | Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 1. The value corresponds to the number of the assigned encoder data set. Example: Encoder data set 0 should be assigned to encoder 1 in drive data set 2. --> p0187[2] = 0 | | |
| Note: | A value of 99 means that no encoder has been assigned to this drive data set (not configured). | | |

| | | | |
|-----------------------|---|-------------------------------|----------------------------|
| p0188[0...n] | Encoder 2 encoder data set number / Enc 2 EDS number | | |
| DC_CTRL, DC_CTRL_R | Can be changed: C1(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: DDS, p0180 | Func. diagram: 8570 |
| | P-Group: Data sets | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 99 | 99 |
| Description: | Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 2. The value corresponds to the number of the assigned encoder data set. Example: Encoder data set 1 should be assigned to encoder 2 in drive data set 2. --> p0188[2] = 1 | | |
| Note: | A value of 99 means that no encoder has been assigned to this drive data set (not configured). | | |

| | | | |
|--|--|----------------------|--------------------------|
| r0196[0...255] | Topology component status / Top comp stat | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the status of the components.
r0196[0]: group status of all components
r0196[1]: Status of component with component number 1
...
r0196[255]: Status of component with component number 255

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--------------------------------|----------|------------------|----|
| | 00 | Component status bit 0 | High | Low | - |
| | 01 | Component status bit 1 | High | Low | - |
| | 02 | Component status bit 2 | High | Low | - |
| | 03 | Component status bit 3 | High | Low | - |
| | 04 | Component state | Active | Inactive/parking | - |
| | 07 | Part of the target topology | Yes | No only act topo | - |
| | 08 | Alarm present | Yes | No | - |
| | 09 | Safety message present | Yes | No | - |
| | 10 | Fault present | Yes | No | - |
| | 11 | Alarm class bit 0 | High | Low | - |
| | 12 | Alarm class bit 1 | High | Low | - |
| | 13 | Maintenance required | Yes | No | - |
| | 14 | Maintenance urgently required | Yes | No | - |
| | 15 | Fault gone/can be acknowledged | Yes | No | - |

Note: Re bit 03 ... 00:
Bit 3, 2, 1, 0 = 0, 0, 0, 0 --> component not available.
Bit 3, 2, 1, 0 = 0, 0, 0, 1 --> power-up, non-cyclic DRIVE-CLiQ communication (LED = orange).
Bit 3, 2, 1, 0 = 0, 0, 1, 0 --> operating mode, cyclic DRIVE-CLiQ communication (LED = green).
Bit 3, 2, 1, 0 = 0, 0, 1, 1 --> alarm (LED = green).
Bit 3, 2, 1, 0 = 0, 1, 0, 0 --> fault (LED = red).
Bit 3, 2, 1, 0 = 0, 1, 0, 1 --> detection via LED and operating mode (LED = green/orange).
Bit 3, 2, 1, 0 = 0, 1, 1, 0 --> detection via LED and alarm (LED = green/orange).
Bit 3, 2, 1, 0 = 0, 1, 1, 1 --> detection via LED and fault (LED = red/orange).
Bit 3, 2, 1, 0 = 1, 0, 0, 0 --> firmware being downloaded (LED = green/red with 0.5 Hz).
Bit 3, 2, 1, 0 = 1, 0, 0, 1 --> firmware download completed, wait for POWER ON (LED = green/red with 2.0 Hz).
Re bits 12 ... 11:
These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

| | | | |
|--|--|--|---|
| r0197[0...1] | Bootloader version / Bootloader vers | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Closed-loop control Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the bootloader version. Index 0: Displays the bootloader version. Index 1: Displays the bootloader version 3 (for CU320-2 and CU310-2) Value 0 means that boot loader 3 is not available. | | |
| Dependency: | Refer to: r0018, r0148, r0158, r0198 | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |
| r0198[0...2] | BIOS/EEPROM data version / BIOS/EEPROM vers | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Closed-loop control Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the BIOS and EEPROM data version. r0198[0]: BIOS version r0198[1]: EEPROM data version EEPROM 0 r0198[2]: EEPROM data version EEPROM 1 | | |
| Dependency: | Refer to: r0018, r0148, r0158, r0197 | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |
| p0199[0...24] | Drive object name / DO name | | |
| All objects | Can be changed: C1 Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Freely assignable name for a drive object. In the commissioning software, this name cannot be entered using the expert list, but is specified in the configuration assistant. The object name can be subsequently modified in the Project Navigator using standard Windows resources. | | |
| Note: | The parameter is not influenced by setting the factory setting. | | |

| r0200[0...n] | Power unit code number actual / PU code no. act | | |
|---|--|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: - Min - | Calculated: - Dyn. index: PDS Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the unique code number of the power unit. | | |
| Note: | r0200 = 0: No power unit found | | |

| p0201[0...n] | Power unit code number / PU code no | | |
|---|---|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2 Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: PDS Unit group: - Scaling: - Max 65535 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Code number of the power unit. Each time the system boots, the code number is transferred from the data of the power unit to r0200 and to p0201. | | |

| r0203[0...15] | Firmware package name / FW pkg name | | |
|--|---|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the name of the firmware package on the memory card/device memory. r0203[0]: Name character 1 ... r0203[15]: Name character 16 For the commissioning software, the ASCII characters are displayed uncoded. | | |
| Notice: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |

| p0340[0...n] | Automatic calculation motor/control parameters / Calc auto par | | |
|---|---|---|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(3), T Data type: Integer16 P-Group: Motor Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting to automatically calculate motor parameters and closed-loop control parameters from rating plate data. | | |
| Value: | 0: No calculation 1: Complete calculation | | |
| Notice: | After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0. | | |

| p0400[0...n] | Encoder type selection / Enc_typ sel | | |
|---|---|-------------------------------|----------------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: EDS, p0140 | Func. diagram: 1580, 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 20000 | 0 |
| Description: | Selects the encoder from the list of encoder types supported. | | |
| Value: | 0: No encoder 3001: 1024 HTL A/B R 3002: 1024 TTL A/B R 3003: 2048 HTL A/B R 3005: 1024 HTL A/B 3006: 1024 TTL A/B 3007: 2048 HTL A/B 3008: 2048 TTL A/B 3009: 1024 HTL A/B unipolar 3011: 2048 HTL A/B unipolar 3020: 2048 TTL A/B R, with sense 3081: SSI, Singleturn, 24 V 3082: SSI, Multiturn 4096, 24 V 3090: 4096, HTL, A/B, SSI, Singleturn 9999: User-defined 20000: Encoder from OEM encoder list | | |
| Notice: | An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list. When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to a third-party encoder (p0400 = 9999). | | |
| Note: | The connected encoder can be identified by p0400 = 10000. This assumes that the encoder supports this method, which is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface, DRIVE-CLiQ encoder. The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999. When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using a zero mark. If, for a synchronous motor, fine synchronization is to be realized using a zero mark, then the following must be executed: - set p0400 to 9999 - set p0404.15 to 1 Prerequisite: Coarse synchronization must be selected (e.g. pole position identification) and the zero pulse of the encoder must be either mechanically or electronically (p0431) adjusted to the pole position. For p0400 = 10000 the following applies: If an identification is not possible, then p0400 is set to 0. | | |

| p0401[0...n] | Encoder type OEM selection / Enc type OEM sel | | |
|---|--|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 32767 | 0 |
| Description: | Selects the encoder from the list of encoder types that the OEM supports. | | |
| Note: | The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface. If an identification is not possible, then p0400 is set to 0. The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999. Using p0400 = 20000, the encoder type can be selected from the list of OEM encoders using p0401. | | |

| p0402[0...n] | Gearbox type selection / Gearbox type sel | | |
|---|---|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 10100 | 9999 |
| Description: | Selects the gearbox type to pre-set the inversion and the gearbox factor. Measuring gear factor = motor or load revolutions / encoder revolutions. | | |
| Value: | 1: Gearbox 1:1 not inverted 2: Gearbox 2:7 inverted 3: Gearbox 4:17 inverted 4: Gearbox 2:10 inverted 9999: Gearbox user-defined 10000: Identify gearbox 10100: Identify gearbox | | |
| Dependency: | Refer to: p0410, p0432, p0433 | | |
| Note: | Re p0402 = 1: Automatic setting of p0410 = 0000 bin, p0432 = 1, p0433 = 1. Re p0402 = 2: Automatic setting of p0410 = 0011 bin, p0432 = 7, p0433 = 2. Re p0402 = 3: Automatic setting of p0410 = 0011 bin, p0432 = 17, p0433 = 4. Re p0402 = 4: Automatic setting of p0410 = 0011 bin, p0432 = 10, p0433 = 2. Re p0402 = 9999: No automatic setting of p0410, p0432, p0433. The parameters should be manually set. Re p0402 = 10000: It is only possible to identify the gearbox type for a motor with DRIVE-CLiQ. Parameters p0410, p0432 and p0433 are set corresponding to the identified gearbox. If an identification is not possible, then p0402 is set to 9999. | | |

| p0404[0...n] | Encoder configuration effective / Enc_config eff | | | | |
|---|---|--------------------------------------|--|-----------------|-----------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin | | |
| Description: | Settings for the basic encoder properties. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Linear encoder | Yes | No | - |
| | 01 | Absolute encoder | Yes | No | - |
| | 02 | Multiturn encoder | Yes | No | - |
| | 03 | Track A/B sq-wave | Yes | No | - |
| | 04 | Track A/B sine | Yes | No | - |
| | 05 | Track C/D | Yes | No | - |
| | 06 | Hall sensor | Yes | No | - |
| | 08 | EnDat encoder | Yes | No | - |
| | 09 | SSI encoder | Yes | No | - |
| | 10 | DRIVE-CLiQ encoder | Yes | No | - |
| | 11 | Digital encoder | Yes | No | - |
| | 12 | Equidistant zero mark | Yes | No | - |
| | 13 | Irregular zero mark | Yes | No | - |
| | 14 | Distance-coded zero mark | Yes | No | - |
| | 15 | Commutation with zero mark (not ASM) | Yes | No | - |
| | 16 | Acceleration | Yes | No | - |

| | | | | |
|----|---------------------------|-----|----|---|
| 17 | Track A/B analog | Yes | No | - |
| 20 | Voltage level 5 V | Yes | No | - |
| 21 | Voltage level 24 V | Yes | No | - |
| 22 | Remote sense (only SMC30) | Yes | No | - |
| 23 | Resolver excit | Yes | No | - |

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: ZM: Zero mark
SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:
The track A/B is adjusted to match the magnetic position of the motor.

Re bit 01, 02 (absolute encoder, multiturn encoder):
These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.

Re bit 10 (DRIVE-CLiQ encoder):
This bit is only used for the large-scale integrated DRIVE-CLiQ encoders that provide their encoder data directly in DRIVE-CLiQ format without converting this data. This bit is not, therefore, set for first-generation DRIVE-CLiQ encoders.

Re bit 12 (equidistant zero mark):
The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution or linear encoder with constant zero mark distance).
The bit activates monitoring of the zero mark distance (p0424/p0425, linear/rotary) or in the case of the linear encoder with 1 zero mark and p0424 = 0 zero mark monitoring is activated.

Re bit 13 (irregular zero mark):
The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark distance is not monitored.

Re bit 14 (distance-coded zero mark):
The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

Re bit 15 (commutation with zero mark):
Only applicable for synchronous motors.
The function can be de-selected by priority via p0430.23.
For distance-coded zero marks, the following applies:
The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).
The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.
The fine synchronization is only started after two zero marks have been passed.

| p0405[0...n] | Square-wave encoder track A/B / Sq-wave enc A/B | | |
|---|---|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 1111 bin |

Description: Settings for the track A/B in a square-wave encoder.
For square-wave encoders, p0404.3 must also be 1.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---------------------|-------------------|---------------|----|
| | 00 | Signal | Bipolar | Unipolar | - |
| | 01 | Level | TTL | HTL | - |
| | 02 | Track monitoring | A/B <> -A/B | None | - |
| | 03 | Zero pulse | Same as A/B track | 24 V unipolar | - |
| | 04 | Switching threshold | High | Low | - |
| | 05 | Pulse/direction | Active | Inactive | - |

2 Parameters

2.2 List of parameters

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: Re bit 02:
When the function is activated, track monitoring can be de-activated by setting p0437.26.
Re bit 05:

When the function is activated, a frequency setpoint and a direction for traveling can be entered via an encoder interface.

p0407[0...n] Linear encoder grid division / Enc grid div

| | | | |
|---|------------------------------|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [nm] | 250000000 [nm] | 16000 [nm] |

Description: Sets the grid division for a linear encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The lowest permissible value is 250 nm.

p0408[0...n] Rotary encoder pulse number / Rot enc pulse No.

| | | | |
|---|------------------------------|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 16777215 | 2048 |

Description: Sets the number of pulses for a rotary encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The number of pole pairs for a resolver is entered here.
The smallest permissible value is 1 pulse.

p0410[0...n] Encoder inversion actual value / Enc inv act value

| | | | |
|---|------------------------------|-------------------------------|----------------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: 4710, 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 bin |

Description: Setting to invert actual values.


| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|------------------------------|-----------------|-----------------|-----------|
| | 00 | Invert speed actual value | Yes | No | 4710 |
| | 01 | Invert position actual value | Yes | No | 4704 |

Note: The inversion influences the following parameters:

Bit 00: r0061, r0094
Bit 01: r0482, r0483

| p0411[0...n] | | Measuring gear configuration / Meas gear config | | |
|---|--|---|---|-----------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: 4704 Unit selection: - Expert list: 1 Factory setting 0000 bin | |
| Description: | Sets the configuration for position tracking of a measuring gear. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Measuring gear activate position tracking | Yes | No |
| | 01 | Axis type | Linear axis | Rotary axis |
| | 02 | Measuring gear reset position | Yes | No |
| | 03 | Meas. gearbox, activate pos. tracking for incremental encoders | Yes | No |
| Notice: | For p0411.3 = 1 the following applies: If position tracking is activated for incremental encoders, only the position actual value is stored. Axis or encoder motion is not detected when de-activated! Any tolerance window entered in p0413 has no effect. | | | |
| Note: | For the following events, the non-volatile, saved position values are automatically reset: - when an encoder replacement has been identified. - when changing the configuration of the Encoder Data Set (EDS). | | | |

| p0412[0...n] | | Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev | | |
|---|--|---|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 4194303 | Access level: 1 Func. diagram: 4704 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the number of rotations that can be resolved for a rotary encoder with activated position tracking of the measuring gear. | | | |
| Dependency: | This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking (p0411.0 = 1) and for an incremental encoder with activated position tracking (p0411.3 = 1). | | | |
| Note: | The resolution that is set must be able to be represented using r0483. For rotary axes/modulo axes, the following applies: p0411.0 = 1: This parameter is pre-set with p0421 and can be changed. p0411.3 = 1: The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419). For linear axes, the following applies: p0411.0 = 1: This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed. p0411.3 = 1: The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419). | | | |

| | | | |
|---|--|-------------------------------|--------------------------|
| p0413[0...n] | Measuring gear position tracking tolerance window / Pos track window | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 | 4294967300.00 | 0.00 |
| Description: | Sets a tolerance window for position tracking. After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated: Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value. Difference outside the tolerance window --> An appropriate message is output. Rotation, e.g. through a complete encoder range is not detected. | | |
| Caution: | | | |
|  | | | |
| Note: | The value is entered in integer (complete) encoder pulses. For p0411.0 = 1, the value is automatically pre-assigned quarter of the encoder range. Example: Quarter of the encoder range = (p0408 * p0421) / 4 It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa). | | |
| p0414[0...n] | Redundant coarse position value relevant bits (identified) / Relevant bits | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 16 | 16 |
| Description: | Sets the number of relevant bits for the redundant coarse position value. | | |
| p0415[0...n] | Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 31 | 14 |
| Description: | Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position. | | |
| Note: | MSB: Most Significant Bit | | |
| p0416[0...n] | Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 4294967295 | 22000 |
| Description: | Sets the non safety-relevant measuring steps of POS1. | | |
| Dependency: | Refer to: r0473 | | |

| | | | |
|---|--|-------------------------------|----------------------------------|
| p0417[0...n] | Encoder safety comparison algorithm (detected) / Safety comp_algo | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 255 | 255 |
| Description: | Sets the comparison algorithm for the encoder position monitoring functions. | | |
| Value: | 0: SMx20 safety algorithm 10: DQL binary safety algorithm 11: DQL linear non-binary safety algorithm 12: SMC30 safety algorithm 255: Safety algorithm unknown | | |
| p0418[0...n] | Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: EDS, p0140 | Func. diagram: 1580, 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 2 | 18 | 11 |
| Description: | Sets the fine resolution in bits of the incremental position actual values. | | |
| Note: | The parameter applies for the following process data: - Gx_XIST1 - Gx_XIST2 for reference mark or flying measurement The fine resolution specifies the fraction between two encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048). For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information. For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy. | | |
| p0419[0...n] | Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: EDS, p0140 | Func. diagram: 1580, 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 2 | 18 | 9 |
| Description: | Sets the fine resolution in bits of the absolute position actual values. | | |
| Dependency: | Refer to: p0418 | | |
| Note: | This parameter applies to process data Gx_XIST2 when reading the absolute value. | | |
| p0420[0...n] | Encoder connection / Enc_connection | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 bin |
| Description: | Selecting the encoder connection. | | |

2 Parameters

2.2 List of parameters

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|---|---|-------------------------------|----------------------------|----------|----|
| | 00 | SUB-D | Yes | No | - |
| | 01 | Terminal | Yes | No | - |
| <hr/> | | | | | |
| p0421[0...n] | Absolute encoder rotary multiturn resolution / Enc abs multiturn | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 | 4294967295 | 4096 | | |
| Description: | Sets the number of rotations that can be resolved for a rotary absolute encoder. | | | | |
| Notice: | This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection. | | | | |
| <hr/> | | | | | |
| p0422[0...n] | Absolute encoder linear measuring step resolution / Enc abs meas step | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 [nm] | 4294967295 [nm] | 100 [nm] | | |
| Description: | Sets the resolution of the absolute position for a linear absolute encoder. | | | | |
| Notice: | This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection. | | | | |
| Note: | The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here. | | | | |
| <hr/> | | | | | |
| p0423[0...n] | Absolute encoder rotary singleturn resolution / Enc abs singleturn | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704 | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 | 1073741823 | 8192 | | |
| Description: | Sets the number of measuring steps per revolution for a rotary absolute encoder. The resolution refers to the absolute position. | | | | |
| Notice: | This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection. | | | | |
| <hr/> | | | | | |
| p0424[0...n] | Encoder linear zero mark distance / Enc lin ZM_dist | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 [mm] | 65535 [mm] | 20 [mm] | | |
| Description: | Sets the distance between two zero marks for a linear encoder. This information is used for zero mark monitoring. | | | | |

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For distance-coded zero marks, this means the basic distance.

| | | | |
|---|--|-------------------------------|----------------------------------|
| p0425[0...n] | Encoder rotary zero mark distance / Enc rot dist ZM | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: 4704, 8570 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 16777215 | 2048 |

Description: Sets the distance in pulses between two zero marks for a rotary encoder. This information is used for zero mark monitoring.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For distance-coded zero marks, this means the basic distance.

| | | | |
|---|--|-------------------------------|--------------------------|
| p0426[0...n] | Encoder zero mark differential distance / Enc ZM Dif_dist | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 65535 | 1 |

Description: Sets the differential distance with distance-coded zero marks [signal periods]. The value corresponds to jump displacement of "zero mark with interference".

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

| | | | |
|---|--|-------------------------------|--------------------------|
| p0427[0...n] | Encoder SSI baud rate / Enc SSI baud rate | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [kHz] | 65535 [kHz] | 100 [kHz] |

Description: Sets the baud rate for an SSI encoder.

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: SSI: Synchronous Serial Interface

| | | | |
|---|---|-------------------------------|--------------------------|
| p0428[0...n] | Encoder SSI monoflop time / Enc SSI t_monoflop | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [µs] | 65535 [µs] | 30 [µs] |

Description: Sets the minimum delay time between two data transfers of the absolute value for an SSI encoder.

2 Parameters

2.2 List of parameters

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

| p0429[0...n] | Encoder SSI configuration / Enc SSI config | | |
|---|--|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 bin |

Description: Sets the configuration for an SSI encoder.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|------------------------------------|-------------|-----------|----|
| | 00 | Transfer code | Binary code | Gray code | - |
| | 02 | Transfer absolute value twice | Yes | No | - |
| | 06 | Data line during the monoflop time | High level | Low level | - |

Notice: This parameter is automatically pre-set for encoders from the encoder list (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: Re bit 06:
The quiescent signal level of the data line corresponds to the inverted, set level.

| p0430[0...n] | Sensor Module configuration / SM config | | |
|---|---|-------------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1110 0000 0000 1000 0000 0000 0000 0000 bin |

Description: Sets the configuration of the Sensor Module.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--|------------------|-----------------|----|
| | 17 | Burst oversampling | Yes | No | - |
| | 18 | Continuous oversampling (reserved) | Yes | No | - |
| | 19 | Safety position actual value sensing | Yes | No | - |
| | 20 | Speed calculation mode (only SMC30) | Incremental diff | Flank time meas | - |
| | 21 | Zero mark tolerance | Yes | No | - |
| | 22 | Rot pos adapt | Yes | No | - |
| | 23 | De-select commutation with zero mark | Yes | No | - |
| | 24 | Commutation with selected zero mark | Yes | No | - |
| | 25 | Switch off encoder voltage supply during parking | Yes | No | - |
| | 27 | Extrapolate position values | Yes | No | - |
| | 28 | Cubic correction | Yes | No | - |
| | 29 | Phase correction | Yes | No | - |
| | 30 | Amplitude correction | Yes | No | - |
| | 31 | Offset correction | Yes | No | - |

Notice: A bit-wise configuration is only possible if the corresponding property is also present in r0458.

Note: Re bit 17 (burst oversampling):
- if bit = 1, burst oversampling is switched on.

Re bit 18 (continuous oversampling):
- if bit = 1, continuous oversampling is switched on.

Re bit 19 (Safety position actual value sensing):
- if bit = 1, the Safety position actual value is transferred in the cyclic telegram.

Re bit 20 (speed calculation mode):
- if bit = 1, the speed is calculated via incremental difference without extrapolation.
- if bit = 0, the speed is calculated via edge time measurement with extrapolation. p0453 is effective in this mode.

Re bit 21 (zero mark tolerance):

- if bit = 1, a one-off zero mark distance error is tolerated. In the event of a defect, the fault F3x100/F3x101 does not appear, but alarm A3x400/A3x401 does.

Re bit 22 (rotor position adaptation):

- if bit = 1, the rotor position is corrected automatically. The correction speed is +/-1/4 encoder pulse per zero mark distance.

Re bit 23 (de-select commutation with zero mark):

- The bit should only be set for encoders that have not been adjusted.

Re bit 24 (commutation with selected zero mark):

- if bit = 1, the commutation position is corrected via a selected zero mark.

Re bit 25 (disconnect the encoder power supply on parking):

- if bit = 1, the encoder power supply is switched off on parking (0 V).

- if bit = 0, the encoder power supply is not switched off on parking, it is reduced from 24 V to 5 V.

Re bit 27 (extrapolate position values):

- if bit = 1, the extrapolation of the position values is activated.

Re bit 28 (cubic correction):

- if bit = 1, the cubic correction for track A/B sine is activated.

Re bit 29 (phase correction):

- if bit = 1, the phase correction for track A/B sine is activated.

Re bit 30 (amplitude correction):

- if bit = 1, the amplitude correction for track A/B sine is activated.

Re bit 31 (offset correction):

- if bit = 1, the offset correction for track A/B sine is activated.

p0431[0...n]

Angular commutation offset / Ang_com offset

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: FloatingPoint32

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-180.00 [°]

180.00 [°]

0.00 [°]

Description:

Sets the angular commutation offset.

Notice:

The angular commutation offset cannot be generally taken from other drive systems.

Note:

Angular commutation offset, angular difference between electrical position of encoder and flux position.

For p0404.5 = 1 (track C/D) the following applies:

The angular offset in p0431 acts on track A/B, the zero mark on track C/D.

For p0404.6 = 1 (Hall sensor) the following applies:

The angular offset in p0431 acts on track A/B and the zero mark.

p0432[0...n]

Gearbox factor encoder revolutions / Grbx_fact enc_rev

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: Integer16

Dyn. index: EDS, p0140

Func. diagram: 4704, 4710,
4711

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

1

10000

1

Description:

Sets the encoder revolutions for the gearbox factor of the encoder evaluation.

The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency:

This parameter can only be set for p0402 = 9999.

Refer to: p0402, p0410, p0433

Note:

Negative gearbox factors should be implemented with p0410.

| | | | |
|---|---|---|---|
| p0433[0...n] | Gearbox factor motor/load revolutions / Grbx_fact mot_rev | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Integer16 P-Group: Encoder Not for motor type: - Min 1 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 10000 | Access level: 3 Func. diagram: 4704, 4710, 4711 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the motor and load revolutions for the gearbox factor of the encoder evaluation. The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load. | | |
| Dependency: | This parameter can only be set for p0402 = 9999. Refer to: p0402, p0410, p0432 | | |
| Note: | Negative gearbox factors should be implemented with p0410. | | |
| p0434[0...n] | Encoder SSI error bit / Enc SSI error bit | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the position and level of the error bit in the SSI protocol. | | |
| Notice: | The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol. | | |
| Note: | Value = dcba ba: Position of the error bit in the protocol (0 ... 63). c: Level (0: Low level, 1: High level). d: Status of the evaluation (0: Off, 1: On with 1 error bit, 2: On with 2 error bits ... 9: On with 9 error bits). For several error error bits, the following applies: - the position specified under ba and the additional bits are assigned increasing consecutively. - the level set under c applies to all error bits. Example: p0434 = 1013 --> The evaluation is switched in and the error bit is at position 13 with a low level. p0434 = 1113 --> The evaluation is switched in and the error bit is at position 13 with a high level. | | |
| p0435[0...n] | Encoder SSI alarm bit / Enc SSI alarm bit | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the position and level of the alarm bit in the SSI protocol. | | |
| Notice: | The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol. | | |
| Note: | Value = dcba ba: Position of the alarm bit in protocol (0 ... 63). c: Level (0: Low level, 1: High level). d: State of the evaluation (0: Off, 1: On). | | |

Example:

p0435 = 1014

--> The evaluation is switched in and the alarm bit is at position 14 with a low level.

p0435 = 1114

--> The evaluation is switched in and the alarm bit is at position 14 with a high level.

| p0436[0...n] | Encoder SSI parity bit / Enc SSI parity bit | | |
|---|--|-------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the position and parity of the parity bit in the SSI protocol. | | |
| Notice: | The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol. | | |
| Note: | Value = dcba ba: Position of the parity bit in the protocol (0 ... 63). c: Parity (0: even, 1: uneven). d: State of the evaluation (0: Off, 1: On). Example: p0436 = 1015 --> The evaluation is switched in and the parity bit is at position 15 with even parity. p0436 = 1115 --> The evaluation is switched in and the parity bit is at position 15 with uneven parity. | | |

| p0437[0...n] | Sensor Module configuration extended / SM config ext | | | | |
|---|---|---|--|-----------------|-----------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | 0011 0000 0000 0000 0000 1000 0000 0000 bin | | |
| Description: | Sets the extended configuration of the Sensor Module. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Data logger | Yes | No | - |
| | 01 | Zero mark edge detection | Yes | No | - |
| | 02 | Correction position actual value XIST1 | Yes | No | - |
| | 04 | Edge evaluation bit 0 | Yes | No | - |
| | 05 | Edge evaluation bit 1 | Yes | No | - |
| | 06 | Freeze the speed actual value for dn/dt errors | Yes | No | - |
| | 07 | Accumulate uncorrected encoder pulses | Yes | No | - |
| | 11 | Fault handling after PROFIdrive | Yes | No | - |
| | 12 | Activate additional messages | Yes | No | - |
| | 13 | Support absolute position for incremental encoder | Yes | No | 4750 |
| | 25 | Deselect monitoring multiturn representation in G _x _XIST2 | Yes | No | - |
| | 26 | Deselect track monitoring | Yes | No | - |
| | 28 | EnDat linear encoder monitoring incremental/absolute | Yes | No | - |
| | 29 | EnDat encoder initialization with high accuracy | Yes | No | - |
| | 31 | Analog unipolar track monitoring | Yes | No | - |
| Dependency: | Refer to: p0430, r0459 | | | | |

2 Parameters

2.2 List of parameters

Note: A value of zero is displayed if an encoder is not present.

Re bit 00:
When the data logger (trace) is activated, in the case of a fault, data before and after the event are recorded (traced) and saved in files on the non-volatile memory medium. Experts can then evaluate this data.

Re bit 01:
If bit = 0, the zero mark is evaluated by ANDing tracks A and B and the zero mark.
For bit = 1, the zero mark is evaluated depending on the direction of rotation detected. For a positive direction of rotation, the positive edge of the zero mark is considered and for a negative direction of rotation, the negative edge of the zero mark.

Re bit 02:
If the bit is set, in the event of a deviation less than the tolerance window for the zero mark (p4681, p4682), the pulses per revolution are corrected. If the bit is not set, encoder fault F3x131 is triggered.

Re bits 05, 04:
The actual hardware only supports 1x or 4x signal evaluation.

Bit 5/4 = 0/0: Signal evaluation per period, 4x.
Bit 5/4 = 1/0: Illegal setting.
Bit 5/4 = 0/1: Signal evaluation per period, 1x.
Bit 5/4 = 1/1: Illegal setting.

Re bit 06:
If the function is active, when dn/dt monitoring responds, the speed actual value is internally frozen for a time equivalent to two current controller clock cycles. The rotor position continues to be integrated. The actual value is then re-enabled after this time has expired.

Re bit 07:
If the bit is set, the encoder pulses which have not been corrected are added to p4688 at the zero mark.

Re bit 11:
If the bit is set, the Sensor Module checks within a certain time grid whether the fault cause is still present. This enables the Sensor Module to switch from the fault state to the operating state and provide valid actual values automatically. The faults are displayed until the user acknowledges them.

Re bit 12:
Additional fault messages can be activated for extended fault diagnostics.

Re bit 13:
When the bit is set, for an incremental encoder with zero mark, the absolute value in Gn_XIST2 can be requested via Gn_STW.13.

Re bit 26:
Track monitoring is de-activated for the square-wave encoders when the bit is set, even if the monitoring function is selected in p0405.2.

Re bit 28:
Monitoring of the difference between incremental and absolute position in the case of linear encoders.

Re bit 29:
When the bit is set, the EnDat encoder is initialized under a certain speed and, therefore, with high accuracy. If initialization at a higher speed is requested, fault F31151, F32151, or F33151 is output.

Re bit 31:
When monitoring is active, the levels of the individual track signals and the corresponding inverted track signals are monitored separately.

p0438[0...n]

Squarewave encoder filter time / Enc t_filt

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: FloatingPoint32

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0.00 [µs]

100.00 [µs]

0.64 [µs]

Description:

Sets the filter time for a squarewave encoder.

The hardware of the squarewave encoder only supports the following values:

0: No filtering

0.04 µs

0.64 μ s
 2.56 μ s
 10.24 μ s
 20.48 μ s

Dependency:

Refer to: r0452

Notice:

If the filter time is too long, the track signals A/B/R may be suppressed and the appropriate messages output.

Note:

The most suitable filter time depends on the number of pulses and maximum speed of the square-wave encoder.
 The filter time is automatically corrected to the next value when entering a non-specified value. In this case, no message is output.
 The effective filter time is displayed in r0452.

p0439[0...n]**Encoder ramp-up time / Enc ramp-up time**

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: Unsigned16

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0 [ms]

65535 [ms]

0 [ms]

Description:

Sets the ramp-up time for the encoder.

The encoder supplies stable track signals once this time has elapsed.

Note:

This parameter is automatically pre-set for encoders from the encoder list (p0400).

p0440[0...n]**Copy encoder serial number / Copy enc ser_no**

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: Integer16

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

1

0

Description:

Copies the actual serial number of the encoder belonging to this Encoder Data Set (EDS) to p0441 ... p0445.

Example:

For p0440[0] = 1, the serial number of the encoder belonging to EDS0 is copied to p0441[0] ... p0445[0].

Value:

0: No action

1: Transfer serial number

Dependency:

Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Note:

For encoders with serial number, encoder replacement is monitored in order to request angular commutation calibration (adjustment) for motor encoders and absolute calibration for direct measuring systems with absolute value data. The serial number, which from then onwards is used for monitoring purposes, can be transferred using p0440.
 In the following cases, copying is automatically started in the following cases:

1.) When commissioning 1FT6, 1FK6, 1FK7 motors.

2.) When writing into p0431.

3.) For p1990 = 1.

p0440 is automatically set to 0 when the copying has been completed.

In order to permanently accept the copied values, it is necessary to save in a non-volatile fashion (p0977).

p0441[0...n]**Encoder commissioning serial number part 1 / Enc comm ser_no 1**

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: C2(4)

Calculated: CALC_MOD_ALL

Access level: 4

Data type: Unsigned32

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0000 hex

FFFF FFFF hex

0000 hex

Description:

Serial number part 1 of the encoder for the commissioning.

Dependency:

Refer to: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

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Note: A value of zero is displayed if an encoder is not present.

| | | | |
|---|--|---------------------------------|--------------------------|
| p0442[0...n] | Encoder commissioning serial number part 2 / Enc comm ser_no 2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: CALC_MOD_ALL | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Serial number part 2 of the encoder for the commissioning. | | |
| Dependency: | Refer to: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 | | |
| Note: | A value of zero is displayed if an encoder is not present. | | |

| | | | |
|---|--|---------------------------------|--------------------------|
| p0443[0...n] | Encoder commissioning serial number part 3 / Enc comm ser_no 3 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: CALC_MOD_ALL | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Serial number part 3 of the encoder for the commissioning. | | |
| Dependency: | Refer to: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464 | | |
| Note: | A value of zero is displayed if an encoder is not present. | | |

| | | | |
|---|--|---------------------------------|--------------------------|
| p0444[0...n] | Encoder commissioning serial number part 4 / Enc comm ser_no 4 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: CALC_MOD_ALL | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Serial number part 4 of the encoder for the commissioning. | | |
| Dependency: | Refer to: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464 | | |
| Note: | A value of zero is displayed if an encoder is not present. | | |

| | | | |
|---|--|---------------------------------|--------------------------|
| p0445[0...n] | Encoder commissioning serial number part 5 / Enc comm ser_no 5 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: CALC_MOD_ALL | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: EDS, p0140 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Serial number part 5 of the encoder for the commissioning. | | |
| Dependency: | Refer to: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464 | | |
| Note: | A value of zero is displayed if an encoder is not present. | | |

| r0452[0...2] | | Squarewave encoder filter time display / Enc t_filt displ | |
|---|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: Encoder Not for motor type: - Min - [µs] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [µs] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [µs] |

Description: Displays the effective filter time for a squarewave encoder.
The filter time is set using p0438.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: Refer to: p0438

Note: A value of zero is displayed if an encoder is not present.

| p0453[0...n] | | Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas | |
|---|---|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: - Min 0.10 [ms] | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 10000.00 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1000.00 [ms] |

Description: Sets the measuring time for evaluating zero speed.

If no pulses are detected from track A/B during this time, a speed actual value of zero is output.

Dependency: Refer to: r0452

Note: This function is required for slow-running motors so that actual speeds close to zero can be output correctly.

| r0455[0...2] | | Encoder configuration recognized / Enc config act | |
|---|--|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |

Description: Displays the detected encoder configuration.

In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------------------------|-----------------|-----------------|-----------|
| | 00 | Linear encoder | Yes | No | - |
| | 01 | Absolute encoder | Yes | No | - |
| | 02 | Multiturn encoder | Yes | No | - |
| | 03 | Track A/B sq-wave | Yes | No | - |
| | 04 | Track A/B sine | Yes | No | - |
| | 05 | Track C/D | Yes | No | - |
| | 06 | Hall sensor | Yes | No | - |
| | 08 | EnDat encoder | Yes | No | - |
| | 09 | SSI encoder | Yes | No | - |
| | 10 | DRIVE-CLiQ encoder | Yes | No | - |
| | 11 | Digital encoder | Yes | No | - |
| | 12 | Equidistant zero mark | Yes | No | - |
| | 13 | Irregular zero mark | Yes | No | - |
| | 14 | Distance-coded zero mark | Yes | No | - |
| | 15 | Commutation with zero mark (not ASM) | Yes | No | - |
| | 16 | Acceleration | Yes | No | - |

2 Parameters

2.2 List of parameters

| | | | | |
|----|---------------------------|-----|----|---|
| 17 | Track A/B analog | Yes | No | - |
| 20 | Voltage level 5 V | Yes | No | - |
| 21 | Voltage level 24 V | Yes | No | - |
| 22 | Remote sense (only SMC30) | Yes | No | - |
| 23 | Resolver excit | Yes | No | - |

Dependency:

Refer to: p0404

Note:

ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

Re bit 20, 21 (voltage level 5 V, voltage level 24 V):

The voltage level cannot be detected. Therefore, these bits are always set to 0.

r0456[0...2] Encoder configuration supported / Enc_config supp

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned32

Dyn. index: -

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the encoder configuration supported by the Sensor Module.

Index:

[0] = Encoder 1

[1] = Encoder 2

[2] = -

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|--------------------------------------|----------|----------|----|
| 00 | Linear encoder | Yes | No | - |
| 01 | Absolute encoder | Yes | No | - |
| 02 | Multiturn encoder | Yes | No | - |
| 03 | Track A/B sq-wave | Yes | No | - |
| 04 | Track A/B sine | Yes | No | - |
| 05 | Track C/D | Yes | No | - |
| 06 | Hall sensor | Yes | No | - |
| 08 | EnDat encoder | Yes | No | - |
| 09 | SSI encoder | Yes | No | - |
| 10 | DRIVE-CLiQ encoder | Yes | No | - |
| 11 | Digital encoder | Yes | No | - |
| 12 | Equidistant zero mark | Yes | No | - |
| 13 | Irregular zero mark | Yes | No | - |
| 14 | Distance-coded zero mark | Yes | No | - |
| 15 | Commutation with zero mark (not ASM) | Yes | No | - |
| 16 | Acceleration | Yes | No | - |
| 17 | Track A/B analog | Yes | No | - |
| 20 | Voltage level 5 V | Yes | No | - |
| 21 | Voltage level 24 V | Yes | No | - |
| 22 | Remote sense (only SMC30) | Yes | No | - |
| 23 | Resolver excit | Yes | No | - |

Dependency:

Refer to: p0404

Note:

ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

r0458[0...2] Sensor Module properties / SM properties

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned32

Dyn. index: -

Func. diagram: 4704

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Sets the Sensor Module configuration.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|---|-----------------|-----------------|-----------|
| | 00 | Encoder data available | Yes | No | - |
| | 01 | Motor data available | Yes | No | - |
| | 02 | Temperature sensor connection available | Yes | No | - |
| | 03 | Connection for PTC for motor with DRIVE-CLiQ also available | Yes | No | - |
| | 04 | Module temperature available | Yes | No | - |
| | 05 | Absolute encoder p0408/p0421 no power of 2 | Yes | No | - |
| | 06 | Sensor Module permits parking/unparking | Yes | No | - |
| | 07 | Hall sensor can be combined with actual value inversion | Yes | No | - |
| | 08 | Evaluation through several temperature channels possible | Yes | No | - |
| | 09 | Encoder fault and its associated information available | Yes | No | - |
| | 10 | Speed diagnostics in the Sensor Module | Yes | No | - |
| | 11 | Configuring without park state possible | Yes | No | - |
| | 12 | Extended functions available | Yes | No | - |
| | 13 | Extended encoder fault handling | Yes | No | - |
| | 14 | Extended singleturn/multiturn information available | Yes | No | - |
| | 15 | Evaluation function reserve | Yes | No | - |
| | 16 | Pole position identification | Yes | No | - |
| | 17 | Burst oversampling | Yes | No | - |
| | 18 | Continuous oversampling | Yes | No | - |
| | 19 | Safety position actual value sensing | Yes | No | - |
| | 20 | Extended speed calculation being used (only SMC30) | Yes | No | - |
| | 21 | Zero mark tolerance | Yes | No | - |
| | 22 | Rot pos adapt | Yes | No | - |
| | 23 | Commutation with zero mark can be de-selected | Yes | No | - |
| | 24 | Commutation with selected zero mark | Yes | No | - |
| | 25 | Disconnection of encoder power supply on parking supported | Yes | No | - |
| | 26 | Parking with temperature evaluation | Yes | No | - |
| | 27 | SSI position value extrapolation | Yes | No | - |
| | 28 | Cubic correction | Yes | No | - |
| | 29 | Phase correction | Yes | No | - |
| | 30 | Amplitude correction | Yes | No | - |
| | 31 | Offset correction | Yes | No | - |

Dependency: Refer to: p0437, p0601

Note: A value of zero is displayed if an encoder is not present.

Re bit 11:

When the property is set, the following parameters can be changed without the actual value in the encoder interface becoming invalid (state r0481.14 = 1 "parking encoder active"):

p0314, p0315, p0430, p0431, p0441, p0442, p0443, p0444, p0445

Re bit 12:

The extended functions can be configured using p0437.

Re bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

Re bit 14:

Only for internal Siemens use.

Re bit 23:

When the property is set, commutation with zero mark can be de-selected using p0430.23.

Re bit 24:

If the property is set, commutation to the selected zero mark can be carried out.

| r0459[0...2] | | Sensor Module properties extended / SM prop ext | | | |
|---|---|--|---|-----------------|-----------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | | |
| Description: | Displays the extended properties supported by the Sensor Module. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Data logger | Yes | No | - |
| | 01 | Zero mark edge detection | Yes | No | - |
| | 02 | Correction position actual value XIST1 | Yes | No | - |
| | 04 | Edge evaluation bit 0 | Yes | No | - |
| | 05 | Edge evaluation bit 1 | Yes | No | - |
| | 06 | Freeze the speed actual value for dn/dt errors | Yes | No | - |
| | 07 | Accumulate uncorrected encoder pulses | Yes | No | - |
| | 09 | Function p0426, p0439 supported | Yes | No | - |
| | 10 | Pulse/direction interface | Yes | No | - |
| | 11 | Fault handling after PROFIdrive | Yes | No | - |
| | 12 | Activate additional messages | Yes | No | - |
| | 13 | Absolute position for incremental encoder supported | Yes | No | - |
| | 14 | Spindle functionality | Yes | No | - |
| | 15 | Additional temperature sensor available | Yes | No | - |
| | 16 | Internal encoder temperature available | Yes | No | - |
| | 17 | Extended multiturn resolution | Yes | No | - |
| | 24 | Multiturn via battery | Yes | No | - |
| | 25 | Deselect monitoring multiturn representation in Gx_XIST2 | Yes | No | - |
| | 26 | Track monitoring de-selection | Yes | No | - |
| | 28 | EnDat linear encoder monitoring incremental/absolute | Yes | No | - |
| | 29 | EnDat encoder initialization with high accuracy | Yes | No | - |
| | 31 | Analog unipolar track monitoring | Yes | No | - |
| Dependency: | Refer to: p0437 | | | | |
| Note: | A value of zero is displayed if an encoder is not present. Re bit 09: Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module. | | | | |

| r0460[0...2] | | Encoder serial number part 1 / Enc ser_no 1 | | | |
|---|--|--|---|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | | |
| Description: | Displays the actual serial number part 1 of the appropriate encoder. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| Dependency: | Refer to: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464 | | | | |

| | | | |
|---|--|--|---|
| r0461[0...2] | Encoder serial number part 2 / Enc ser_no 2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the actual serial number part 2 of the appropriate encoder. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464 | | |
| r0462[0...2] | Encoder serial number part 3 / Enc ser_no 3 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the actual serial number part 3 of the appropriate encoder. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464 | | |
| r0463[0...2] | Encoder serial number part 4 / Enc ser_no 4 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the actual serial number part 4 of the appropriate encoder. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464 | | |
| r0464[0...2] | Encoder serial number part 5 / Enc ser_no 5 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the actual serial number part 5 of the appropriate encoder. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463 | | |

| | | | |
|---|--|---|--|
| r0465[0...27] | Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned8 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the identification/serial number of encoder 1. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number | | |
| Dependency: | Refer to: r0460, r0461, r0462, r0463, r0464 | | |
| Notice: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |
| Note: | The individual characters of the identification number/serial number are available coded as ASCII characters. | | |
| r0466[0...27] | Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned8 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the identification/serial number of encoder 2. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number | | |
| Dependency: | Refer to: r0460, r0461, r0462, r0463, r0464 | | |
| Notice: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |
| Note: | The individual characters of the identification number/serial number are available coded as ASCII characters. | | |
| r0469[0...2] | Absolute encoder linear measuring step / Enc lin meas step | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - [nm] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [nm] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [nm] |
| Description: | Displays the resolution of the absolute position for a linear absolute encoder. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3 | | |
| Dependency: | Refer to: p0422 | | |

| | | | |
|---|--|--|---|
| r0470[0...2] | Redundant coarse position value valid bits / Valid bits | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the valid bits of the redundant coarse position value. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| r0471[0...2] | Redundant coarse position value fine resolution bits / Fine bit | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Integer16 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the number of valid bits for the fine resolution of the redundant coarse position value. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| r0472[0...2] | Redundant coarse position value relevant bits / Relevant bits | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the number of relevant bits for the redundant coarse position value. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| r0473[0...2] | Non safety-relevant measuring steps position value pos1 / nsrPos1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the non safety-relevant measuring steps of POS1. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3 | | |
| Dependency: | Refer to: p0416 | | |

2 Parameters

2.2 List of parameters

| | | | | | |
|---|---|--|----------------------------|-----------------|-----------|
| r0474[0...2] | Redundant coarse position value configuration / Red pos config | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the encoder configuration for the redundant coarse position value. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Incrementer | Yes | No | - |
| | 01 | Encoder CRC least significant byte first | Yes | No | - |
| | 02 | Redundant coarse position val. most significant bit left-aligned | Yes | No | - |
| | 04 | Binary comparison not possible | Yes | No | - |
| r0475[0...2] | Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| Note: | MSB: Most Significant Bit | | | | |
| r0477[0...2] | CO: Measuring gear position difference / Meas gear pos diff | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the position difference before the measuring gear between powering down and powering up. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| Note: | The increments are displayed in the format the same as r0483. The position difference should be read in encoder increments. | | | | |
| r0479[0...2] | CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1 | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: 4704 | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics. | | | | |

In contrast to r0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

Index:

[0] = Encoder 1
[1] = Encoder 2
[2] = -

Caution:

Following ramping-up or after a data set changeover, the new value is present at connector inputs which are interconnected to connector output r0479 and under certain circumstances take 100 ms to become available.

Reason:

These interconnections are updated in the background, unlike interconnections involving other connector outputs (e.g. CO: r0482).

The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

p0480[0...2]**CI: Encoder control word Gn_STW signal source / Enc Gn_STW S_src**

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32 / Integer16

Dyn. index: -

Func. diagram: 1580, 4720,
4750

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description:

Sets the signal source for the encoder control word Gn_STW according to PROFIdrive.

Index:

[0] = Encoder 1
[1] = Encoder 2
[2] = -

Note:

When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:

CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

r0481[0...2]**CO: Encoder status word Gn_ZSW / Enc Gn_ZSW**

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dyn. index: -

Func. diagram: 4704, 4730

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the encoder status word Gn_ZSW according to PROFIdrive.

Index:

[0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|----------------------------------|--------------------|-------------|------|
| 00 | Function 1 active | Yes | No | - |
| 01 | Function 2 active | Yes | No | - |
| 02 | Function 3 active | Yes | No | - |
| 03 | Function 4 active | Yes | No | - |
| 04 | Value 1 | Displayed in r0483 | Not present | - |
| 05 | Value 2 | Displayed in r0483 | Not present | - |
| 06 | Value 3 | Displayed in r0483 | Not present | - |
| 07 | Value 4 | Displayed in r0483 | Not present | - |
| 08 | Measuring probe 1 deflected | Yes | No | - |
| 09 | Measuring probe 2 deflected | Yes | No | - |
| 11 | Encoder fault acknowledge active | Yes | No | 9676 |
| 13 | Absolute value cyclically | Displayed in r0483 | No | - |
| 14 | Parking encoder active | Yes | No | - |
| 15 | Encoder fault | Displayed in r0483 | None | - |

Note:

Re bit 14:

Displays the acknowledgement for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid.

2 Parameters

2.2 List of parameters

Re bit 14, 15:

r0481.14 = 1 and r0481.15 = 0 can have one of the following causes:

- the encoder is parked.
- the encoder is de-activated.
- the encoder is being commissioned.
- no parameterized encoder available.
- encoder data set is being changed over.

r0481.14 = 1 and r0481.15 = 1 has the following significance:

An encoder error has occurred and the encoder position actual value (Gn_XIST1) is invalid.

| r0482[0...2] | | CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1 | | |
|---|--|--|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 1580, 4704, 4735 | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive. | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | |
| Note: | <ul style="list-style-type: none"> - this value is reset if necessary when the "parking encoder" (r0481.14) function is de-selected. - in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1). - The update time for the position control (EPOS) corresponds to the position controller clock cycle p0115[4]. - The update time in isochronous operation corresponds to the bus cycle time r2064[1]. - The update time in isochronous operation and with position control (EPOS) corresponds to the position controller clock cycle p0115[4]. - The update time in non-isochronous operation or without position control (EPOS) comprises the following: Update time = 4 * least common multiple (LCM) of all current controller clock cycles (p0115[0]) in the drive group (infeed + drives). The minimum update time is 1 ms. Example 1: infeed, servo Update time = 4 * LCM(250 µs, 125 µs) = 4 * 250 µs = 1 ms Example 2: infeed, servo, vector Update time = 4 * LCM(250 µs, 125 µs, 500 µs) = 4 * 500 µs = 2 ms | | | |

| r0483[0...2] | | CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2 | | |
|---|---|--|----------------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 1580, 4704 | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the encoder actual position value Gn_XIST2 according to PROFIdrive. | | | |
| Recommendation: | Possible causes: Re Error code = 4097, 4098: Defective Control Unit hardware. Re Error codes = 4099, 4100: Too many measuring pulses have occurred. | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | |
| Notice: | The encoder position actual value must be requested using the encoder control word Gn_STW.13. | | | |

Note:

- in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).
- if GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx_XIST2 (r0483):
 - 1: Encoder fault.
 - 2: Possible position shift in Gx_XIST1.
 - 3: Encoder parking not possible.
 - 4: Cancellation, reference block search (e.g. reference mark not available or input terminal for external zero mark not set). Zero mark is requested, however according to p0404.12/13/14 there is no zero mark (alarm A07565).
 - 5: Cancellation, fetch reference value (e.g. illegal change from reference mark search to flying measurement).
 - 6: Cancellation, flying measurement (e.g. input terminal for probe not set).
 - 7: Cancellation, fetch measured value (e.g. illegal change from flying measurement to reference mark search).
 - 8: Abort, absolute value transfer.
- 3841: Function not supported.
- 4097: Abort, reference mark search due to an initialization error.
- 4098: Abort, flying measurement due to an initialization error.
- 4099: Abort, reference mark search due to a measuring error.
- 4100: Abort, flying measurement due to a measuring error.


| r0484[0...2] | | CO: Redundant coarse encoder position + CRC / Enc red pos+CRC | | |
|---|--|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check). Upper 16 bits: CRC over the redundant coarse encoder position. Lower 16 bits: Redundant coarse encoder position. On an SMx Sensor Module, the encoder coarse position count direction is opposite to r0482 (encoder actual value Gn_XIST1). The value contains 2 bit fine resolution. With a DRIVE-CLiQ encoder, the encoder coarse position count direction is the same as r0482. | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | |
| Dependency: | The values are valid when the safety position actual value sensing is activated (p0430.19 = 1). Refer to: p0430 | | | |
| Note: | This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis". | | | |

| r0485[0...2] | | CO: Measuring gear encoder raw value incremental / Enc raw val incr | | |
|---|--|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the raw value of the incremental encoder actual value before the measuring gear. | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | |

2 Parameters

2.2 List of parameters

| | | | | | |
|---|---|---|---|-----------------|-----------|
| r0486[0...2] | CO: Measuring gear encoder raw value absolute / Enc raw val abs | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the raw value of the absolute encoder actual value before the measuring gear. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| r0487[0...2] | Diagnostic encoder control word Gn_STW / Enc Gn_STW | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 1580, 4704, 4720, 4735 | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics. | | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Request function 1 | Yes | No | - |
| | 01 | Request function 2 | Yes | No | - |
| | 02 | Request function 3 | Yes | No | - |
| | 03 | Request function 4 | Yes | No | - |
| | 04 | Request command bit 0 | Yes | No | - |
| | 05 | Request command bit 1 | Yes | No | - |
| | 06 | Request command bit 2 | Yes | No | - |
| | 07 | Flying measurement mode/search for reference mark | Flying measurement | Reference marks | - |
| | 13 | Request absolute value cyclic | Yes | No | - |
| | 14 | Request parking encoder | Yes | No | - |
| | 15 | Request acknowledge encoder fault | Yes | No | - |
| Notice: | Information on Gn_STW/Gn_ZSW should be taken from the corresponding product documentation. | | | | |
| Note: | The signal source for the encoder control word is set with p0480. | | | | |
| p0491 | Motor encoder fault response ENCODER / Fault resp ENCODER | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 | | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 | 5 | 0 | | |
| Description: | Sets the behavior for the ENCODER fault response (motor encoder). This means, for example, if an encoder fault occurs, encoderless operation can be automatically selected with a shutdown behavior that can be selected. | | | | |
| Value: | 0: Encoder fault results in OFF2 1: Enc fault results in encoderless oper. and oper. continues 2: Encoder fault results in encoderless operation and OFF1 3: Encoder fault results in encoderless operation and OFF3 4: Encoder fault results in an armature short-cct int/DC braking 5: Enc fault results in encoderless op, operation continues, alarm | | | | |

| | |
|---|--|
| Dependency: | The following parameters are relevant for encoderless operation. |
| Caution: | For a value = 1, 2, 3, 5 the following applies: |
|  | - encoderless operation must have been started. - if, for synchronous motors, an encoder fault occurs below the switchover speed p1755, when switching over to encoderless operation, the motor can stall. |
| | For a value = 1, 5 the following applies: |
| | - in spite of the motor encoder fault that has occurred, the motor continues to operate. |
| Note: | For a value = 1, 2, 3, 5 the following applies: |
| | - Refer to the status signal "encoderless operation due to a fault" (BO: r1407.13). - If, with r1407.13 = 1, a different drive data set is selected (e.g. interconnection from p0820), then the open-loop or closed-loop control type p1300 of this data set must match that of the original data set (e.g. p1300 = 21). Encoderless closed-loop controlled operation is kept when changing over. |
| | For a value = 4, the following applies: |
| | - The value can only be set for all motor data sets when p1231 = 3, 4. - For synchronous motors, an armature short circuit is initiated on an encoder fault. - For induction motors, DC braking is initiated on an encoder fault. DC braking must be commissioned (p1232, p1233, p1234). |
| | For a value = 5, the following applies: |
| | Same function as for value = 1. However, encoder faults are output as alarm and the message bit "Fault active" (r2139.3) is not set. The encoder fault has to be acknowledged via the encoder interface in order to resume operation with encoder. |

p0492**Square-wave encoder maximum speed difference per sampling cycle / n_dif max/samp_cyc**DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S**Can be changed:** U, T**Calculated:** CALC_MOD_REG**Access level:** 3**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** -**P-Group:** Encoder**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0.00 [rpm]

210000.00 [rpm]

0.00 [rpm]

Description:

Sets the maximum permissible speed difference within the current controller sampling time for squarewave encoders.

When the value is exceeded, depending on p0491, either encoderless closed-loop speed/torque control is selected or the drive is powered down.

Note:

For a value of 0.0, the speed change monitoring is disabled.

if the set maximum speed difference is only exceeded for one sampling time of the current controller, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.

p0496[0...2]**Encoder diagnostic signal selection / Enc diag select**DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S**Can be changed:** U, T**Calculated:** -**Access level:** 4**Data type:** Integer16**Dyn. index:** -**Func. diagram:** -**P-Group:** Encoder**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0

86

0

Description:

Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.

Value:

- 0: Inactive
- 1: r0497: Mechanical revolution
- 10: r0498: Raw value track A, r0499: Raw value track B
- 11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2)
- 12: r0498: Fine position Phi, r0499: -
- 13: r0498: Offset correction X, r0499: Offset correction Y
- 14: r0498: Phase correction X, r0499: Amplitude correction Y
- 15: r0498: Cubic correction X, r0499: Fine position X
- 16: r0498: oversampling channel A, r0499: oversampling channel B
- 17: r0498: fan-out amount, r0499: fan-out number

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18: r0498: Oversampling angle, r0499: Oversampling amount
19: r0498: Fault counter AB, r0499: raw value track A
20: r0498: Raw value track C, r0499: Raw value track D
21: r0498: CD position X (-D/2), r0499: CD position Y (C/2)
22: r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution
23: r0497: Zero mark status
24: r0498: Raw value track R, r0499: Zero mark status
25: r0498: Raw value track A, r0499: Raw value track R
30: r0497: Absolute position serial
31: r0497: Absolute position incremental
32: r0497: Zero mark position
33: r0497: Correction absolute position difference
40: r0498: Raw temperature, r0499: Temperature in 0.1 °C
41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C
42: r0497: Resistance 2500 Ohm
51: r0497: Absolute speed difference (dn/dt)
52: r0497: Xact1 corrected quadrants
60: Analog sensor: r0498: raw val chann. A, r0499: raw val chann. B
61: Analog sensor: r0498: fine pos chann. A, r0499: fine pos chann. B
62: Analog sensor: r0498: Fine pos before characteristic, r0499: -
70: Resolver: r0498: Transformation ratio, r0499: phase
80: Spindle: r0498: Sensor S1 (raw), r0499: Sensor S4 (raw)
81: Spindle: r0498: Sensor S5 (raw), r0499: -
85: Spindle: r0498: Sensor S1 (cal), r0499: Sensor S4 (cal)
86: Spindle: r0498: Sensor S5 (cal), r0499: -

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: Refer to: r0497, r0498, r0499

Notice: The setting option depends on the following properties:
Sensor Module type, hardware version, firmware version (Sensor Module and Control Units), order number (last digit).

Not all combinations are supported.

Note: Re p0496 = 1: 360 ° <--> 2³²
Re p0496 = 10 (resolver): 2900 mV <--> 26214 dec
Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec
Re p0496 = 11 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected
Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected
Re p0496 = 12: 180 ° fine position <--> 32768 dec
Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec
Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec
Re p0496 = 14: 1 ° <--> 286 dec, 100% <--> 16384 dec
Re p0496 = 15: 100 % <--> 16384 dec
Re p0496 = 16: (resolver): channel A: 2900 mV <--> 26214 dec, channel B: 2900 mV <--> 26214 dec
Re p0496 = 16: (sin/cos 1 Vpp, EnDat) channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec
Re p0496 = 17 (resolver): absolute value: 2900 mV <--> 13107 dec, number: 1 ... 8
Re p0496 = 17 (sin/cos 1 Vpp, EnDat): absolute value 500 mV <--> 10650 dec, number: 1 ... 8
Re p0496 = 18 (resolver): angle: signal period <--> 2¹⁶, absolute value: 2900 mV <--> 13107 dec
Re p0496 = 18 (sin/cos 1 Vpp, EnDat): angle: signal period <--> 2¹⁶, absolute value: 500 mV <--> 10650 dec
Re p0496 = 19 (resolver): counter: dec, channel A: 2900 mV <--> 26214 dec
Re p0496 = 19 (sin/cos 1 Vpp, EnDat): counter: dec, channel A: 500 mV <--> 21299 dec
Re p0496 = 22: 180 ° <--> 32768 dec
Re p0496 = 23, 24: r0497.31 (r0499.15) set for at least 1 current controller cycle when encoder zero mark detected
Re p0496 = 24, 25: 500 mV <--> 21299 dec
Re p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec
Re p0496 = 31: Absolute position, incremental in 1/4 encoder pulses
Re p0496 = 32: Zero mark position in 1/4 encoder pulses
Re p0496 = 33: counter offset absolute value in 1/4 encoder pulses
Re p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768

Re p0496 = 42: 2500 Ohm <--> 2³²
 Re p0496 = 51: 1 rpm <--> 1000 dec
 Re p0496 = 52: ln 1/4 encoder pulses
 Re p0496 = 60: voltage, channel A in mV, voltage, channel B in mV
 Re p0496 = 61: Channel A: encoder periods <--> 2¹⁶, channel B: encoder periods <--> 2¹⁶
 Re p0496 = 62: encoder periods <--> 2¹⁶
 Re p0496 = 70: r: 100% <--> 10000 dec, phase: 180 ° <--> 18000 dec
 Re p0496 = 80, 81, 85, 86: 1V <--> 1000 inc

| r0497[0...2] | | CO: Encoder diagnostic signal double word / Enc diag DW | |
|---|--|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the trace signal for encoder diagnostics (double word). The signal to be output is selected in p0496. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0496, r0498, r0499 | | |
| r0498[0...2] | | CO: Encoder diagnostic signal low word / Enc diag low word | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Integer16 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the trace signal for encoder diagnostics (low component). The signal to be output is selected in p0496. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0496, r0497, r0499 | | |
| r0499[0...2] | | CO: Encoder diagnostic signal high word / Enc diag high word | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Integer16 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the trace signal for encoder diagnostics (high component). The signal to be output is selected in p0496. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p0496, r0497, r0498 | | |

| p0595 | | Technological unit selection / Tech unit select | | |
|--|--|---|---|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: C2(5) Data type: Integer16 P-Group: Applications Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 32 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 | |
| Description: | Selects the units for the parameters of the technology controller. For p0595 = 1, 2, the reference quantity set in p0596 is not active. | | | |
| Value: | 1: % 2: 1 referred no dimensions 3: bar 4: °C 5: Pa 6: ltr/s 7: m³/s 8: ltr/min 9: m³/min 10: ltr/h 11: m³/h 12: kg/s 13: kg/min 14: kg/h 15: t/min 16: t/h 17: N 18: kN 19: Nm 20: psi 21: °F 22: gallon/s 23: inch³/s 24: gallon/min 25: inch³/min 26: gallon/h 27: inch³/h 28: lb/s 29: lb/min 30: lb/h 31: lbf 32: lbf ft | | | |
| Dependency: | Only the unit of the technology controller parameters are switched over (unit group 9_1). Refer to: p0596 | | | |
| Note: | When switching over from % into another unit, the following sequence applies: - set p0596 - set p0595 to the required unit | | | |

| p0596 | | Technological unit reference quantity / Tech unit ref qty | | |
|--|--|---|--|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.01 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 340.28235E36 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1.00 | |
| Description: | Sets the reference quantity for the technological units. When changing over using changeover parameter p0595 to absolute units, all of the parameters involved refer to the reference quantity. | | | |
| Dependency: | Refer to: p0595 | | | |

Notice: When changing over from one technological unit into another, or when changing the reference parameter, a changeover is not made.

| | | | |
|---|--|------------------------|--------------------------|
| p0601[0...n] | Motor temperature sensor type / Mot_temp_sens type | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(3), U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: MDS | Func. diagram: - |
| | P-Group: Motor | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Sets the sensor type for the motor temperature monitoring. | | |
| Value: | 0: No sensor 2: KTY84 | | |
| Dependency: | Refer to: r0458 | | |

| | | | |
|---|---|-------------------------------|--------------------------|
| p0700[0...n] | Macro Binector Input (BI) / Macro BI | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: CDS, p0170 | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 999999 | 0 |
| Description: | Runs the corresponding macro files. The binector inputs of the corresponding command data set are appropriately interconnected. The selected macro file must be available on the memory card/device memory. Example: p0700 = 6 --> macro file PM000006.ACX is run. | | |
| Dependency: | Refer to: p0015, p1000, p1500, r8571 | | |
| Notice: | No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group! When executing a specific macro, the corresponding programmed settings are made and become active. | | |
| Note: | The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning software. Macros available as standard are described in the technical documentation of the particular product. BI: Binector Input CDS: Command Data Set | | |

| | | | |
|---------------------|---|----------------------|--------------------------|
| p0700 | Macro Binector Input (BI) for TMs / Macro BI TM | | |
| TM15DI_DO, TM31 | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 999999 | 0 |
| Description: | Runs the corresponding macro files. The selected macro file must be available on the memory card/device memory. Example: p0700 = 6 --> macro file PM000006.ACX is run. | | |
| Dependency: | Refer to: r8571 | | |
| Notice: | No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group! When executing a specific macro, the corresponding programmed settings are made and become active. | | |

2 Parameters

2.2 List of parameters

Note: The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning software.
Macros available as standard are described in the technical documentation of the particular product.
BI: Binector Input
CDS: Command Data Set

| | | | |
|--|---|----------------------|--------------------------|
| p0802 | Data transfer: memory card as source/target / mem_card src/targ | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 100 | 0 |
| Description: | Sets the number for data transfer of a parameter backup from/to memory card. Transfer from memory card to device memory (p0804 = 1): - Sets the source of parameter backup (e.g. p0802 = 48 --> PS048xxx.ACX is the source). Transfer from non-volatile device memory to memory card (p0804 = 2): - Sets the target of parameter backup (e.g. p0802 = 23 --> PS023xxx.ACX is the target). | | |
| Dependency: | Refer to: p0803, p0804 | | |
| Notice: | If the data between the volatile and non-volatile device memories differ, then it may be necessary to save the data on the memory card in a non-volatile fashion prior to the transfer (e.g. p0971 = 1). | | |

| | | | |
|--|---|----------------------|--------------------------|
| p0803 | Data transfer: device memory as source/target / Dev_mem src/targ | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 20 | 0 |
| Description: | Sets the number for data transfer of a parameter backup from/to device memory. Transfer from memory card to device memory (p0804 = 1): - Sets the target of the parameter backup (e.g. p0803 = 10 --> PS010xxx.ACX is the target). Transfer from non-volatile device memory to memory card (p0804 = 2): - Sets the source of the parameter backup (e.g. p0803 = 11 --> PS011xxx.ACX is the source). | | |
| Value: | 0: Source/target standard 10: Source/target with setting 10 11: Source/target with setting 11 12: Source/target with setting 12 20: Source/target with setting 20 | | |
| Dependency: | Refer to: p0802, p0804 | | |
| Notice: | If the data between the volatile and non-volatile device memories differ, then it may be necessary to save the data on the memory card in a non-volatile fashion prior to the transfer (e.g. p0971 = 1). | | |

| | | | |
|--|--|----------------------|--------------------------|
| p0804 | Data transfer start / Data transf start | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1100 | 0 |
| Description: | Sets the transfer direction and start of data transfer between the memory card and non-volatile device memory. | | |

Example 1:

The parameter backup is to be transferred from the device memory to the memory card with setting 0. The parameter backup is to be stored on the memory card with setting 22.

p0802 = 22 (parameter backup stored on memory card as target with setting 22)

p0803 = 0 (parameter backup stored in device memory as source with setting 0)

p0804 = 2 (start data transfer from device memory to memory card)

--> PS000xxx.ACX is transferred from device memory to memory card and stored as PS022xxx.ACX.

Example 2:

The parameter backup is to be transferred from the memory card to the device memory with setting 22. The parameter backup is to be stored in the device memory as setting 0.

p0802 = 22 (parameter backup stored on memory card as source with setting 22)

p0803 = 0 (parameter backup stored in device memory as target with setting 0)

p0804 = 1 (start data transfer from memory card to device memory)

--> PS022xxx.ACX is transferred from memory card to device memory and stored as PS000xxx.ACX.

| | |
|--------------------|--|
| Value: | 0: Inactive 1: Memory card to device memory 2: Device memory to memory card 1001: File on memory card cannot be opened 1002: File in device memory cannot be opened 1003: Memory card not found 1100: File cannot be transferred |
| Dependency: | Refer to: p0802, p0803 |
| Notice: | The memory card must not be removed while data is being transferred. |
| Note: | If a parameter backup with setting 0 is detected on the memory card when the Control Unit is switched on (PS000xxx.ACX), this is transferred automatically to the device memory. When the memory card is inserted, a parameter backup with setting 0 (PS000xxx.ACX) is automatically written to the memory card when the parameters are saved in a non-volatile memory (e.g. by means of "Copy RAM to ROM"). Once the data has been successfully transferred, this parameter is automatically reset to 0. If an error occurs, the parameter is set to a value > 1000. Possible fault causes: p0804 = 1001: The parameter backup set in p0802 as the source on the memory card does not exist or there is not sufficient memory space available on the memory card. p0804 = 1002: The parameter backup set in p0803 as the source in the device memory does not exist or there is not sufficient memory space available in the device memory. p0804 = 1003: No memory card has been inserted. |

| | | | |
|---|--|--|---|
| p0806 | BI: Inhibit master control / PcCtrl inhibit | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source to block the master control. | | |
| Dependency: | Refer to: r0807 | | |
| Note: | The commissioning software (drive control panel) uses the master control, for example. | | |

r0807.0 BO: Master control active / PcCtrl active

| | | | |
|---|-----------------------------------|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |

- - -

Description: Displays what has the master control.
The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning software).

| | | | | | |
|-------------------|------------|-----------------------|-----------------|-----------------|------------------------|
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Master control active | Yes | No | 2580, 3113, 3130 |

Dependency: Refer to: p0806
Notice: The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.
Note: Bit 0 = 0: BICO interconnection active
 Bit 0 = 1: Master control for PC/AOP
 The commissioning software (drive control panel) uses the master control, for example.

p0809[0...2] Copy Command Data Set CDS / Copy CDS

| | | | |
|---|------------------------------|----------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 8560 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |

0 15 0

Description: Copies one Command Data Set (CDS) into another.
Index: [0] = Source Command Data Set
 [1] = Target Command Data Set
 [2] = Start copying procedure
Note: Procedure:
 1. In Index 0, enter which command data set should be copied.
 2. In Index 1, enter the command data set that is to be copied into.
 3. Start copying: Set index 2 from 0 to 1.
 p0809[2] is automatically set to 0 when copying is completed.

p0810 BI: Command data set selection CDS bit 0 / CDS select., bit 0

| | | | |
|---|---------------------------------------|----------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8560 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |


- - 0

Description: Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).
Dependency: Refer to: r0050, r0836
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: The Command Data Set selected using the binector inputs is displayed in r0836.
 The currently effective command data set is displayed in r0050.
 A Command Data Set can be copied using p0809.

| | | | | |
|---|--|---|--|-----------------|
| p0819[0...2] | Copy Drive Data Set DDS / Copy DDS | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(15) Data type: Unsigned8 P-Group: Data sets Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 31 | Access level: 2 Func. diagram: 8565 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Copies one Drive Data Set (DDS) into another. | | | |
| Index: | [0] = Source Drive Data Set [1] = Target Drive Data Set [2] = Start copying procedure | | | |
| Note: | Procedure: 1. In Index 0, enter which drive data set is to be copied. 2. In Index 1, enter the drive data set data that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0819[2] is automatically set to 0 when copying is completed. | | | |
| p0820[0...n] | BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0 | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(15), T Data type: Unsigned32 / Binary P-Group: Data sets Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 8565, 8570 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0). | | | |
| Dependency: | Refer to: r0051, r0837 | | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | | |
| p0821[0...n] | BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1 | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(15), T Data type: Unsigned32 / Binary P-Group: Data sets Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 8565, 8570 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the signal source to select the Drive Data Set, bit 1 (DDS, bit 1). | | | |
| Dependency: | Refer to: r0051, r0837 | | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | | |
| r0835.2 | CO/BO: Data set changeover status word / DDS_ZSW | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Displays, signals Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the status word for the drive data set changeover. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 02 | Internal parameter calculation active | Yes | No |
| Note: | Re bit 02: A data set changeover is delayed by the time required for the internal parameter calculation. | | | |

| | | | | |
|---|---|----------------------|----------------------------|-----------------|
| r0836.0 | CO/BO: Command Data Set CDS selected / CDS selected | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 8560 | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the command data set (CDS) selected via the binector input. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | CDS select. bit 0 | ON | OFF |
| | | | | FP |
| | | | | - |
| Dependency: | Refer to: r0050, p0810 | | | |
| Note: | Command data sets are selected via binector input p0810. The currently effective command data set is displayed in r0050. | | | |

| | | | | |
|---|---|----------------------|----------------------------|-----------------|
| r0837.0...1 | CO/BO: Drive Data Set DDS selected / DDS selected | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 8565 | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the drive data set (DDS) selected via the binector input. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | DDS select. bit 0 | ON | OFF |
| | 01 | DDS select. bit 1 | ON | OFF |
| | | | | FP |
| | | | | - |
| Dependency: | Refer to: r0051, p0820, p0821 | | | |
| Note: | Drive data sets are selected via binector input p0820 and following. The currently effective drive data set is displayed in r0051. | | | |

| | | | | |
|---|---|-------------------------------|----------------------------|--|
| p0840[0...n] | BI: ON / OFF (OFF1) / ON / OFF (OFF1) | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 | |
| | P-Group: Commands | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 1 | |
| Description: | Sets the signal source for the command "ON/OFF (OFF1)". For the PROFIdrive profile, this command corresponds to control word 1 bit 0 (STW1.0). | | | |
| Recommendation: | When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source. | | | |
| Dependency: | Refer to: p1055, p1056 | | | |
| Caution: | When "master control from PC" is activated, this binector input is ineffective. | | | |
|  | | | | |
| Notice: | For binector input p0840 = 0 signal, the motor can be moved, jogging using binector input p1055 or p1056. The command "ON/OFF (OFF1)" can be issued using binector input p0840 or p1055/p1056. For binector input p0840 = 0 signal, the switch-on inhibit is acknowledged. Only the signal source that originally powered up can also power down again. The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | | |

- Note:** For drives with closed-loop speed control (p50084 = 1), the following applies:
 - BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression and switch-on inhibit)
 For drives with closed-loop torque control (p50084 = 2), the following applies:
 - BI: p0840 = 0 signal: immediate pulse suppression
 For drives with closed-loop speed/torque control, the following applies:
 - BI: p0840 = 0/1 signal: ON (pulses can be enabled)

| p0844[0...n] | BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1 | | |
|---|--|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

- Description:** Sets the first signal source for the command "No coast down/coast down (OFF2)".
 The following signals are AND'ed:
 - BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
 - BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"
 For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).
 BI: p0844 = 0 signal or BI: p0845 = 0 signal
 - OFF2 (immediate pulse suppression and switch on inhibit)
 BI: p0844 = 1 signal and BI: p0845 = 1 signal
 - No OFF2 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

| p0845[0...n] | BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2 | | |
|---|--|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

- Description:** Sets the second signal source for the command "No coast down/coast down (OFF2)".
 The following signals are AND'ed:
 - BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
 - BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"
 For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).
 BI: p0844 = 0 signal or BI: p0845 = 0 signal
 - OFF2 (immediate pulse suppression and switch on inhibit)
 BI: p0844 = 1 signal and BI: p0845 = 1 signal
 - No OFF2 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is effective.



| | | | |
|---|---|-------------------------------|----------------------------|
| p0848[0...n] | BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the first signal source for the command "No quick stop/quick stop (OFF3)".
The following signals are AND'ed:
- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"
For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).
BI: p0848 = 0 signal or BI: p0849 = 0 signal
- OFF3 (braking along the OFF3 ramp (p50296), then pulse suppression and switch on inhibit)
BI: p0848 = 1 signal and BI: p0849 = 1 signal
- No OFF3 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

| | | | |
|---|---|-------------------------------|----------------------------|
| p0849[0...n] | BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the second signal source for the command "No quick stop/quick stop (OFF3)".
The following signals are AND'ed:
- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"
For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).
BI: p0848 = 0 signal or BI: p0849 = 0 signal
- OFF3 (braking along the OFF3 ramp (p50296), then pulse suppression and switch on inhibit)
BI: p0848 = 1 signal and BI: p0849 = 1 signal
- No OFF3 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is effective.



| | | | |
|---|--|-------------------------------|----------------------------|
| p0852[0...n] | BI: Enable operation/inhibit operation / Operation enable | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the signal source for the command "enable operation/inhibit operation".
For the PROFIdrive profile, this command corresponds to control word 1 bit 3 (STW1.3).
BI: p0852 = 0 signal
Inhibit operation (suppress pulses).
BI: p0852 = 1 signal
Enable operation (pulses can be enabled).

Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

| p0854[0...n] | BI: Control by PLC/no control by PLC / Master ctrl by PLC | | |
|---|---|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the signal source for the command "control by PLC/no control by PLC".
For the PROFIdrive profile, this command corresponds to control word 1 bit 10 (STW1.10).
BI: p0854 = 0 signal
No control by PLC
BI: p0854 = 1 signal
Master control by PLC.

Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.

If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

| p0855[0...n] | BI: Unconditionally release holding brake / Uncond open brake | | |
|---|---|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the command "unconditionally open holding brake".

Dependency: Refer to: p0858

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).

| p0856[0...n] | BI: Speed controller enable / n_ctrl enable | | |
|---|---|-------------------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the signal source for the command "enable speed controller" (r0898.12).

0 signal: Set the I component and speed controller output to zero.

1 signal: Enable speed controller.

Dependency: Refer to: r0898

Note: If "enable speed controller" is withdrawn, then an existing brake will be closed.

If "speed controller enable" is withdrawn, the pulses are not suppressed.

| | | | |
|---|---|-------------------------------|----------------------------|
| p0858[0...n] | BI: Unconditionally close holding brake / Uncond close brake | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the command "unconditionally close holding brake". | | |
| Dependency: | Refer to: p0855 | | |
| Note: | The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake). For a 1 signal via BI: p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered. | | |

| | | | | | |
|---|--|----------------------------------|----------------------------|-----------------|-----------|
| r0898.0...14 | CO/BO: Control word sequence control / STW seq_ctrl | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2580 | | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the control word of the sequence control. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | ON/OFF1 | Yes | No | - |
| | 01 | OC / OFF2 | Yes | No | - |
| | 02 | OC / OFF3 | Yes | No | - |
| | 03 | Operation enable | Yes | No | - |
| | 04 | Ramp-function generator enable | Yes | No | - |
| | 05 | Continue ramp-function generator | Yes | No | - |
| | 06 | Speed setpoint enable | Yes | No | - |
| | 07 | Command open brake | Yes | No | - |
| | 08 | Jog 1 | Yes | No | - |
| | 09 | Jog 2 | Yes | No | - |
| | 10 | Master ctrl by PLC | Yes | No | - |
| | 12 | Speed controller enable | Yes | No | - |
| | 14 | Command close brake | Yes | No | - |
| Note: | OC: Operating condition | | | | |

| | | | | | |
|---|---|-------------------------------|---|-----------------|-----------|
| r0899.0...15 | CO/BO: Status word sequence control / ZSW seq_ctrl | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2585, 2750, 3150, 3151, 3152, 6810, 6830 | | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the status word of the sequence control. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Rdy for switch on | Yes | No | - |
| | 01 | Ready | Yes | No | - |
| | 02 | Operation enabled | Yes | No | - |
| | 03 | Jog active | Yes | No | - |
| | 04 | No coasting active | OFF2 inactive | OFF2 active | - |
| | 05 | No Quick Stop active | OFF3 inactive | OFF3 active | - |
| | 06 | Switching on inhibited active | Yes | No | - |
| | 07 | Drive ready | Yes | No | - |

| | | | | |
|----|--|-----|----|---|
| 08 | Controller enable | Yes | No | - |
| 09 | Control request | Yes | No | - |
| 11 | Pulses enabled | Yes | No | - |
| 12 | Open holding brake | Yes | No | - |
| 13 | Command close holding brake | Yes | No | - |
| 14 | Pulse enable from the brake control | Yes | No | - |
| 15 | Setpoint enable from the brake control | Yes | No | - |

Note: Re bits 00, 01, 02, 04, 05, 06, 09:
For PROFIdrive, these signals are used for status word 1.

p0918 PROFIBUS address / PB address

| | | | |
|-----------------------|--------------------------------|----------------------|----------------------------------|
| CU_DC_R, CU_DC_R_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 1520, 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 126 | 125 |

Description: Sets the PROFIBUS address for PROFIBUS interface (X126) on the Control Unit.
The address can be set as follows:
Via p0918

--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".
--> A change only becomes effective after a POWER ON.

Note: Permissible PROFIBUS addresses: 1 ... 126
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.

p0918 PROFIBUS address / PB address

| | | | |
|----------------|--------------------------------|----------------------|----------------------------------|
| CU_DC, CU_DC_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 1520, 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 126 | 126 |

Description: Sets the PROFIBUS address for PROFIBUS interface (X126) on the Control Unit.
The address can be set as follows:
Via p0918

--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".
--> A change only becomes effective after a POWER ON.

Note: Permissible PROFIBUS addresses: 1 ... 126
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

| | | | |
|--|---------------------------------|----------------------|----------------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 1520, 2420 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 390 | 999 | 999 |

Description: Sets the send and receive telegram.

Value: 390: SIEMENS telegram 390, PZD-2/2
999: Free telegram configuration with BICO

2 Parameters

2.2 List of parameters

| | | | |
|---|--|--|--|
| p0922 | IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1), T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 999 | Access level: 1 Func. diagram: 1520, 2420 Unit selection: - Expert list: 1 Factory setting 999 |
| Description: | Sets the send and receive telegram. | | |
| Value: | 1: Standard telegram 1, PZD-2/2 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 20: Standard telegram 20, PZD-2/6 220: SIEMENS telegram 220, PZD-10/10 352: SIEMENS telegram 352, PZD-6/6 999: Free telegram configuration with BICO | | |
| Note: | For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999. | | |
| r0924[0...1] | ZSW bit pulses enabled / ZSW pulse enab | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the position of the "Pulses enabled" status signal in the PROFIdrive telegram. | | |
| Index: | [0] = Signal number [1] = Bit position | | |
| r0944 | CO: Counter for fault buffer changes / Fault buff change | | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays fault buffer changes. This counter is incremented every time the fault buffer changes. | | |
| Recommendation: | Used to check whether the fault buffer has been read out consistently. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109 | | |
| r0945[0...63] | Fault code / Fault code | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the numbers of faults that have occurred. | | |
| Dependency: | Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122 | | |
| Notice: | The properties of the fault buffer should be taken from the corresponding product documentation. | | |

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Fault buffer structure (general principle):

r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> actual fault case, fault 1

...

r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> actual fault case, fault 8

r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1

...

r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8

...

r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1

...

r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8

r0945[0...63]

Fault code / Fault code

TM150, TM15DI_DO,
TM31

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned16

Dyn. index: -

Func. diagram: 8050, 8060

P-Group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the numbers of faults that have occurred.

Dependency: Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Notice: The properties of the fault buffer should be taken from the corresponding product documentation.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Fault buffer structure (general principle):

r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> actual fault case, fault 1

...

r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> actual fault case, fault 8

r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1

...

r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8

...

r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1

...

r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8

r0946[0...65534]

Fault code list / Fault code list

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S, DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dyn. index: -

Func. diagram: -

P-Group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 0

Min

Max

Factory setting

-

-

-

Description: Lists the fault codes stored in the drive unit.

The indices can only be accessed with a valid fault code.

Dependency: The parameter assigned to the fault code is entered in r0951 under the same index.

2 Parameters

2.2 List of parameters

r0946[0...65534] Fault code list / Fault code list

| | | | |
|---------------------------|------------------------------|----------------------|----------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Lists the fault codes stored in the drive unit.

The indices can only be accessed with a valid fault code.

Dependency: The parameter assigned to the fault code is entered in r0951 under the same index.

r0947[0...63] Fault number / Fault number

| | | | |
|---|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: This parameter is identical to r0945.

r0947[0...63] Fault number / Fault number

| | | | |
|---------------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8050, 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: This parameter is identical to r0945.

r0948[0...63] Fault time received in milliseconds / t_fault rcv ms

| | | | |
|---|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [ms] | - [ms] | - [ms] |

Description: Displays the system runtime in milliseconds when the fault occurred.

Dependency: Refer to: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2130 (days) and r0948 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

When the parameter is read via PROFIdrive, the TimeDifference data type applies.

r0948[0...63] Fault time received in milliseconds / t_fault rcv ms

| | | | |
|---------------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8050, 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [ms] | - [ms] | - [ms] |

Description: Displays the system runtime in milliseconds when the fault occurred.

Dependency: Refer to: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115, r3120, r3122
Notice: The time comprises r2130 (days) and r0948 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.
When the parameter is read via PROFIdrive, the TimeDifference data type applies.

r0949[0...63] Fault value / Fault value

| | | | |
|-------------------|------------------------------|----------------------|----------------------------|
| CU_DC, CU_DC_R, | Can be changed: - | Calculated: - | Access level: 3 |
| CU_DC_R_S, | Data type: Integer32 | Dyn. index: - | Func. diagram: 8060 |
| CU_DC_S, DC_CTRL, | P-Group: Messages | Unit group: - | Unit selection: - |
| DC_CTRL_R, | Not for motor type: - | Scaling: - | Expert list: 1 |
| DC_CTRL_R_S, | Min | Max | Factory setting |
| DC_CTRL_S | - | - | - |

Description: Displays additional information about the fault that occurred (as integer number).
Dependency: Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r0949[0...63] Fault value / Fault value

| | | | |
|-------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, | Can be changed: - | Calculated: - | Access level: 3 |
| TM31 | Data type: Integer32 | Dyn. index: - | Func. diagram: 8050, 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays additional information about the fault that occurred (as integer number).
Dependency: Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

p0952 Fault cases counter / Fault cases qty

| | | | |
|-------------------|------------------------------|----------------------|----------------------------|
| CU_DC, CU_DC_R, | Can be changed: U, T | Calculated: - | Access level: 3 |
| CU_DC_R_S, | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8060 |
| CU_DC_S, DC_CTRL, | P-Group: Messages | Unit group: - | Unit selection: - |
| DC_CTRL_R, | Not for motor type: - | Scaling: - | Expert list: 1 |
| DC_CTRL_R_S, | Min | Max | Factory setting |
| DC_CTRL_S | 0 | 65535 | 0 |

Description: Number of fault situations that have occurred since the last reset.
Dependency: The fault buffer is deleted (cleared) by setting p0952 to 0.
Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

p0952 Fault cases counter / Fault cases qty

| | | | |
|-------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, | Can be changed: U, T | Calculated: - | Access level: 3 |
| TM31 | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6700, 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |

Description: Number of fault situations that have occurred since the last reset.
Dependency: The fault buffer is deleted (cleared) by setting p0952 to 0.
Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

| | | | |
|--|---|----------------------|--------------------------|
| r0963 | PROFIBUS baud rate / PB baud rate | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 255 | - |
| Description: | Displays the corresponding value for the PROFIBUS baud rate. | | |
| Value: | 0: 9.6 kbit/s 1: 19.2 kbit/s 2: 93.75 kbit/s 3: 187.5 kbit/s 4: 500 kbit/s 6: 1.5 Mbit/s 7: 3 Mbit/s 8: 6 Mbit/s 9: 12 Mbit/s 10: 31.25 kbit/s 11: 45.45 kbit/s 255: Unknown | | |

| | | | |
|--|---|----------------------|--------------------------|
| r0964[0...6] | Device identification / Device ident | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the device identification. | | |
| Index: | [0] = Company (Siemens = 42) [1] = Device type [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = Number of drive objects [6] = Firmware patch/hot fix | | |
| Note: | Example: r0964[0] = 42 --> SIEMENS r0964[1] = device type, see below r0964[2] = 403 --> first part of the firmware version V04.03 (for second part, refer to index 6) r0964[3] = 2010 --> year 2010 r0964[4] = 1705 --> 17th of May r0964[5] = 2 --> 2 drive objects r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00) Device type: r0964[1] = 5490 --> SINAMICS DCM | | |

| | | | |
|--|---|----------------------|--------------------------|
| r0965 | PROFIdrive profile number / PD profile number | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the PROFIdrive profile number and profile version. | | |

Constant value = 0329 hex.

Byte 1: Profile number = 03 hex = PROFIdrive profile

Byte 2: Profile version = 29 hex = Version 4.1


Note: When the parameter is read via PROFIdrive, the Octet String 2 data type applies.

| | | | |
|--|--|----------------------|----------------------------|
| p0969 | System runtime relative / t_System relative | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 4294967295 [ms] | 0 [ms] |
| Description: | Displays the system runtime in ms since the last POWER ON. | | |
| Note: | The value in p0969 can only be reset to 0. The value overflows after approx. 49 days. When the parameter is read via PROFIdrive, the TimeDifference data type applies. | | |

| | | | |
|---------------------|---|----------------------|--------------------------|
| p0970 | TM150 reset parameters / TM150 par reset | | |
| TM150 | Can be changed: C2(30) | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Factory settings | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 100 | 0 |
| Description: | The parameter is used to initiate a reset of the parameters on Terminal Module 150 (TM150). | | |
| Value: | 0: Inactive 1: Start a parameter reset 100: Start a BICO interconnection reset | | |
| Dependency: | Refer to: p0010 | | |
| Notice: | After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0. | | |
| Note: | A factory setting run can only be started if p0010 was first set to 30 (parameter reset). At the end of the calculations, p0970 is automatically set to 0. | | |


| | | | |
|---------------------|---|----------------------|--------------------------|
| p0970 | TM15DI/DO reset parameter / TM15D par reset | | |
| TM15DI_DO | Can be changed: C2(30) | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Factory settings | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 100 | 0 |
| Description: | The parameter is used to initiate a reset of the parameters on Terminal Module 15 (TM15). The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle. Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976). | | |
| Value: | 0: Inactive 1: Start a parameter reset 100: Start a BICO interconnection reset | | |
| Dependency: | Refer to: p0010 | | |
| Notice: | After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0. | | |
| Note: | A factory setting run can only be started if p0010 was first set to 30 (parameter reset). At the end of the calculations, p0970 is automatically set to 0. | | |

| p0970 | | TM31 reset parameters / TM31 par reset | | |
|---------------------|---|--|---|--|
| TM31 | Can be changed: C2(30) Data type: Unsigned16 P-Group: Factory settings Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 100 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | The parameter is used to initiate a reset of the parameters on Terminal Module 31 (TM31). The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle. Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976). | | | |
| Value: | 0: Inactive 1: Start a parameter reset 100: Start a BICO interconnection reset | | | |
| Dependency: | Refer to: p0010 | | | |
| Notice: | After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0. | | | |
| Note: | A factory setting run can only be started if p0010 was first set to 30 (parameter reset). At the end of the calculations, p0970 is automatically set to 0. | | | |

| p0971 | | Save drive object parameters / Drv_obj par save | | |
|---|--|--|---|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Factory settings Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Setting to save the parameter of the particular drive object in the non-volatile memory. When saving, only the adjustable parameters intended to be saved are taken into account. | | | |
| Value: | 0: Inactive 1: Save drive object | | | |
| Dependency: | Refer to: p0977, r3996 | | | |
| Caution: | If a memory card (optional) is inserted, the following applies: | | | |
|  | The parameters are also saved on the card and therefore overwrite any existing data! | | | |
| Notice: | The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0). Writing to parameters is inhibited while saving. The progress while saving is displayed in r3996. | | | |
| Note: | Starting from the particular drive object, the following parameters are saved: CU3xx: Device-specific parameters and PROFIBUS device parameters. Other objects: Parameters of the actual object and PROFIBUS device parameters. Prerequisite: In order that the parameter of a drive object, saved with p0971 = 1, is read the next time that the Control Unit is booted, then all parameters must, as a minimum, have first been saved once with p0977 = 1. | | | |

| p0971 | | Save drive object parameters / Drv_obj par save | | |
|---------------------------|--|--|---|--|
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Factory settings Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Setting to save the parameter of the particular drive object in the non-volatile memory. When saving, only the adjustable parameters intended to be saved are taken into account. | | | |

| | |
|--------------------|--|
| Value: | 0: Inactive 1: Save drive object |
| Dependency: | Refer to: p0977, r3996 |
| Notice: | The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0). Writing to parameters is inhibited while saving. The progress while saving is displayed in r3996. |
| Note: | Starting from the particular drive object, the following parameters are saved: CU3xx: Device-specific parameters and PROFIBUS device parameters. Other objects: Parameters of the actual object and PROFIBUS device parameters. Prerequisite: In order that the parameter of a drive object, saved with p0971 = 1, is read the next time that the Control Unit is booted, then all parameters must, as a minimum, have first been saved once with p0977 = 1. |

| p0972 Drive unit reset / Drv_unit reset | | Access level: 1 |
|---|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3 Factory setting 0 |
| Description: | Sets the required procedure to execute a hardware reset for the drive unit. | |
| Value: | 0: Inactive 1: Hardware-Reset immediate 2: Hardware reset preparation 3: Hardware reset after cyclic communication has failed | |
| Danger: | It must be absolutely ensured that the system is in a safe condition. The memory card/device memory of the Control Unit must not be accessed. | |
|  | | |
| Note: | If value = 1: Reset is immediately executed and communications interrupted. After communications have been established, check the reset operation (refer below). If value = 2: Help to check the reset operation. Firstly, set p0972 = 2 and then read back. Secondly, set p0972 = 1 (it is possible that this request is possibly no longer acknowledged). The communication is then interrupted. After communications have been established, check the reset operation (refer below). If value = 3: The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by a control for several drive units. If cyclic communication is not active, then the reset is immediately executed. If the cyclic communication is active for both PROFIdrive interfaces, then the reset is executed after completing both cycle communications. After communications have been established, check the reset operation (refer below). To check the reset operation: After the drive unit has been restarted and communications have been established, read p0972 and check the following: p0972 = 0? --> The reset was successfully executed. p0972 > 0? --> The reset was not executed. | |

| r0975[0...10] | Drive object identification / DO identification | | |
|---|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the identification of the drive object. | | |
| Index: | [0] = Company (Siemens = 42) [1] = Drive object type [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1 [7] = Drive object number [8] = Reserved [9] = Reserved [10] = Firmware patch/hot fix | | |
| Note: | Example: r0975[0] = 42 --> SIEMENS r0975[1] = 11 --> SERVO drive object type r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10) r0975[3] = 2003 --> year 2003 r0975[4] = 1401 --> 14th of January r0975[5] = 1 --> PROFIdrive drive object, type class r0975[6] = 9 --> PROFIdrive drive object sub-type class 1 r0975[7] = 2 --> drive object number = 2 r0975[8] = 0 (reserved) r0975[9] = 0 (reserved) r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00) | | |

| r0975[0...10] | Drive object identification / DO identification | | |
|---|--|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the identification of the drive object. | | |
| Index: | [0] = Company (Siemens = 42) [1] = Drive object type [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = PROFIdrive drive object type class [6] = PROFIdrive drive object sub-type Class 1 [7] = Drive object number [8] = Reserved [9] = Reserved [10] = Firmware patch/hot fix | | |
| Note: | Example: r0975[0] = 42 --> SIEMENS r0975[1] = 17 --> DC_CTRL drive object type r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10) r0975[3] = 2003 --> year 2003 | | |

r0975[4] = 1401 --> 14th of January
 r0975[5] = 1 --> PROFIdrive drive object, type class
 r0975[6] = 9 --> PROFIdrive drive object sub-type class 1
 r0975[7] = 2 --> drive object number = 2
 r0975[8] = 0 (reserved)
 r0975[9] = 0 (reserved)
 r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976**Reset and load all parameters / Reset load all par**

CU_DC, CU_DC_R,
 CU_DC_R_S,
 CU_DC_S

Can be changed: C1(30)**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dyn. index:** -**Func. diagram:** -**P-Group:** Factory settings**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0

1013

0

Description:

Resets or downloads all parameters of the drive system.

Value:

0: Inactive
 1: Start reset of all parameters to factory setting
 2: Start dnlod of param. saved in non-volatile mem w/ p0977=1
 3: Start download of volatile parameters from RAM
 10: Start dnlod of param. saved in non-volatile mem w/ p0977=10
 11: Start dnlod of param. saved in non-volatile mem w/ p0977=11
 12: Start dnlod of param. saved in non-volatile mem w/ p0977=12
 20: Start download Siemens internal setting 20
 100: Start resetting of all BICO interconnections
 200: Start deleting all user data
 1011: Start dnlod of param. saved in volatile mem w/ p0977=1011
 1012: Start dnlod of param. saved in volatile mem w/ p0977=1012
 1013: Start dnlod of param. saved in volatile mem w/ p0977=1013

Notice:

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

After executing p0976 = 200, the Control Unit is powered on automatically.

Note:

After all of the parameters have been reset to their factory setting, the system must be commissioned for the first time again.

Resetting or loading is realized in the non-volatile memory.

Procedure:

1. Set p0009 = 30 (parameter reset).
 2. Set p0976 to "required value". The system is rebooted.
- p0976 is automatically set to 0 after execution.

p0977**Save all parameters / Save all par**

CU_DC, CU_DC_R,
 CU_DC_R_S,
 CU_DC_S

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dyn. index:** -**Func. diagram:** -**P-Group:** Factory settings**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0

1013

0

Description:

Saves all parameters of the drive system to the non-volatile memory.

When saving, only the adjustable parameters intended to be saved are taken into account.

Value:

0: Inactive
 1: Save in non-volatile memory - downloaded at POWER ON
 10: Save as opt. in non-vol. memory - downloaded w/ p0976=10
 11: Save as opt. in non-vol. memory - downloaded w/ p0976=11
 12: Save as opt. in non-vol. memory - downloaded w/ p0976=12
 20: Save in non-volatile memory as setting 20 (reserved)
 80: Save in non-volatile memory time-optimized (reserved)
 1011: Save in volatile memory, downloaded with p0976=1011

2 Parameters

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1012: Save in volatile memory, downloaded with p0976=1012

1013: Save in volatile memory, downloaded with p0976=1013

Dependency:

Refer to: p0976, r3996

Caution:

Memory card inserted:



The drive parameterization is also saved on the card. Any backed-up data is overwritten!

Notice:

The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note:

Parameters saved with p0977 = 10, 11 or 12 can be downloaded again with p0976 = 10, 11 or 12.

Identification and maintenance data (I&M data, p8806 and following) are only saved for p0977 = 1.

p0978[0...n]

List of drive objects / List of the DO

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: C1(1)

Calculated: -

Access level: 2

Data type: Unsigned8

Dyn. index: -

Func. diagram: -

P-Group: Topology

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

255

[0] 1

[1...24] 0

Description:

This parameter is an image of p0101 in conformance with PROFIdrive.

Parameters p0101 and p0978 contain the following information:

- 1) The same number of drive objects
- 2) The same drive objects

In this sense, they are consistent.

Difference between p0101 and p0978:

p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange.

For p0978, in addition, the value 255 can be inserted a multiple number of times.

p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.

Dependency:

Refer to: p0101, p0971, p0977

Note:

p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).

r0979[0...30]

PROFIdrive encoder format / PD encoder format

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned32

Dyn. index: -

Func. diagram: 4704

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the actual position encoder used according to PROFIdrive.

Index:

- [0] = Header
- [1] = Type encoder 1
- [2] = Resolution enc 1
- [3] = Shift factor G1_XIST1
- [4] = Shift factor G1_XIST2
- [5] = Distinguishable revolutions encoder 1
- [6...10] = Reserved
- [11] = Type encoder 2
- [12] = Resolution enc 2
- [13] = Shift factor G2_XIST1
- [14] = Shift factor G2_XIST2
- [15] = Distinguishable revolutions encoder 2

[16...20] = Reserved
 [21] = Type encoder 3
 [22] = Resolution enc 3
 [23] = Shift factor G3_XIST1
 [24] = Shift factor G3_XIST2
 [25] = Distinguishable revolutions encoder 3
 [26...30] = Reserved

Note: Information about the individual indices can be taken from the following literature:
 PROFIdrive Profile Drive Technology

r0980[0...299] List of existing parameters 1 / List avail par 1

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0981, r0989

Note: The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0980[0...299], r0981[0...299] ... r0989[0...299]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0981[0...299] List of existing parameters 2 / List avail par 2

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0989

Note: The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0980[0...299], r0981[0...299] ... r0989[0...299]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0989[0...299] List of existing parameters 10 / List avail par 10

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0981

Note: The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. This list consists solely of the following parameters:
r0980[0...299], r0981[0...299] ... r0989[0...299]
The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

| | | | |
|----------------------|--|----------------------|--------------------------|
| r0990[0...99] | List of modified parameters 1 / List chang par 1 | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays those parameters with a value other than the factory setting for this drive. | | |
| Dependency: | Refer to: r0991, r0999 | | |
| Note: | Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues. This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99] The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master). | | |

| | | | |
|----------------------|--|----------------------|--------------------------|
| r0991[0...99] | List of modified parameters 2 / List chang par 2 | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays those parameters with a value other than the factory setting for this drive. | | |
| Dependency: | Refer to: r0990, r0999 | | |
| Note: | Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues. This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99] The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master). | | |




| | | | |
|----------------------|---|----------------------|--------------------------|
| r0999[0...99] | List of modified parameters 10 / List chang par 10 | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays those parameters with a value other than the factory setting for this drive. | | |
| Dependency: | Refer to: r0990, r0991 | | |
| Note: | Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99] The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master). | | |

| | | | |
|---|--|-------------------------------|--------------------------|
| p1000[0...n] | Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: CDS, p0170 | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 999999 | 0 |
| Description: | Runs the corresponding macro files. The Connector Inputs (CI) for the speed setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected. The selected macro file must be available on the memory card/device memory. Example: p1000 = 6 --> the macro file PM000006.ACX is run. | | |
| Dependency: | Refer to: p0015, p0700, p1500, r8572 | | |
| Notice: | No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group! When executing a specific macro, the corresponding programmed settings are made and become active. | | |
| Note: | The macros in the specified directory are displayed in r8572. r8572 is not in the expert list of the commissioning software. Macros available as standard are described in the technical documentation of the particular product. CI: Connector Input | | |
| p1035[0...n] | BI: Motorized potentiometer setpoint raise / Mop raise | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: - |
| | P-Group: Setpoints | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to continually increase the setpoint for the motorized potentiometer. The setpoint change (CO: r1050) depends on the set ramp-up time (p1047) and the duration of the signal that is present (BI: p1035). | | |
| Dependency: | Refer to: p1036 | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |
| p1036[0...n] | BI: Motorized potentiometer lower setpoint / Mop lower | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: - |
| | P-Group: Setpoints | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to continuously lower the setpoint for the motorized potentiometer. The setpoint change (CO: r1050) depends on the set ramp-down time (p1048) and the duration of the signal that is present (BI: p1036). | | |
| Dependency: | Refer to: p1035 | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---|---|---|--|
| p1055[0...n] | BI: Jog bit 0 / Jog bit 0 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2580 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for jog 1. | | |
| Recommendation: | When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source. | | |
| Dependency: | Refer to: p0840 | | |
| Notice: | The drive is enabled for jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that was used to power up can also be used to power down again. | | |
| p1056[0...n] | BI: Jog bit 1 / Jog bit 1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2580 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for jog 2. | | |
| Recommendation: | When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source. | | |
| Dependency: | Refer to: p0840 | | |
| Notice: | The drive is enabled for jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that was used to power up can also be used to power down again. | | |
| p1070[0...n] | CI: Main setpoint / Main setpoint | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: p2000 Max - | Access level: 3 Func. diagram: 3113 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the main setpoint. | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |
| p1113[0...n] | BI: Setpoint inversion / Setp inv | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2442, 3113 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source to invert the setpoint. | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |

| | | | |
|---|--|-------------------------------|----------------------------|
| p1140[0...n] | BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Setpoints | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the command "enable ramp-function generator/inhibit ramp-function generator". For the PROFIdrive profile, this command corresponds to control word 1 bit 4 (STW1.4). BI: p1140 = 0 signal: Inhibits the ramp-function generator (the ramp-function generator output is set to zero). BI: p1140 = 1 signal: Ramp-function generator enable. | | |
| Dependency: | Refer to: p1141, p1142 | | |
| Caution: | When "master control from PC" is activated, this binector input is ineffective. | | |
|  | | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |
| p1141[0...n] | BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Setpoints | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the command "continue ramp-function generator/freeze ramp-function generator". For the PROFIdrive profile, this command corresponds to control word 1 bit 5 (STW1.5). BI: p1141 = 0 signal: Freezes the ramp-function generator. BI: p1141 = 1 signal: Continue ramp-function generator. | | |
| Dependency: | Refer to: p1140, p1142 | | |
| Caution: | When "master control from PC" is activated, this binector input is ineffective. | | |
|  | | | |
| p1142[0...n] | BI: Enable setpoint/inhibit setpoint / Setpoint enable | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2580 |
| | P-Group: Setpoints | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the command "enable setpoint/inhibit setpoint". For the PROFIdrive profile, this command corresponds to control word 1 bit 6 (STW1.6). BI: p1142 = 0 signal Inhibits the setpoint (the ramp-function generator input is set to zero). BI: p1142 = 1 signal Setpoint enable. | | |
| Dependency: | Refer to: p1140, p1141 | | |
| Caution: | When "master control from PC" is activated, this binector input is ineffective. | | |
|  | | | |

2 Parameters

2.2 List of parameters

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: When the function module "position control" (r0108.3 = 1) is activated, this binector input is interconnected as follows as standard:
 BI: p1142 = 0 signal

| | | | |
|---|---|----------------------|--------------------------|
| r1407.0...23 | CO/BO: Status word speed controller / ZSW n_ctrl | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: REL | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and BICO output for the status word of the speed controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--|-----------------|-----------------|------------------------|
| | 00 | U/f control active | Yes | No | - |
| | 01 | Encoderless operation active | Yes | No | - |
| | 02 | Torque control active | Yes | No | 6030, 6060, 8010 |
| | 03 | Speed control active | Yes | No | 6040 |
| | 05 | Speed controller I component frozen | Yes | No | 6040 |
| | 06 | Speed controller I component set | Yes | No | 6040 |
| | 07 | Torque limit reached | Yes | No | 6060 |
| | 08 | Upper torque limit active | Yes | No | 6060 |
| | 09 | Lower torque limit active | Yes | No | 6060 |
| | 10 | Droop enabled | Yes | No | 6030 |
| | 11 | Speed setpoint limited | Yes | No | 6030 |
| | 12 | Ramp-function generator set | Yes | No | - |
| | 13 | Encoderless operation due to a fault | Yes | No | - |
| | 14 | I/f control active | Yes | No | - |
| | 15 | Torque limit reached (without pre-control) | Yes | No | 6060 |
| | 23 | Acceleration model activated | Yes | No | - |

| | | | |
|---|---|---------------------------------|----------------------------|
| p1441[0...n] | Actual speed smoothing time / n_act T_smooth | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: CALC_MOD_CON | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 4711 |
| | P-Group: Closed-loop control | Unit group: - | Unit selection: - |
| | Not for motor type: REL | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [ms] | 50.00 [ms] | 0.00 [ms] |

Description: Sets the smoothing time constant (PT1) for the speed actual value.

Dependency: Refer to: r0063

Note: The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.
 After this parameter has been changed, we recommend that the speed controller is adjusted and/or the speed controller settings Kp (r50219) and Tn (r50218) checked.

| | | | |
|---|--|-------------------------------|--------------------------|
| p1500[0...n] | Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: CDS, p0170 | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: REL | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 999999 | 0 |

Description: Runs the corresponding macro files.
 The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.
 The selected macro file must be available on the memory card/device memory.

Example:

p1500 = 6 --> the macro file PM000006.ACX is run.

Dependency:

Refer to: p0015, p0700, p1000, r8573

Notice:

No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!
When executing a specific macro, the corresponding programmed settings are made and become active.

Note:

The macros in the specified directory are displayed in r8573. r8573 is not in the expert list of the commissioning software.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector Input

| p1821[0...n] | Dir of rot / Dir of rot | | |
|---|--|-------------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 4704, 4710, 4711 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to change the direction of rotation. Changing the parameter reverses the direction of the encoder actual value. | | |
| Value: | 0: CW 1: CCW | | |
| Notice: | An appropriate fault is output for a drive data set changeover where the direction of rotation changes and the pulses are enabled. | | |

| p2000 | Reference speed / n_ref | | |
|---|---|---------------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: CALC_MOD_ALL | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3113, 9566, 9568, 9572 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 6.00 [rpm] | 210000.00 [rpm] | 210000.00 [rpm] |
| Description: | Sets the reference quantity for speed. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |
| Dependency: | Refer to: p2001, p2002, p2003, r2004 | | |

| p2001 | Reference voltage / Reference voltage | | |
|---|--|---------------------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: CALC_MOD_ALL | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 [Vrms] | 100000 [Vrms] | 1000 [Vrms] |
| Description: | Sets the reference quantity for voltages. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |
| Note: | For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity. Example: The actual value of the DC link voltage (r0070) is connected to a test socket (e.g. p0771[0]). The actual voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---|---|--|--|
| p2002 | Reference current / I_{ref} | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min 0.10 [Arms] | Calculated: CALC_MOD_ALL Dyn. index: - Unit group: - Scaling: - Max 100000.00 [Arms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100.00 [Arms] |
| Description: | Sets the reference quantity for current. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |
| p2003 | Reference torque / M_{ref} | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min 0.01 [Nm] | Calculated: CALC_MOD_ALL Dyn. index: - Unit group: 7_2 Scaling: - Max 20000000.00 [Nm] | Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 1.00 [Nm] |
| Description: | Sets the reference quantity for torque. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |
| r2004 | Reference power / P_{ref} | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min - [kW] | Calculated: - Dyn. index: - Unit group: 14_10 Scaling: - Max - [kW] | Access level: 3 Func. diagram: 9566, 9568, 9572 Unit selection: p0505 Expert list: 1 Factory setting - [kW] |
| Description: | Displays the reference quantity for power. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |
| Dependency: | This value is calculated as follows: Closed-loop control: Calculated from torque times speed. Refer to: p2000, p2001, p2002, p2003 | | |
| Note: | If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. The reference power is calculated as follows: - 2 * Pi * reference speed / 60 * reference torque (motor) | | |
| p2005 | Reference angle / Reference angle | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min 90.00 [°] | Calculated: CALC_MOD_ALL Dyn. index: - Unit group: - Scaling: - Max 180.00 [°] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 90.00 [°] |
| Description: | Sets the reference quantity for angle. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |

| | | | |
|---|--|---|---|
| p2006 | Reference temp / Ref temp | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM31 | Can be changed: T Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min 50.00 [°C] | Calculated: CALC_MOD_ALL Dyn. index: - Unit group: - Scaling: - Max 300.00 [°C] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 100.00 [°C] |
| Description: | Sets the reference quantity for temperature. All temperatures specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |

| | | | |
|---|---|---|--|
| p2007 | Reference acceleration / a_ref | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min 0.01 [rev/s ²] | Calculated: CALC_MOD_ALL Dyn. index: - Unit group: - Scaling: - Max 500000.00 [rev/s ²] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.01 [rev/s ²] |
| Description: | Sets the reference quantity for acceleration. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). | | |

| | | | |
|-----------------------|---|--|---|
| p2011 | Comm IF address / Comm add | | |
| CU_DC_R, CU_DC_R_S | Can be changed: T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 127 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 5 |
| Description: | Sets the address for the commissioning interface (PPI). | | |
| Note: | Only odd-numbered addresses can be set. Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting. | | |

| | | | |
|---------------------|---|--|---|
| p2011 | Comm IF address / Comm add | | |
| CU_DC, CU_DC_S | Can be changed: T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 127 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 3 |
| Description: | Sets the address for the commissioning interface (PPI). | | |
| Note: | Only odd-numbered addresses can be set. Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting. | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|--|---|--|
| r2019[0...7] | Comm IF error statistics / Comm err | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the receive errors at the commissioning interface (RS232). | | |
| Index: | [0] = Number of error-free telegrams [1] = Number of rejected telegrams [2] = Number of framing errors [3] = Number of overrun errors [4] = Number of parity errors [5] = Number of starting character errors [6] = Number of checksum errors [7] = Number of length errors | | |
| p2020 | Field bus interface baud rate / Field bus baud | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: - Min 4 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 13 | Access level: 2 Func. diagram: 9310 Unit selection: - Expert list: 1 Factory setting 8 |
| Description: | Sets the baud rate for the fieldbus interface USS. | | |
| Value: | 4: 2400 baud 5: 4800 baud 6: 9600 baud 7: 19200 baud 8: 38400 baud 9: 57600 baud 10: 76800 baud 11: 93750 baud 12: 115200 baud 13: 187500 baud | | |
| Note: | Fieldbus IF: Fieldbus interface Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting. The parameter is set to the factory setting when the protocol is reselected. | | |
| p2021 | Field bus interface address / Field bus address | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 31 | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the address for the fieldbus interface USS. | | |
| Dependency: | Refer to: p2030 | | |
| Note: | Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting. The parameter is set to the factory setting when the protocol is reselected. | | |

| | | | |
|--|--|----------------------|----------------------------|
| p2022 | Field bus int USS PZD no. / Field bus USS PZD | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9310 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 16 | 2 |
| Description: | Sets the number of 16-bit words in the PZD part of the USS telegram for the field bus interface. | | |
| Dependency: | Refer to: p2030 | | |
| Note: | The parameter is not influenced by setting the factory setting. | | |

| | | | |
|--|--|----------------------|----------------------------|
| p2023 | Field bus int USS PKW no. / Field bus USS PKW | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9310 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 127 | 127 |
| Description: | Sets the number of 16-bit words in the PKW part of the USS telegram for the field bus interface. | | |
| Value: | 0: PKW 0 words 3: PKW 3 words 4: PKW 4 words 127: PKW variable | | |
| Dependency: | Refer to: p2030 | | |
| Note: | The parameter is not influenced by setting the factory setting. | | |

| | | | |
|--|--|----------------------|----------------------------|
| r2029[0...7] | Field bus int error statistics / Field bus error | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9310 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the receive errors on the field bus interface (USS). | | |
| Index: | [0] = Number of error-free telegrams [1] = Number of rejected telegrams [2] = Number of framing errors [3] = Number of overrun errors [4] = Number of parity errors [5] = Number of starting character errors [6] = Number of checksum errors [7] = Number of length errors | | |

| | | | |
|--|--|----------------------|--------------------------|
| p2030 | Field bus int protocol selection / Field bus protocol | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 3 |
| Description: | Sets the communication protocol for the field bus interface. | | |
| Value: | 0: No protocol 1: USS 3: PROFIBUS | | |

2 Parameters

2.2 List of parameters

Note: Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.

| r2032 | | Master control control word effective / PcCtrl STW eff | | | |
|---|--|---|--------------------------|-----------------|-----------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the effective control word 1 (STW1) of the drive for the master control. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | ON/OFF1 | Yes | No | - |
| | 01 | OC / OFF2 | Yes | No | - |
| | 02 | OC / OFF3 | Yes | No | - |
| | 03 | Operation enable | Yes | No | - |
| | 04 | Ramp-function generator enable | Yes | No | - |
| | 05 | Start ramp-function generator | Yes | No | - |
| | 06 | Speed setpoint enable | Yes | No | - |
| | 07 | Acknowledge fault | Yes | No | - |
| | 08 | Jog bit 0 | Yes | No | 3030 |
| | 09 | Jog bit 1 | Yes | No | 3030 |
| | 10 | Master ctrl by PLC | Yes | No | - |
| Notice: | The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device. | | | | |
| Note: | OC: Operating condition | | | | |

| p2035 | | Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no | | |
|--|---|--|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 2 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 1 | 62 | 2 | |
| Description: | Sets the drive object number for communication via the field bus interface (USS). | | | |
| Dependency: | Refer to: p0978 | | | |
| Note: | p2035 defines the destination for USS parameter requests (PIV). p0978[0] defines the destination for USS process data (PZD). The parameter is available globally on all drive objects. The parameter is not influenced by setting the factory setting. | | | |

| p2037 | | IF1 PROFIdrive STW1.10 = 0 mode / IF1 PD STW1.10=0 | | |
|---|---|---|--------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | 0 | |
| Description: | Sets the processing mode for PROFIdrive STW1.10 "master control by PLC". Generally, control word 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter. | | | |
| Value: | 0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Do not freeze setpoints | | | |
| Recommendation: | Do not change the setting p2037 = 0. | | | |

Note: If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.

| p2038 | | IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode | | |
|---|---|---|--------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | 0 | |
| Description: | Sets the interface mode of the PROFIdrive control words and status words. When selecting a telegram via p0922 (p2079), this parameter influences the device-specific assignment of the bits in the control and status words. | | | |
| Value: | 0: SINAMICS 2: VIK-NAMUR | | | |
| Dependency: | Refer to: p0922, p2079 | | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | | |

| p2039 | | Select debug monitor interface / Debug monit select | | |
|--|---|--|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 3 | 1 | |
| Description: | Sets the serial interface for the debug monitor. With p2039 = 1, the serial interface COM2 (X179) is set. Other values are not permitted. | | | |

| p2040 | | Fieldbus interface monitoring time / Fieldbus t_monit | | |
|--|--|--|----------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9310 | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 [ms] | 1999999 [ms] | 100 [ms] | |
| Description: | Sets the monitoring time to monitor the process data received via the fieldbus interface. If no process data is received within this time, then an appropriate message is output. | | | |
| Note: | p2040 = 0: Monitoring is de-activated. | | | |

| p2042 | | PROFIBUS Ident Number / PB Ident No. | | |
|--|---|---|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 1 | 0 | |
| Description: | Sets the PROFIBUS Ident Number (PNO-ID). SINAMICS can be operated with various identities on PROFIBUS. This allows the use of a PROFIBUS GSD that is independent of the device (e.g. PROFIdrive VIK-NAMUR with Ident Number 3AA0 hex). | | | |
| Value: | 0: SINAMICS 1: VIK-NAMUR | | | |
| Note: | Every change only becomes effective after a POWER ON. | | | |

2 Parameters

2.2 List of parameters

| | | | | |
|---|--|----------------------|----------------------------|-----------------|
| r2043.0...2 | BO: IF1 PROFIdrive PZD state / IF1 PD PZD state | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 2410 | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the PROFIdrive PZD state. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Setpoint failure | Yes | No |
| | 02 | Fieldbus oper | Yes | No |
| Dependency: | Refer to: p2044 | | | |
| Note: | When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails. | | | |
| p2044 | IF1 PROFIdrive fault delay / IF1 PD fault delay | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2410 | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 [s] | 100 [s] | 0 [s] | |
| Description: | Sets the delay time to initiate fault F01910 after a setpoint failure. The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction). | | | |
| Dependency: | Refer to: r2043 | | | |
| p2047 | PROFIBUS additional monitoring time / PB suppl t_monit | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2410 | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 [ms] | 20000 [ms] | 0 [ms] | |
| Description: | Sets the additional monitoring time to monitor the process data received via PROFIBUS. Enables short bus faults to be compensated. If no process data is received within this time, then an appropriate message is output. | | | |
| Recommendation: | In the isochronous mode, the additional monitoring time should not be set. | | | |
| Note: | For controller STOP, the additional monitoring time is not effective. | | | |
| p2048 | IF1 PROFIdrive PZD sampling time / IF1 PZD t_sample | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(3) | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 1.00 [ms] | 16.00 [ms] | 4.00 [ms] | |
| Description: | Sets the sampling time for the cyclic interface 1 (IF1). | | | |
| Note: | The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set. For clock cycle synchronous operation, the specified bus cycle time applies (Tdp). | | | |

| r2050[0...19] | | CO: IF1 PROFIdrive PZD receive word / IF1 PZD rcv word | | |
|--|---|---|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller. | | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 | | | |
| Note: | IF1: Interface 1 | | | |

| r2050[0...63] | | CO: IF1 PROFIdrive PZD receive word / IF1 PZD rcv word | | |
|---|---|---|----------------------------|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2440 | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller. | | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 | | | |

2.2 List of parameters

- [22] = PZD 23
- [23] = PZD 24
- [24] = PZD 25
- [25] = PZD 26
- [26] = PZD 27
- [27] = PZD 28
- [28] = PZD 29
- [29] = PZD 30
- [30] = PZD 31
- [31] = PZD 32
- [32] = PZD 33
- [33] = PZD 34
- [34] = PZD 35
- [35] = PZD 36
- [36] = PZD 37
- [37] = PZD 38
- [38] = PZD 39
- [39] = PZD 40
- [40] = PZD 41
- [41] = PZD 42
- [42] = PZD 43
- [43] = PZD 44
- [44] = PZD 45
- [45] = PZD 46
- [46] = PZD 47
- [47] = PZD 48
- [48] = PZD 49
- [49] = PZD 50
- [50] = PZD 51
- [51] = PZD 52
- [52] = PZD 53
- [53] = PZD 54
- [54] = PZD 55
- [55] = PZD 56
- [56] = PZD 57
- [57] = PZD 58
- [58] = PZD 59
- [59] = PZD 60
- [60] = PZD 61
- [61] = PZD 62
- [62] = PZD 63
- [63] = PZD 64

Dependency: Refer to: r2060

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

Note: IF1: Interface 1

r2050[0...4] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

| | | | |
|---------------------------|--------------------------------|-----------------------|--------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

- Index:**
- [0] = PZD 1
 - [1] = PZD 2
 - [2] = PZD 3
 - [3] = PZD 4
 - [4] = PZD 5

Note: IF1: Interface 1

| p2051[0...24] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word | | | |
|---|--|-----------------------|----------------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Integer16 | Dyn. index: - | Func. diagram: 2450, 2483 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Selects the PZD (actual values) with word format to be sent to the fieldbus controller. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |
| Note: | IF1: Interface 1 | | |

| p2051[0...63] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word | | | |
|---|---|-----------------------|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Integer16 | Dyn. index: - | Func. diagram: 2450, 2470, 2483 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Selects the PZD (actual values) with word format to be sent to the fieldbus controller. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 | | |

- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19
- [19] = PZD 20
- [20] = PZD 21
- [21] = PZD 22
- [22] = PZD 23
- [23] = PZD 24
- [24] = PZD 25
- [25] = PZD 26
- [26] = PZD 27
- [27] = PZD 28
- [28] = PZD 29
- [29] = PZD 30
- [30] = PZD 31
- [31] = PZD 32
- [32] = PZD 33
- [33] = PZD 34
- [34] = PZD 35
- [35] = PZD 36
- [36] = PZD 37
- [37] = PZD 38
- [38] = PZD 39
- [39] = PZD 40
- [40] = PZD 41
- [41] = PZD 42
- [42] = PZD 43
- [43] = PZD 44
- [44] = PZD 45
- [45] = PZD 46
- [46] = PZD 47
- [47] = PZD 48
- [48] = PZD 49
- [49] = PZD 50
- [50] = PZD 51
- [51] = PZD 52
- [52] = PZD 53
- [53] = PZD 54
- [54] = PZD 55
- [55] = PZD 56
- [56] = PZD 57
- [57] = PZD 58
- [58] = PZD 59
- [59] = PZD 60
- [60] = PZD 61
- [61] = PZD 62
- [62] = PZD 63
- [63] = PZD 64

Dependency: Refer to: p2061

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

| | | | |
|---------------------------|---|-----------------------|--------------------------|
| p2051[0...4] | CI: IF1 PROFIdrive PZD send word / IF1 PZD send word | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index: [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

r2053[0...24] IF1 PROFdrive diagnostics PZD send word / IF1 diag send word

| | | | |
|--|--------------------------------|----------------------|----------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2483 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index: [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19
 [19] = PZD 20
 [20] = PZD 21
 [21] = PZD 22
 [22] = PZD 23
 [23] = PZD 24
 [24] = PZD 25

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

| r2053[0...63] | IF1 PROFdrive diagnostics PZD send word / IF1 diag send word | | |
|---|---|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications | Calculated: - Dyn. index: - Unit group: - | Access level: 3 Func. diagram: 2450, 2470 Unit selection: - |
| | Not for motor type: - Min | Scaling: - Max | Expert list: 1 Factory setting |
| | - | - | - |
| Description: | Displays the PZD (actual values) with word format sent to the fieldbus controller. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 [25] = PZD 26 [26] = PZD 27 [27] = PZD 28 [28] = PZD 29 [29] = PZD 30 [30] = PZD 31 [31] = PZD 32 [32] = PZD 33 [33] = PZD 34 [34] = PZD 35 [35] = PZD 36 [36] = PZD 37 [37] = PZD 38 [38] = PZD 39 [39] = PZD 40 [40] = PZD 41 [41] = PZD 42 [42] = PZD 43 [43] = PZD 44 [44] = PZD 45 [45] = PZD 46 [46] = PZD 47 [47] = PZD 48 [48] = PZD 49 [49] = PZD 50 [50] = PZD 51 [51] = PZD 52 [52] = PZD 53 [53] = PZD 54 | | |

[54] = PZD 55
 [55] = PZD 56
 [56] = PZD 57
 [57] = PZD 58
 [58] = PZD 59
 [59] = PZD 60
 [60] = PZD 61
 [61] = PZD 62
 [62] = PZD 63
 [63] = PZD 64

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p2051, p2061

Note: IF1: Interface 1

r2053[0...4] IF1 PROFdrive diagnostics PZD send word / IF1 diag send word

| | | | |
|---------------------------|--------------------------------|----------------------|--------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

2 Parameters

2.2 List of parameters

| | | | |
|---|--|--|--|
| r2054 | PROFIBUS status / PB status | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4 | Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Status display for the PROFIBUS interface. | | |
| Value: | 0: OFF 1: No connection (search for baud rate) 2: Connection OK (baud rate found) 3: Cyclic connection with master (data exchange) 4: Cyclic data OK | | |
| Note: | <p>Re r2054 = 3: In state 3 (the LED flashes green), a cyclic connection has been established to the PROFIBUS master; however, one of the following prerequisites is missing for cyclic operation: - No setpoints are being received as the PROFIBUS master is in the STOP condition. Only for clock-cycle synchronous operation, the following applies: - The drive is not in synchronism as the global control (GC) has an error.</p> <p>Re r2054 = 4: In the status 4 (LED green), the cyclic connection to the PROFIBUS master has been established and setpoints are being received. The clock cycle synchronization is OK, the global control (GC) is error-free. This state does not provide any statement regarding the quality of the clock cycle synchronous sign-of-life characters on the drive objects.</p> | | |
| r2055[0...2] | PROFIBUS diagnostics standard / PB diag standard | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Diagnostics display for the PROFIBUS interface. | | |
| Index: | [0] = Master bus address [1] = Master input total length bytes [2] = Master output total length bytes | | |
| r2060[0...62] | CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Integer32 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: 4000H Max - | Access level: 3 Func. diagram: 2440, 2460 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output to interconnect PZD (setpoints) with double word format received from the fieldbus controller. | | |
| Index: | [0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 | | |

[11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16
 [15] = PZD 16 + 17
 [16] = PZD 17 + 18
 [17] = PZD 18 + 19
 [18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27
 [26] = PZD 27 + 28
 [27] = PZD 28 + 29
 [28] = PZD 29 + 30
 [29] = PZD 30 + 31
 [30] = PZD 31 + 32
 [31] = PZD 32 + 33
 [32] = PZD 33 + 34
 [33] = PZD 34 + 35
 [34] = PZD 35 + 36
 [35] = PZD 36 + 37
 [36] = PZD 37 + 38
 [37] = PZD 38 + 39
 [38] = PZD 39 + 40
 [39] = PZD 40 + 41
 [40] = PZD 41 + 42
 [41] = PZD 42 + 43
 [42] = PZD 43 + 44
 [43] = PZD 44 + 45
 [44] = PZD 45 + 46
 [45] = PZD 46 + 47
 [46] = PZD 47 + 48
 [47] = PZD 48 + 49
 [48] = PZD 49 + 50
 [49] = PZD 50 + 51
 [50] = PZD 51 + 52
 [51] = PZD 52 + 53
 [52] = PZD 53 + 54
 [53] = PZD 54 + 55
 [54] = PZD 55 + 56
 [55] = PZD 56 + 57
 [56] = PZD 57 + 58
 [57] = PZD 58 + 59
 [58] = PZD 59 + 60
 [59] = PZD 60 + 61
 [60] = PZD 61 + 62
 [61] = PZD 62 + 63
 [62] = PZD 63 + 64

Dependency:

Refer to: r2050

Notice:

Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

A maximum of 4 indices of the "trace" function can be used.

Note:

IF1: Interface 1

| p2061[0...62] CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW | | | |
|--|---|-----------------------|----------------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Integer32 | Dyn. index: - | Func. diagram: 2450, 2470 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Selects the PZD (actual values) with double word format to be sent to the fieldbus controller. | | |
| Index: | [0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16 [15] = PZD 16 + 17 [16] = PZD 17 + 18 [17] = PZD 18 + 19 [18] = PZD 19 + 20 [19] = PZD 20 + 21 [20] = PZD 21 + 22 [21] = PZD 22 + 23 [22] = PZD 23 + 24 [23] = PZD 24 + 25 [24] = PZD 25 + 26 [25] = PZD 26 + 27 [26] = PZD 27 + 28 [27] = PZD 28 + 29 [28] = PZD 29 + 30 [29] = PZD 30 + 31 [30] = PZD 31 + 32 [31] = PZD 32 + 33 [32] = PZD 33 + 34 [33] = PZD 34 + 35 [34] = PZD 35 + 36 [35] = PZD 36 + 37 [36] = PZD 37 + 38 [37] = PZD 38 + 39 [38] = PZD 39 + 40 [39] = PZD 40 + 41 [40] = PZD 41 + 42 [41] = PZD 42 + 43 [42] = PZD 43 + 44 [43] = PZD 44 + 45 [44] = PZD 45 + 46 [45] = PZD 46 + 47 [46] = PZD 47 + 48 [47] = PZD 48 + 49 [48] = PZD 49 + 50 [49] = PZD 50 + 51 [50] = PZD 51 + 52 [51] = PZD 52 + 53 [52] = PZD 53 + 54 [53] = PZD 54 + 55 | | |

[54] = PZD 55 + 56
 [55] = PZD 56 + 57
 [56] = PZD 57 + 58
 [57] = PZD 58 + 59
 [58] = PZD 59 + 60
 [59] = PZD 60 + 61
 [60] = PZD 61 + 62
 [61] = PZD 62 + 63
 [62] = PZD 63 + 64

Dependency:

Refer to: p2051

Notice:

A BICO interconnection for a single PZD can only take place either on p2051 or p2061.

The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note:

IF1: Interface 1

r2063[0...62]**IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW**

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** Unsigned32**Dyn. index:** -**Func. diagram:** 2450, 2470**P-Group:** Communications**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the PZD (actual values) with double word format sent to the fieldbus controller.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16
 [15] = PZD 16 + 17
 [16] = PZD 17 + 18
 [17] = PZD 18 + 19
 [18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27
 [26] = PZD 27 + 28
 [27] = PZD 28 + 29
 [28] = PZD 29 + 30
 [29] = PZD 30 + 31
 [30] = PZD 31 + 32
 [31] = PZD 32 + 33
 [32] = PZD 33 + 34
 [33] = PZD 34 + 35
 [34] = PZD 35 + 36
 [35] = PZD 36 + 37
 [36] = PZD 37 + 38
 [37] = PZD 38 + 39
 [38] = PZD 39 + 40
 [39] = PZD 40 + 41

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[40] = PZD 41 + 42
 [41] = PZD 42 + 43
 [42] = PZD 43 + 44
 [43] = PZD 44 + 45
 [44] = PZD 45 + 46
 [45] = PZD 46 + 47
 [46] = PZD 47 + 48
 [47] = PZD 48 + 49
 [48] = PZD 49 + 50
 [49] = PZD 50 + 51
 [50] = PZD 51 + 52
 [51] = PZD 52 + 53
 [52] = PZD 53 + 54
 [53] = PZD 54 + 55
 [54] = PZD 55 + 56
 [55] = PZD 56 + 57
 [56] = PZD 57 + 58
 [57] = PZD 58 + 59
 [58] = PZD 59 + 60
 [59] = PZD 60 + 61
 [60] = PZD 61 + 62
 [61] = PZD 62 + 63
 [62] = PZD 63 + 64

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |
| | 16 | Bit 16 | ON | OFF | - |
| | 17 | Bit 17 | ON | OFF | - |
| | 18 | Bit 18 | ON | OFF | - |
| | 19 | Bit 19 | ON | OFF | - |
| | 20 | Bit 20 | ON | OFF | - |
| | 21 | Bit 21 | ON | OFF | - |
| | 22 | Bit 22 | ON | OFF | - |
| | 23 | Bit 23 | ON | OFF | - |
| | 24 | Bit 24 | ON | OFF | - |
| | 25 | Bit 25 | ON | OFF | - |
| | 26 | Bit 26 | ON | OFF | - |
| | 27 | Bit 27 | ON | OFF | - |
| | 28 | Bit 28 | ON | OFF | - |
| | 29 | Bit 29 | ON | OFF | - |
| | 30 | Bit 30 | ON | OFF | - |
| | 31 | Bit 31 | ON | OFF | - |

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF1: Interface 1

| | | | | | |
|---|--|--|--------------------------|-----------------|-----------|
| r2064[0...7] | PB/PN diagnostics clock cycle synchronism / PB/PN diag clock | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Communications | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the last parameter received from the PROFIBUS/PROFINET controller for clock synchronism. The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the controller to the device. | | | | |
| Index: | [0] = Clock synchronous mode activated [1] = Bus cycle time (Tdp) [µs] [2] = Master cycle time (Tmapc) [µs] [3] = Instant of actual value acquisition (Ti) [µs] [4] = Instant of setpoint acquisition (To) [µs] [5] = Data exchange interval (Tdx) [µs] [6] = PLL window (Tpll-w) [1/12 µs] [7] = PLL delay time (Tpll-d) [1/12 µs] | | | | |
| r2065 | PB/PN controller sign of life diagnostics / PB/PN ctr SoL diag | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Communications | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays how often the sign-of-life from the clock synchronous PROFIBUS/PROFINET controller last failed. | | | | |
| r2067[0...1] | IF1 PZD maximum interconnected / IF1 PZDmaxIntercon | | | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Communications | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display for the maximum interconnected PZD in the receive/send direction Index 0: receive (r2050, r2060) Index 1: send (p2051, p2061) | | | | |
| p2072 | Response receive value after PZD failure / Resp aft PZD fail | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Communications | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | 0000 bin | | |
| Description: | Sets the response for the receive value (r2090) after PZD failure. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Unconditionally open holding brake (p0855) | Freeze value | Zero the value | - |

| r2074[0...19] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv | | | |
|---|---|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the PROFIBUS address of the sender from which the process data (PZD) is received. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 | | |
| Note: | IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 65535: Not assigned | | |

| r2074[0...63] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv | | | |
|---|---|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the PROFIBUS address of the sender from which the process data (PZD) is received. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 | | |

[18] = PZD 19
 [19] = PZD 20
 [20] = PZD 21
 [21] = PZD 22
 [22] = PZD 23
 [23] = PZD 24
 [24] = PZD 25
 [25] = PZD 26
 [26] = PZD 27
 [27] = PZD 28
 [28] = PZD 29
 [29] = PZD 30
 [30] = PZD 31
 [31] = PZD 32
 [32] = PZD 33
 [33] = PZD 34
 [34] = PZD 35
 [35] = PZD 36
 [36] = PZD 37
 [37] = PZD 38
 [38] = PZD 39
 [39] = PZD 40
 [40] = PZD 41
 [41] = PZD 42
 [42] = PZD 43
 [43] = PZD 44
 [44] = PZD 45
 [45] = PZD 46
 [46] = PZD 47
 [47] = PZD 48
 [48] = PZD 49
 [49] = PZD 50
 [50] = PZD 51
 [51] = PZD 52
 [52] = PZD 53
 [53] = PZD 54
 [54] = PZD 55
 [55] = PZD 56
 [56] = PZD 57
 [57] = PZD 58
 [58] = PZD 59
 [59] = PZD 60
 [60] = PZD 61
 [61] = PZD 62
 [62] = PZD 63
 [63] = PZD 64

Note:

IF1: Interface 1
 Value range:
 0 - 125: Bus address of the sender
 65535: Not assigned

r2074[0...4]**IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv**

TM150, TM15DI_DO,
 TM31

| | | |
|--------------------------------|----------------------|--------------------------|
| Can be changed: - | Calculated: - | Access level: 3 |
| Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| P-Group: Communications | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| - | - | - |

Description:

Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:

[0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3

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[3] = PZD 4
 [4] = PZD 5
Note: IF1: Interface 1
 Value range:
 0 - 125: Bus address of the sender
 65535: Not assigned

r2075[0...19] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

| | | | |
|--|--------------------------------|----------------------|----------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index: [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19
 [19] = PZD 20

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 65535: Not assigned

r2075[0...63] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

| | | | |
|---|--------------------------------|----------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index: [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11

[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note:

IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

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| r2075[0...4] | IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv | | |
|---------------------------|--|----------------------|----------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the PZD byte offset in the PROFIdrive receive telegram (controller output). | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 | | |
| Note: | IF1: Interface 1 Value range: 0 - 242: Byte offset 65535: Not assigned | | |

| r2076[0...24] | IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send | | |
|--|--|----------------------|----------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the PZD byte offset in the PROFIdrive send telegram (controller input). | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 | | |
| Note: | IF1: Interface 1 Value range: 0 - 242: Byte offset 65535: Not assigned | | |

| r2076[0...63] | IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send | | |
|---|---|----------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the PZD byte offset in the PROFIdrive send telegram (controller input). | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 [25] = PZD 26 [26] = PZD 27 [27] = PZD 28 [28] = PZD 29 [29] = PZD 30 [30] = PZD 31 [31] = PZD 32 [32] = PZD 33 [33] = PZD 34 [34] = PZD 35 [35] = PZD 36 [36] = PZD 37 [37] = PZD 38 [38] = PZD 39 [39] = PZD 40 [40] = PZD 41 [41] = PZD 42 [42] = PZD 43 [43] = PZD 44 [44] = PZD 45 [45] = PZD 46 [46] = PZD 47 [47] = PZD 48 [48] = PZD 49 [49] = PZD 50 [50] = PZD 51 [51] = PZD 52 [52] = PZD 53 [53] = PZD 54 | | |

2 Parameters

2.2 List of parameters

[54] = PZD 55
 [55] = PZD 56
 [56] = PZD 57
 [57] = PZD 58
 [58] = PZD 59
 [59] = PZD 60
 [60] = PZD 61
 [61] = PZD 62
 [62] = PZD 63
 [63] = PZD 64

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 65535: Not assigned

r2076[0...4] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

| | | | |
|---------------------------|--------------------------------|----------------------|----------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index: [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 65535: Not assigned

r2077[0...15] PROFIBUS diagnostics peer-to-peer data transfer addresses / PB diag peer addr

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the addresses of the slaves (peers) where peer-to-peer data transfer has been configured via PROFIBUS.

p2079 IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext

| | | | |
|--|--------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 390 | 999 | 999 |

Description: Sets the send and receive telegram.
 Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value: 390: SIEMENS telegram 390, PZD-2/2
 391: SIEMENS telegram 391, PZD-3/7
 392: SIEMENS telegram 392, PZD-3/15
 393: SIEMENS telegram 393, PZD-4/21
 394: SIEMENS telegram 394, PZD-3/3

395: SIEMENS telegram 395, PZD-4/25
 396: SIEMENS telegram 396, PZD-20/21
 999: Free telegram configuration with BICO

Note:

For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2079**IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext**

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: T

Calculated: -

Access level: 3

Data type: Integer16

Dyn. index: -

Func. diagram: -

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

1

999

999

Description:

Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:

1: Standard telegram 1, PZD-2/2
 3: Standard telegram 3, PZD-5/9
 4: Standard telegram 4, PZD-6/14
 20: Standard telegram 20, PZD-2/6
 220: SIEMENS telegram 220, PZD-10/10
 352: SIEMENS telegram 352, PZD-6/6
 999: Free telegram configuration with BICO

Dependency:

Refer to: p0922

Note:

For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2080[0...15]**BI: Binector-connector converter status word 1 / Bin/con ZSW1**

All objects

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Unsigned32 / Binary

Dyn. index: -

Func. diagram: 2472

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

0

Description:

Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form status word 1.

Index:

[0] = Bit 0
 [1] = Bit 1
 [2] = Bit 2
 [3] = Bit 3
 [4] = Bit 4
 [5] = Bit 5
 [6] = Bit 6
 [7] = Bit 7
 [8] = Bit 8
 [9] = Bit 9
 [10] = Bit 10
 [11] = Bit 11
 [12] = Bit 12

[13] = Bit 13
 [14] = Bit 14
 [15] = Bit 15

Dependency: Refer to: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2081[0...15] BI: Binector-connector converter status word 2 / Bin/con ZSW2

| | | | |
|-------------|---------------------------------------|----------------------|----------------------------|
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2472 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects bits to be sent to the PROFIdrive controller.
 The individual bits are combined to form status word 2.

Index: [0] = Bit 0
 [1] = Bit 1
 [2] = Bit 2
 [3] = Bit 3
 [4] = Bit 4
 [5] = Bit 5
 [6] = Bit 6
 [7] = Bit 7
 [8] = Bit 8
 [9] = Bit 9
 [10] = Bit 10
 [11] = Bit 11
 [12] = Bit 12
 [13] = Bit 13
 [14] = Bit 14
 [15] = Bit 15

Dependency: Refer to: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For clock synchronous operation, bit 12 to 15 to transfer the sign-of-life are reserved in status word 2 - and may not be freely interconnected.

p2082[0...15] BI: Binector-connector converter status word 3 / Bin/con ZSW3

| | | | |
|-------------|---------------------------------------|----------------------|----------------------------|
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2472 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects bits to be sent to the PROFIdrive controller.
 The individual bits are combined to form free status word 3.

Index: [0] = Bit 0
 [1] = Bit 1
 [2] = Bit 2
 [3] = Bit 3
 [4] = Bit 4
 [5] = Bit 5
 [6] = Bit 6
 [7] = Bit 7
 [8] = Bit 8
 [9] = Bit 9
 [10] = Bit 10
 [11] = Bit 11
 [12] = Bit 12
 [13] = Bit 13

[14] = Bit 14
 [15] = Bit 15
Dependency: Refer to: p2088, r2089
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2083[0...15] BI: Binector-connector converter status word 4 / Bin/con ZSW4

| | | | |
|-------------|---------------------------------------|----------------------|----------------------------|
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2472 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects bits to be sent to the PROFIdrive controller.
 The individual bits are combined to form free status word 4.

Index: [0] = Bit 0
 [1] = Bit 1
 [2] = Bit 2
 [3] = Bit 3
 [4] = Bit 4
 [5] = Bit 5
 [6] = Bit 6
 [7] = Bit 7
 [8] = Bit 8
 [9] = Bit 9
 [10] = Bit 10
 [11] = Bit 11
 [12] = Bit 12
 [13] = Bit 13
 [14] = Bit 14
 [15] = Bit 15

Dependency: Refer to: p2088, r2089

p2084[0...15] BI: Binector-connector converter status word 5 / Bin/con ZSW5

| | | | |
|-------------|---------------------------------------|----------------------|----------------------------|
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2472 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects bits to be sent to the PROFIdrive controller.
 The individual bits are combined to form free status word 5.

Index: [0] = Bit 0
 [1] = Bit 1
 [2] = Bit 2
 [3] = Bit 3
 [4] = Bit 4
 [5] = Bit 5
 [6] = Bit 6
 [7] = Bit 7
 [8] = Bit 8
 [9] = Bit 9
 [10] = Bit 10
 [11] = Bit 11
 [12] = Bit 12
 [13] = Bit 13
 [14] = Bit 14
 [15] = Bit 15

Dependency: Refer to: p2088, r2089

| p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv | | | | | |
|---|--|----------------------|----------------------------|-----------------|-----------|
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2472 | | |
| | P-Group: Communications | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | 0000 0000 0000 0000 bin | | |
| Description: | Setting to invert the individual binector inputs of the binector connector converter. | | | | |
| Index: | [0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4 [4] = Free status word 5 | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | Inverted | Not inverted | - |
| | 01 | Bit 1 | Inverted | Not inverted | - |
| | 02 | Bit 2 | Inverted | Not inverted | - |
| | 03 | Bit 3 | Inverted | Not inverted | - |
| | 04 | Bit 4 | Inverted | Not inverted | - |
| | 05 | Bit 5 | Inverted | Not inverted | - |
| | 06 | Bit 6 | Inverted | Not inverted | - |
| | 07 | Bit 7 | Inverted | Not inverted | - |
| | 08 | Bit 8 | Inverted | Not inverted | - |
| | 09 | Bit 9 | Inverted | Not inverted | - |
| | 10 | Bit 10 | Inverted | Not inverted | - |
| | 11 | Bit 11 | Inverted | Not inverted | - |
| | 12 | Bit 12 | Inverted | Not inverted | - |
| | 13 | Bit 13 | Inverted | Not inverted | - |
| | 14 | Bit 14 | Inverted | Not inverted | - |
| | 15 | Bit 15 | Inverted | Not inverted | - |
| Dependency: | Refer to: p2080, p2081, p2082, p2083, r2089 | | | | |

| r2089[0...4] CO: Send binector-connector converter status word / Bin/con ZSW send | | | | | |
|--|--|----------------------|----------------------------|-----------------|-----------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2472 | | |
| | P-Group: Communications | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Connector output to interconnect the status words to a PZD send word. | | | | |
| Index: | [0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4 [4] = Free status word 5 | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |

| | | | | |
|----|--------|----|-----|---|
| 13 | Bit 13 | ON | OFF | - |
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p2051, p2080, p2081, p2082, p2083
Note: r2089 together with p2080 to p2084 forms five binector-connector converters.

r2090.0...15 BO: IF1 PROFIBUS PZD1 receive bit-serial / IF1 PZD1 rcv bitw

| | | | |
|---|--|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2440, 2460, 2481 Unit selection: - Expert list: 1 Factory setting |
| - | - | - | - |

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIdrive controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

r2090.0...15 BO: IF1 PROFIBUS PZD1 receive bit-serial / IF1 PZD1 rcv bitw

| | | | |
|---------------------------|--|---|---|
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2468 Unit selection: - Expert list: 1 Factory setting |
| - | - | - | - |

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIdrive controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |

2 Parameters

2.2 List of parameters

| | | | | |
|----|--------|----|-----|---|
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

r2091.0...15

BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw

| | | | |
|---|--|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2460, 2481 Unit selection: - Expert list: 1 Factory setting |
| - | - | - | - |

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

r2091.0...15

BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw

| | | | |
|---------------------------|--|---|---|
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2468 Unit selection: - Expert list: 1 Factory setting |
| - | - | - | - |

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

| | | | |
|--|--|----------------------|----------------------------|
| r2092.0...15 | BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2468 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

| | | | |
|---|--|----------------------|----------------------------|
| r2092.0...15 | BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2460 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Note: IF1: Interface 1

2 Parameters

2.2 List of parameters

r2093.0...15

BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dyn. index: -

Func. diagram: 2468

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------|----------|----------|----|
| 00 | Bit 0 | ON | OFF | - |
| 01 | Bit 1 | ON | OFF | - |
| 02 | Bit 2 | ON | OFF | - |
| 03 | Bit 3 | ON | OFF | - |
| 04 | Bit 4 | ON | OFF | - |
| 05 | Bit 5 | ON | OFF | - |
| 06 | Bit 6 | ON | OFF | - |
| 07 | Bit 7 | ON | OFF | - |
| 08 | Bit 8 | ON | OFF | - |
| 09 | Bit 9 | ON | OFF | - |
| 10 | Bit 10 | ON | OFF | - |
| 11 | Bit 11 | ON | OFF | - |
| 12 | Bit 12 | ON | OFF | - |
| 13 | Bit 13 | ON | OFF | - |
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Note:

IF1: Interface 1

r2093.0...15

BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dyn. index: -

Func. diagram: 2460

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------|----------|----------|----|
| 00 | Bit 0 | ON | OFF | - |
| 01 | Bit 1 | ON | OFF | - |
| 02 | Bit 2 | ON | OFF | - |
| 03 | Bit 3 | ON | OFF | - |
| 04 | Bit 4 | ON | OFF | - |
| 05 | Bit 5 | ON | OFF | - |
| 06 | Bit 6 | ON | OFF | - |
| 07 | Bit 7 | ON | OFF | - |
| 08 | Bit 8 | ON | OFF | - |
| 09 | Bit 9 | ON | OFF | - |
| 10 | Bit 10 | ON | OFF | - |
| 11 | Bit 11 | ON | OFF | - |
| 12 | Bit 12 | ON | OFF | - |
| 13 | Bit 13 | ON | OFF | - |
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Note:

IF1: Interface 1

| r2094.0...15 | | BO: Connector-binector converter binector output / Con/bin outp | | |
|---------------------|--------------------------------|--|----------------------------------|--|
| CU_DC, CU_DC_R, | Can be changed: - | Calculated: - | Access level: 3 | |
| CU_DC_R_S, | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2460, 2481 | |
| CU_DC_S, DC_CTRL, | P-Group: Communications | Unit group: - | Unit selection: - | |
| DC_CTRL_R, | Not for motor type: - | Scaling: - | Expert list: 1 | |
| DC_CTRL_R_S, | Min | Max | Factory setting | |
| DC_CTRL_S | - | - | - | |

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[0].

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p2099

| r2094.0...15 | | BO: Connector-binector converter binector output / Con/bin outp | | |
|---------------------|--------------------------------|--|----------------------------|--|
| TM150, TM15DI_DO, | Can be changed: - | Calculated: - | Access level: 3 | |
| TM31 | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2468 | |
| | P-Group: Communications | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[0].

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p2099

2 Parameters

2.2 List of parameters

| | | | |
|---|--|---|--|
| r2095.0...15 | BO: Connector-binector converter binector output / Con/bin outp | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2440, 2460, 2481 Unit selection: - Expert list: 1 Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[1].

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p2099

| | | | |
|---------------------------|--|---|---|
| r2095.0...15 | BO: Connector-binector converter binector output / Con/bin outp | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2468 Unit selection: - Expert list: 1 Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[1].

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p2099

| p2098[0...1] | | Inverter connector-binector converter binector output / Con/bin outp inv | | |
|---|--|--|--|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2460, 2481 Unit selection: - Expert list: 1 Factory setting 0000 0000 0000 0000 bin | |

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p2098[0], the signals of connector input p2099[0] are influenced.
Using p2098[1], the signals of connector input p2099[1] are influenced.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Inverted | Not inverted | - |
| | 01 | Bit 1 | Inverted | Not inverted | - |
| | 02 | Bit 2 | Inverted | Not inverted | - |
| | 03 | Bit 3 | Inverted | Not inverted | - |
| | 04 | Bit 4 | Inverted | Not inverted | - |
| | 05 | Bit 5 | Inverted | Not inverted | - |
| | 06 | Bit 6 | Inverted | Not inverted | - |
| | 07 | Bit 7 | Inverted | Not inverted | - |
| | 08 | Bit 8 | Inverted | Not inverted | - |
| | 09 | Bit 9 | Inverted | Not inverted | - |
| | 10 | Bit 10 | Inverted | Not inverted | - |
| | 11 | Bit 11 | Inverted | Not inverted | - |
| | 12 | Bit 12 | Inverted | Not inverted | - |
| | 13 | Bit 13 | Inverted | Not inverted | - |
| | 14 | Bit 14 | Inverted | Not inverted | - |
| | 15 | Bit 15 | Inverted | Not inverted | - |

Dependency: Refer to: r2094, r2095, p2099

| p2098[0...1] | | Inverter connector-binector converter binector output / Con/bin outp inv | | |
|---------------------------|--|--|--|--|
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2468 Unit selection: - Expert list: 1 Factory setting 0000 0000 0000 0000 bin | |

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p2098[0], the signals of connector input p2099[0] are influenced.
Using p2098[1], the signals of connector input p2099[1] are influenced.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Inverted | Not inverted | - |
| | 01 | Bit 1 | Inverted | Not inverted | - |
| | 02 | Bit 2 | Inverted | Not inverted | - |
| | 03 | Bit 3 | Inverted | Not inverted | - |
| | 04 | Bit 4 | Inverted | Not inverted | - |
| | 05 | Bit 5 | Inverted | Not inverted | - |
| | 06 | Bit 6 | Inverted | Not inverted | - |
| | 07 | Bit 7 | Inverted | Not inverted | - |
| | 08 | Bit 8 | Inverted | Not inverted | - |
| | 09 | Bit 9 | Inverted | Not inverted | - |
| | 10 | Bit 10 | Inverted | Not inverted | - |
| | 11 | Bit 11 | Inverted | Not inverted | - |
| | 12 | Bit 12 | Inverted | Not inverted | - |
| | 13 | Bit 13 | Inverted | Not inverted | - |
| | 14 | Bit 14 | Inverted | Not inverted | - |
| | 15 | Bit 15 | Inverted | Not inverted | - |

Dependency: Refer to: r2094, r2095, p2099

2 Parameters

2.2 List of parameters

| | | | |
|---|---|--|--|
| p2099[0...1] | CI: Connector-binector converter signal source / Con/bin S_src | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2460, 2481 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the connector-binector converter. A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection). | | |
| Dependency: | Refer to: r2094, r2095 | | |
| Note: | From the signal source set via the connector input, the corresponding lower 16 bits are converted. p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters: Connector input p2099[0] to binector output in r2094.0...15 Connector input p2099[1] to binector output in r2095.0...15 | | |
| p2099[0...1] | CI: Connector-binector converter signal source / Con/bin S_src | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2468 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the connector-binector converter. A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection). | | |
| Dependency: | Refer to: r2094, r2095 | | |
| Note: | From the signal source set via the connector input, the corresponding lower 16 bits are converted. p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters: Connector input p2099[0] to binector output in r2094.0...15 Connector input p2099[1] to binector output in r2095.0...15 | | |
| p2100[0...19] | Change fault response fault number / Chng resp F_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8075 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects the faults for which the fault response should be changed | | |
| Dependency: | The fault is selected and the required response is set under the same index. Refer to: p2101 | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. | | |

| | | | |
|---------------------------|--|----------------------|----------------------------------|
| p2100[0...19] | Change fault response fault number / Chng resp F_no | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8050, 8075 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Selects the faults for which the fault response should be changed | | |
| Dependency: | The fault is selected and the required response is set under the same index. Refer to: p2101 | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. | | |

| | | | |
|--|--|----------------------|----------------------------|
| p2101[0...19] | Change fault response response / Chng resp resp | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8075 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 0 | 0 |
| Description: | Sets the fault response for the selected fault. | | |
| Value: | 0: NONE | | |
| Dependency: | The fault is selected and the required response is set under the same index. | | |
| Notice: | For the following cases, it is not possible to re-parameterize the fault response to a fault: - Fault number does not exist (exception value = 0). - Message type is not "fault" (F). - Fault response is not permissible for the set fault number. | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. | | |

| | | | |
|---|--|----------------------|----------------------------|
| p2101[0...19] | Change fault response response / Chng resp resp | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8075 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 7 | 0 |
| Description: | Sets the fault response for the selected fault. | | |
| Value: | 0: NONE 1: OFF1 2: OFF2 3: OFF3 5: Reserved 6: Reserved 7: Reserved | | |
| Dependency: | The fault is selected and the required response is set under the same index. Refer to: p2100 | | |
| Notice: | For the following cases, it is not possible to re-parameterize the fault response to a fault: - Fault number does not exist (exception value = 0). - Message type is not "fault" (F). - Fault response is not permissible for the set fault number. | | |

2 Parameters

2.2 List of parameters

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The fault response can only be changed for faults with the appropriate identification (see the List Manual, chapter "Faults and alarms").

Example:
 F12345 and fault response = OFF3 (OFF1, OFF2, NONE)
 --> The default fault response OFF3 can be changed to OFF1, OFF2 or NONE.

Re value = 1 (OFF1):
 Braking along the ramp-function generator down ramp followed by a pulse inhibit.

Re value = 2 (OFF2):
 Internal/external pulse inhibit.

Re value = 3 (OFF3):
 Braking along the OFF3 down ramp followed by a pulse inhibit.

Parameter values designated as "reserved", act just like the value = 2 (OFF2)

p2101[0...19] Change fault response response / Chng resp resp

| | | | |
|---------------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8050, 8075 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 0 | 0 |

Description: Sets the fault response for the selected fault.

Value: 0: NONE

Dependency: The fault is selected and the required response is set under the same index.

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2102 BI: Acknowledge all faults / Ackn all faults

| | | | |
|--|---------------------------------------|----------------------|----------------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2546, 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source to acknowledge all faults at all drive objects of the drive system.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2103 BI: 1. Acknowledge faults / 1. Acknowledge

| | | | |
|---|---------------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: - |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the first signal source to acknowledge faults.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: A fault acknowledgement is triggered with a 0/1 signal.

| | | | |
|---|---|-------------------------------|----------------------------|
| p2103[0...n] | BI: 1. Acknowledge faults / 1. Acknowledge | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2546 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the first signal source to acknowledge faults. | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |
| Note: | A fault acknowledgement is triggered with a 0/1 signal. | | |

| | | | |
|---|---|----------------------|--------------------------|
| p2104 | BI: 2. Acknowledge faults / 2. Acknowledge | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: - |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the second signal source to acknowledge faults. | | |
| Note: | A fault acknowledgement is triggered with a 0/1 signal. | | |

| | | | |
|---|---|-------------------------------|----------------------------|
| p2104[0...n] | BI: 2. Acknowledge faults / 2. Acknowledge | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2546 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the second signal source to acknowledge faults. | | |
| Note: | A fault acknowledgement is triggered with a 0/1 signal. | | |

| | | | |
|---|---|----------------------|--------------------------|
| p2105 | BI: 3. Acknowledge faults / 3. Acknowledge | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: - |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the third signal source to acknowledge faults. | | |
| Note: | A fault acknowledgement is triggered with a 0/1 signal. | | |

| | | | |
|---|---|-------------------------------|----------------------------|
| p2105[0...n] | BI: 3. Acknowledge faults / 3. Acknowledge | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2546 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the third signal source to acknowledge faults. | | |
| Note: | A fault acknowledgement is triggered with a 0/1 signal. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---|---|---|--|
| p2106 | BI: External fault 1 / External fault 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external fault 1. | | |
| Note: | An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects. | | |
| <hr/> | | | |
| p2106[0...n] | BI: External fault 1 / External fault 1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external fault 1. | | |
| Note: | An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects. | | |
| <hr/> | | | |
| p2107 | BI: External fault 2 / External fault 2 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external fault 2. | | |
| Note: | An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects. | | |
| <hr/> | | | |
| p2107[0...n] | BI: External fault 2 / External fault 2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external fault 2. | | |
| Note: | An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects. | | |

| | | | |
|---|---|---|---|
| p2108 | BI: External fault 3 / External fault 3 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated | | |
| Dependency: | Refer to: p3110, p3111, p3112 | | |
| Note: | An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects. | | |
| p2108[0...n] | BI: External fault 3 / External fault 3 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated | | |
| Dependency: | Refer to: p3110, p3111, p3112 | | |
| Note: | An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects. | | |
| r2109[0...63] | Fault time removed in milliseconds / t_flt resolved ms | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [ms] | Access level: 3 Func. diagram: 8050, 8060 Unit selection: - Expert list: 1 Factory setting - [ms] |
| Description: | Displays the system runtime in milliseconds when the fault was removed. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122 | | |
| Notice: | The time comprises r2136 (days) and r2109 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---|---|---|--|
| r2109[0...63] | Fault time removed in milliseconds / t_flt resolved ms | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [ms] | Access level: 3 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting - [ms] |
| Description: | Displays the system runtime in milliseconds when the fault was removed. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122 | | |
| Notice: | The time comprises r2136 (days) and r2109 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945. | | |
| <hr/> | | | |
| r2110[0...63] | Alarm number / Alarm number | | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting - |
| Description: | This parameter is identical to r2122. | | |
| <hr/> | | | |
| p2111 | Alarm counter / Alarm counter | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Number of alarms that have occurred after the last reset. | | |
| Dependency: | When p2111 is set to 0, the following is initiated: - all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63]. - the alarm buffer [0...7] is deleted. Refer to: r2110, r2122, r2123, r2124, r2125 | | |
| Note: | The parameter is reset to 0 at POWER ON. | | |
| <hr/> | | | |
| p2111 | Alarm counter / Alarm counter | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8050, 8065 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Number of alarms that have occurred after the last reset. | | |
| Dependency: | When p2111 is set to 0, the following is initiated: - all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63]. - the alarm buffer [0...7] is deleted. Refer to: r2110, r2122, r2123, r2124, r2125 | | |
| Note: | The parameter is reset to 0 at POWER ON. | | |

| | | | |
|---|--|---|--|
| p2112 | BI: External alarm 1 / External alarm 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external alarm 1. | | |
| Note: | An external alarm is triggered with a 1/0 signal. | | |
| p2112[0...n] | BI: External alarm 1 / External alarm 1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external alarm 1. | | |
| Note: | An external alarm is triggered with a 1/0 signal. | | |
| r2114[0...1] | System runtime total / Sys runtime tot | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the total system runtime for the drive unit. The time comprises r2114[0] (milliseconds) and r2114[1] (days). After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented. | | |
| Index: | [0] = Milliseconds [1] = Days | | |
| Dependency: | Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146 | | |
| Note: | The time in r2114 is used to display the times for faults and alarms. When the electronic power supply is switched out, the counter values are saved. After the drive unit is powered up, the counter continues to run with the last value that was saved. | | |
| p2116 | BI: External alarm 2 / External alarm 2 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external alarm 2. | | |
| Note: | An external alarm is triggered with a 1/0 signal. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---|---|---|--|
| p2116[0...n] | BI: External alarm 2 / External alarm 2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external alarm 2. | | |
| Note: | An external alarm is triggered with a 1/0 signal. | | |
| <hr/> | | | |
| p2117 | BI: External alarm 3 / External alarm 3 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external alarm 3. | | |
| Note: | An external alarm is triggered with a 1/0 signal. | | |
| <hr/> | | | |
| p2117[0...n] | BI: External alarm 3 / External alarm 3 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for external alarm 3. | | |
| Note: | An external alarm is triggered with a 1/0 signal. | | |
| <hr/> | | | |
| p2118[0...19] | Change message type message number / Chng type msg_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8050, 8075 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects faults or alarms for which the message type should be changed. | | |
| Dependency: | Selects the fault or alarm selection and sets the required type of message realized under the same index. Refer to: p2119 | | |
| Note: | Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone. | | |
| <hr/> | | | |
| p2118[0...19] | Change message type message number / Chng type msg_no | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8075 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects faults or alarms for which the message type should be changed. | | |

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2119

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

| | | | |
|----------------------|--|----------------------|----------------------------|
| p2119[0...19] | Change message type type / Change type type | | |
| CU_DC, CU_DC_R, | Can be changed: U, T | Calculated: - | Access level: 3 |
| CU_DC_R_S, | Data type: Integer16 | Dyn. index: - | Func. diagram: 8075 |
| CU_DC_S, DC_CTRL, | P-Group: Messages | Unit group: - | Unit selection: - |
| DC_CTRL_R, | Not for motor type: - | Scaling: - | Expert list: 1 |
| DC_CTRL_R_S, | Min | Max | Factory setting |
| DC_CTRL_S | 1 | 3 | 1 |

Description: Sets the message type for the selected fault or alarm.

Value:
 1: Fault (F)
 2: Alarm (A)
 3: No message (N)

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2118

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

The message type can only be changed for messages with the appropriate identification (exception, value = 0).

Example:

F12345(A) --> Fault F12345 can be changed to alarm A12345.

In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p2119[0...19] | Change message type type / Change type type | | |
| TM150, TM15DI_DO, | Can be changed: U, T | Calculated: - | Access level: 3 |
| TM31 | Data type: Integer16 | Dyn. index: - | Func. diagram: 8050, 8075 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 3 | 1 |

Description: Sets the message type for the selected fault or alarm.

Value:
 1: Fault (F)
 2: Alarm (A)
 3: No message (N)

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.

Refer to: p2118

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

The message type can only be changed for messages with the appropriate identification (exception, value = 0).

Example:

F12345(A) --> Fault F12345 can be changed to alarm A12345.

In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

| | | | |
|--------------|---|----------------------|----------------------------|
| r2120 | CO: Sum of fault and alarm buffer changes / Sum buffer changed | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the sum of all of the fault and alarm buffer changes in the drive unit.

2 Parameters

2.2 List of parameters

Dependency: Refer to: r0944, r2121

r2121 CO: Counter alarm buffer changes / Alarm buff changed

| | | | |
|-------------|------------------------------|----------------------|----------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: This counter is incremented every time the alarm buffer changes.

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125

r2122[0...63] Alarm code / Alarm code

| | | | |
|---|------------------------------|----------------------|----------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of alarms that have occurred.

Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123

Notice: The properties of the alarm buffer should be taken from the corresponding product documentation.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

...

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

...

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2122[0...63] Alarm code / Alarm code

| | | | |
|---------------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8050, 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of alarms that have occurred.

Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123

Notice: The properties of the alarm buffer should be taken from the corresponding product documentation.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

...

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

...

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

| | | | |
|---|---|---|---|
| r2123[0...63] | Alarm time received in milliseconds / t_alarm rcv ms | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [ms] | Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting - [ms] |
| Description: | Displays the system runtime in milliseconds when the alarm occurred. | | |
| Dependency: | Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123 | | |
| Notice: | The time comprises r2145 (days) and r2123 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |
| r2123[0...63] | Alarm time received in milliseconds / t_alarm rcv ms | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [ms] | Access level: 3 Func. diagram: 8050, 8065 Unit selection: - Expert list: 1 Factory setting - [ms] |
| Description: | Displays the system runtime in milliseconds when the alarm occurred. | | |
| Dependency: | Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123 | | |
| Notice: | The time comprises r2145 (days) and r2123 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |
| r2124[0...63] | Alarm value / Alarm value | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Integer32 P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays additional information about the active alarm (as integer number). | | |
| Dependency: | Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123 | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |
| r2124[0...63] | Alarm value / Alarm value | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Integer32 P-Group: Messages Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 8050, 8065 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays additional information about the active alarm (as integer number). | | |
| Dependency: | Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123 | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |

2 Parameters

2.2 List of parameters

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|---|---|---|---|
| r2125[0...63] | Alarm time removed in milliseconds / t_alarm res ms | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [ms] | Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1 Factory setting - [ms] |
| Description: | Displays the system runtime in milliseconds when the alarm was cleared. | | |
| Dependency: | Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123 | | |
| Notice: | The time comprises r2146 (days) and r2125 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |
| r2125[0...63] | Alarm time removed in milliseconds / t_alarm res ms | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min - [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [ms] | Access level: 3 Func. diagram: 8050, 8065 Unit selection: - Expert list: 1 Factory setting - [ms] |
| Description: | Displays the system runtime in milliseconds when the alarm was cleared. | | |
| Dependency: | Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123 | | |
| Notice: | The time comprises r2146 (days) and r2125 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |
| p2126[0...19] | Change acknowledge mode fault number / Chng ackn F_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8075 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects the faults for which the acknowledge mode is to be changed | | |
| Dependency: | Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2127 | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. | | |
| p2126[0...19] | Change acknowledge mode fault number / Chng ackn F_no | | |
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: 8050, 8075 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects the faults for which the acknowledge mode is to be changed | | |
| Dependency: | Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2127 | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. | | |

| p2127[0...19] Change acknowledge mode mode / Chng ackn mode | | | |
|---|---|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Integer16 P-Group: Messages Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 8075 Unit selection: - Expert list: 1 Factory setting |
| | 1 | 3 | 1 |
| Description: | Sets the acknowledge mode for selected fault. | | |
| Value: | 1: Acknowledgment only using POWER ON 2: Ack IMMEDIATELY after the fault cause has been removed 3: Acknowledgement only for PULSE INHIBIT | | |
| Dependency: | Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2126 | | |
| Notice: | It is not possible to re-parameterize the acknowledge mode for a fault in the following cases: - Fault number does not exist (exception value = 0). - Message type is not "fault" (F). - Acknowledge mode is not permissible for the set fault number. | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. The acknowledge mode can only be changed for faults with the appropriate identification. Example: F12345 and acknowledge mode = IMMEDIATELY (POWER ON) --> The acknowledge mode can be changed from IMMEDIATELY to POWER ON. | | |

| p2127[0...19] Change acknowledge mode mode / Chng ackn mode | | | |
|--|---|---|---|
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Integer16 P-Group: Messages Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 8050, 8075 Unit selection: - Expert list: 1 Factory setting |
| | 1 | 3 | 1 |
| Description: | Sets the acknowledge mode for selected fault. | | |
| Value: | 1: Acknowledgment only using POWER ON 2: Ack IMMEDIATELY after the fault cause has been removed 3: Acknowledgement only for PULSE INHIBIT | | |
| Dependency: | Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2126 | | |
| Notice: | It is not possible to re-parameterize the acknowledge mode for a fault in the following cases: - Fault number does not exist (exception value = 0). - Message type is not "fault" (F). - Acknowledge mode is not permissible for the set fault number. | | |
| Note: | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. The acknowledge mode can only be changed for faults with the appropriate identification. Example: F12345 and acknowledge mode = IMMEDIATELY (POWER ON) --> The acknowledge mode can be changed from IMMEDIATELY to POWER ON. | | |

2 Parameters

2.2 List of parameters

| p2128[0...15] Faults/alarms trigger selection / F/A trigger sel | | | |
|---|---|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 8070 Unit selection: - Expert list: 1 Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the faults/alarms for which a trigger signal should be generated in r2129.0...15. | | |
| Dependency: | If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set. Refer to: r2129 | | |

| p2128[0...15] Faults/alarms trigger selection / F/A trigger sel | | | |
|---|---|---|---|
| TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 8050, 8070 Unit selection: - Expert list: 1 Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the faults/alarms for which a trigger signal should be generated in r2129.0...15. | | |
| Dependency: | If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set. Refer to: r2129 | | |

| r2129.0...15 CO/BO: Faults/alarms trigger signal / F/A trigger signal | | | | | |
|---|--|---|---|-----------------|-----------|
| All objects | Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 8070 Unit selection: - Expert list: 1 Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output for the trigger signals of the faults/alarms set in p2128[0...15]. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Trigger signal p2128[0] | ON | OFF | - |
| | 01 | Trigger signal p2128[1] | ON | OFF | - |
| | 02 | Trigger signal p2128[2] | ON | OFF | - |
| | 03 | Trigger signal p2128[3] | ON | OFF | - |
| | 04 | Trigger signal p2128[4] | ON | OFF | - |
| | 05 | Trigger signal p2128[5] | ON | OFF | - |
| | 06 | Trigger signal p2128[6] | ON | OFF | - |
| | 07 | Trigger signal p2128[7] | ON | OFF | - |
| | 08 | Trigger signal p2128[8] | ON | OFF | - |
| | 09 | Trigger signal p2128[9] | ON | OFF | - |
| | 10 | Trigger signal p2128[10] | ON | OFF | - |
| | 11 | Trigger signal p2128[11] | ON | OFF | - |
| | 12 | Trigger signal p2128[12] | ON | OFF | - |
| | 13 | Trigger signal p2128[13] | ON | OFF | - |
| | 14 | Trigger signal p2128[14] | ON | OFF | - |
| | 15 | Trigger signal p2128[15] | ON | OFF | - |
| Dependency: | If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set. Refer to: p2128 | | | | |
| Note: | CO: r2129 = 0 --> None of the selected messages has occurred. CO: r2129 > 0 --> At least one of the selected messages has occurred. | | | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r2130[0...63] | Fault time received in days / t_fault recv days | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the system runtime in days when the fault occurred. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136, r3115, r3120, r3122 | | |
| Notice: | The time comprises r2130 (days) and r0948 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). | | |
| r2131 | CO: Actual fault code / Act fault code | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the code of the oldest active fault. | | |
| Dependency: | Refer to: r3131, r3132 | | |
| Note: | 0: No fault present. | | |
| r2132 | CO: Actual alarm code / Actual alarm code | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the code of the last alarm that occurred. | | |
| Note: | 0: No alarm present. | | |
| r2133[0...63] | Fault value for float values / Fault val float | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays additional information about the fault that occurred for float values. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136, r3115 | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r2134[0...63] | Alarm value for float values / Alarm value float | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays additional information about the active alarm for float values. | | |
| Dependency: | Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146, r3121, r3123 | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). | | |

| | | | | | |
|--|--|----------------------|----------------------------|-----------------|-----------|
| r2135.0...2 | CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2 | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2548 | | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output for the second status word of faults and alarms. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Fault encoder 1 | Yes | No | - |
| | 01 | Fault encoder 2 | Yes | No | - |
| | 02 | Fault encoder 3 | Yes | No | - |

| | | | | | |
|--|--|-----------------------------------|----------------------------|-----------------|-----------|
| r2135.0...15 | CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2 | | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2548 | | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output for the second status word of faults and alarms. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Fault encoder 1 | Yes | No | - |
| | 01 | Fault encoder 2 | Yes | No | - |
| | 02 | Fault encoder 3 | Yes | No | - |
| | 12 | Fault motor overtemperature | Yes | No | 8016 |
| | 13 | Fault power unit thermal overload | Yes | No | 8014 |
| | 14 | Alarm motor overtemperature | Yes | No | 8016 |
| | 15 | Alarm power unit thermal overload | Yes | No | 8014 |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r2136[0...63] | Fault time removed in days / t_fit resolv days | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the system runtime in days when the fault was removed. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133, r3115, r3120, r3122 | | |
| Notice: | The time comprises r2136 (days) and r2109 (milliseconds). | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). | | |

r2138.7...15 CO/BO: Control word faults/alarms / STW fault/alarm

| | | | |
|---|---|---|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Displays, signals Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 2 Func. diagram: 2546, 8060, 8065 Unit selection: - Expert list: 1 Factory setting |
| | - | - | - |

Description: Display and BICO output for the control word of faults and alarms.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|-------------------------------------|-----------------|-----------------|-----------|
| | 07 | Acknowledge fault | Yes | No | 8060 |
| | 10 | External alarm 1 (A07850) effective | Yes | No | 8065 |
| | 11 | External alarm 2 (A07851) effective | Yes | No | 8065 |
| | 12 | External alarm 3 (A07852) effective | Yes | No | 8065 |
| | 13 | External fault 1 (F07860) effective | Yes | No | 8060 |
| | 14 | External fault 2 (F07861) effective | Yes | No | 8060 |
| | 15 | External fault 3 (F07862) effective | Yes | No | 8060 |

Dependency: Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2138.7...15 CO/BO: Control word faults/alarms / STW fault/alarm

| | | | |
|---------------------------|---|---|---|
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Displays, signals Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 2 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting |
| | - | - | - |

Description: Display and BICO output for the control word of faults and alarms.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|-------------------------------------|-----------------|-----------------|-----------|
| | 07 | Acknowledge fault | Yes | No | 8060 |
| | 10 | External alarm 1 (A07850) effective | Yes | No | 8065 |
| | 11 | External alarm 2 (A07851) effective | Yes | No | 8065 |
| | 12 | External alarm 3 (A07852) effective | Yes | No | 8065 |
| | 13 | External fault 1 (F07860) effective | Yes | No | 8060 |
| | 14 | External fault 2 (F07861) effective | Yes | No | 8060 |
| | 15 | External fault 3 (F07862) effective | Yes | No | 8060 |

Dependency: Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2139.0...15 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

| | | | |
|---|---|---|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Displays, signals Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 2 Func. diagram: 2548, 8060, 8065 Unit selection: - Expert list: 1 Factory setting |
| | - | - | - |

Description: Display and BICO output for status word 1 of faults and alarms.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|----------------------------|-----------------|-----------------|-----------|
| | 00 | Being acknowledged | Yes | No | - |
| | 01 | Acknowledgment required | Yes | No | - |
| | 03 | Fault present | Yes | No | 8060 |
| | 05 | Safety message present | Yes | No | - |
| | 06 | Internal message 1 present | Yes | No | - |
| | 07 | Alarm present | Yes | No | 8065 |
| | 08 | Internal message 2 present | Yes | No | - |
| | 11 | Alarm class bit 0 | High | Low | - |
| | 12 | Alarm class bit 1 | High | Low | - |

2 Parameters

2.2 List of parameters

| | | | | |
|----|--------------------------------|-----|----|---|
| 13 | Maintenance required | Yes | No | - |
| 14 | Maintenance urgently required | Yes | No | - |
| 15 | Fault gone/can be acknowledged | Yes | No | - |

Note:

Re bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present" or "alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).

Re bit 06, 08:

These status bits are used for internal diagnostic purposes only.

Re bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r2139.0...15 **CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1**

| | | | |
|---------------------------|-----------------------------------|----------------------|----------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2548 |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description:

Display and BICO output for status word 1 of faults and alarms.

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|--------------------------------|----------|----------|------|
| 00 | Being acknowledged | Yes | No | - |
| 01 | Acknowledgment required | Yes | No | - |
| 03 | Fault present | Yes | No | 8060 |
| 05 | Safety message present | Yes | No | - |
| 06 | Internal message 1 present | Yes | No | - |
| 07 | Alarm present | Yes | No | 8065 |
| 08 | Internal message 2 present | Yes | No | - |
| 11 | Alarm class bit 0 | High | Low | - |
| 12 | Alarm class bit 1 | High | Low | - |
| 13 | Maintenance required | Yes | No | - |
| 14 | Maintenance urgently required | Yes | No | - |
| 15 | Fault gone/can be acknowledged | Yes | No | - |

Note:

Re bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present" or "alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).

Re bit 06, 08:

These status bits are used for internal diagnostic purposes only.

Re bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r2145[0...63] **Alarm time received in days / t_alarm rcv days**

| | | | |
|-------------|------------------------------|----------------------|----------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description:

Displays the system runtime in days when the alarm occurred.

Dependency:

Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146, r3121, r3123

Notice:

The time comprises r2145 (days) and r2123 (milliseconds).

Note:

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

| | | | | |
|---|---|---|----------------------------|-----------------|
| r2146[0...63] | Alarm time removed in days / t_alarm res days | | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8065 | |
| | P-Group: Messages | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the system runtime in days when the alarm was cleared. | | | |
| Dependency: | Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145, r3121, r3123 | | | |
| Notice: | The time comprises r2146 (days) and r2125 (milliseconds). | | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). | | | |
| p2147 | Delete fault buffer of all drive objects / Del fault buffer | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8060 | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 1 | 0 | |
| Description: | Setting to delete the fault buffer of all existing drive objects. | | | |
| Value: | 0: Inactive 1: Start to delete the fault buffer of all drive objects | | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136 | | | |
| Note: | p2147 is automatically set to 0 after execution. | | | |
| r2197.3...7 | CO/BO: Status word monitoring 1 / ZSW monitor 1 | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2534 | |
| | P-Group: Messages | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and BICO output for the first status word of the monitoring functions. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 03 | n_act >= 0 | Yes | No |
| | 07 | Speed setp - act val deviation in tolerance | Yes | No |
| | | t_off | | |
| | | | | FP |
| | | | | 8011 |
| | | | | 8011 |
| r2199.1 | CO/BO: Status word monitoring 3 / ZSW monitor 3 | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2537 | |
| | P-Group: Messages | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and BICO output for the third status word of the monitoring functions. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 01 | f or n comparison value reached or exceeded | Yes | No |
| | | | | FP |
| | | | | 8010 |

2 Parameters

2.2 List of parameters

| | | | |
|--|--|---|--|
| p2200[0...n] | BI: Technology controller enable / Tec_ctrl enable | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: Unsigned32 / Binary P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source to switch in/switch out the technology controller. The technology controller is switched in with a 1 signal. | | |

| | | | |
|--|--|--|--|
| p2252 | Technology controller configuration / Tec_ctrl config | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned16 P-Group: Modulation Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0111 bin |

| | | | | | |
|---------------------|--|--|-----------------|-----------------|-----------|
| Description: | Sets the configuration of the technology controller. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Ramp-up/down time independent of setpoint sign | Yes | No | - |
| | 01 | Integrator independent of Kp | Yes | No | - |
| | 02 | Output signal without ramp active | Yes | No | - |
| | 03 | Actual value limiting | Yes | No | - |
| Dependency: | Refer to: p2257, p2258, p2267, p2268, p2280, p2285 | | | | |
| Note: | Re bit 00 = 0: The ramp-down time (p2258) switches to the ramp-up time (p2257) when the sign for the output signal r2260 changes. When the sign changes, the output signal is kept at zero for one arithmetic cycle. Re bit 00 = 1: When r2260 exhibits a positive gradient, the ramp-up time (p2257) is active; when it exhibits a negative gradient, the ramp-down time (p2258) is active. The sign for r2260 does not have any effect on the ramp time. Re bit 01 = 0: The integration time of the PID controller is evaluated with the gain factor Kp (p2280) (p2285 = integral time). Re bit 01 = 1: The integration time of the PID controller is independent of the gain factor (p2285 = integration time) if p2280 > 0. Re bit 02 = 0: When the PID controller is de-activated via p2200, the output signal r2294 is reduced to zero via the ramp-down time p2293. Re bit 02 = 1: When the PID controller is de-activated via p2200, the output signal r2294 is set directly to zero. Re bit 03 = 0: The actual values are not limited by p2267 and p2268. Re bit 03 = 1: The actual values are limited by p2267 and p2268. | | | | |

| | | | |
|--|--|---|--|
| p2253[0...n] | CI: Technology controller setpoint 1 / Tec_ctrl setp 1 | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the setpoint 1 of the technology controller. | | |
| Dependency: | Refer to: p2254, p2255 | | |

| | | | |
|--|--|---|---|
| p2254[0...n] | CI: Technology controller setpoint 2 / Tec_ctrl setp 2 | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the setpoint 2 of the technology controller. | | |
| Dependency: | Refer to: p2253, p2256 | | |
| p2255 | Technology controller setpoint 1 scaling / Tec_ctrl set1 scal | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 100.00 [%] | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 100.00 [%] |
| Description: | Sets the scaling for the setpoint 1 of the technology controller. | | |
| Dependency: | Refer to: p2253 | | |
| p2256 | Technology controller setpoint 2 scaling / Tec_ctrl set2 scal | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 100.00 [%] | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 100.00 [%] |
| Description: | Sets the scaling for the setpoint 2 of the technology controller. | | |
| Dependency: | Refer to: p2254 | | |
| p2257 | Technology controller ramp-up time / Tec_ctrl t_ramp-up | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 650.00 [s] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 1.00 [s] |
| Description: | Sets the ramp-up time of the technology controller. | | |
| Dependency: | Refer to: p2252, p2258 | | |
| Note: | The ramp-up time is referred to 100 %. | | |
| p2258 | Technology controller ramp-down time / Tec_ctrl t_ramp-dn | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 650.00 [s] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 1.00 [s] |
| Description: | Sets the ramp-down time of the technology controller. | | |
| Dependency: | Refer to: p2252, p2257 | | |
| Note: | The ramp-down time is referred to 100 %. | | |

2 Parameters

2.2 List of parameters

| r2260 | | CO: Technology controller setpoint after ramp-function generator / Tec_ctrl set aftRFG | | |
|--|--|--|--|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%] | |
| Description: | Sets the setpoint after the ramp-function generator of the technology controller. | | | |

| p2261 | | Technology controller setpoint filter time constant / Tec_ctrl set T | | |
|--|---|---|--|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60.000 [s] | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0.000 [s] | |
| Description: | Sets the time constant for the setpoint filter (PT1) of the technology controller. | | | |

| r2262 | | CO: Technology controller setpoint after filter / Tec_ctrl set aftFlt | | |
|--|--|--|--|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max - [%] | Access level: 3 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%] | |
| Description: | Display and connector output for the smoothed setpoint after the setpoint filter (PT1) of the technology controller. | | | |

| p2263 | | Technology controller type / Tec_ctrl type | | |
|--|--|--|--|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: Integer16 P-Group: Technology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the type of technology controller. | | | |
| Value: | 0: D component in the actual value signal 1: D component in the fault signal | | | |

| p2264[0...n] | | CI: Technology controller actual value / Tec_ctrl act val | | |
|--|--|---|--|--|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the signal source for the actual value of the technology controller. | | | |

| | | | |
|--|---|---|--|
| p2265 | Technology controller actual value filter time constant / Tec_ctrl act T | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60.000 [s] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0.000 [s] |
| Description: | Sets the time constant for the actual value filter (PT1) of the technology controller. | | |
| r2266 | CO: Technology controller actual value after filter / Tec_ctr act aftFlt | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the smoothed actual value after the filter (PT1) of the technology controller. | | |
| p2267 | Technology controller upper limit actual value / Tec_ctrl u_lim act | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max 200.00 [%] | Access level: 3 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting 200.00 [%] |
| Description: | Sets the upper limit for the actual value signal of the technology controller. | | |
| Dependency: | Refer to: p2252, p2264, p2265, p2271 | | |
| Notice: | If the actual value exceeds this upper limit, this results in fault F07426. | | |
| Note: | Limiting only active for p2252.3 = 1. | | |
| p2268 | Technology controller lower limit actual value / Tec_ctrl l_lim act | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max 200.00 [%] | Access level: 3 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting -200.00 [%] |
| Description: | Sets the lower limit for the actual value signal of the technology controller. | | |
| Dependency: | Refer to: p2264, p2265, p2271 | | |
| Notice: | If the actual value falls below this lower limit, this results in fault F07426. | | |
| Note: | Limiting only active for p2252.3 = 1. | | |
| p2269 | Technology controller gain actual value / Tech_ctrl gain act | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 500.00 [%] | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 100.00 [%] |
| Description: | Sets the scaling factor for the actual value of the technology controller. | | |
| Dependency: | Refer to: p2264, p2265, p2267, p2268, p2271 | | |

2 Parameters

2.2 List of parameters

Note: For 100%, the actual value is not changed.

| | | | |
|--|---|--|--|
| p2270 | Technology controller actual value function / Tec_ctr ActVal fct | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Integer16 P-Group: Technology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3 | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Setting to use an arithmetic function for the actual value signal of the technology controller.

Value:
0: No function
1: Root function (root from x)
2: Square function ($x * x$)
3: Cube function ($x * x * x$)

Dependency: Refer to: p2264, p2265, p2267, p2268, p2269, p2271

| | | | |
|--|--|--|--|
| p2271 | Technology controller actual value inversion (sensor type) / Tech_ctrl act inv | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: Integer16 P-Group: Technology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Setting to invert the actual value signal of the technology controller.
The inversion depends on the sensor type for the actual value signal.

Value:
0: No inversion
1: Inversion actual value signal

Caution: If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!



Note: The correct setting can be determined as follows:
- inhibit the technology controller (p2200 = 0).
- increase the motor speed and in so doing, measure the actual value signal of the technology controller.
--> If the actual value increases as the motor speed increases, then p2271 should be set to 0 (no inversion).
--> If the actual value decreases as the motor speed increases, then p2271 should be set to 1 (the actual value signal is inverted).

| | | | |
|--|--|--|--|
| r2272 | CO: Technology controller actual value scaled / Tech_ctrl act scal | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%] |

Description: Display and connector output for the scaled actual value signal of the technology controller.

Dependency: Refer to: p2264, p2265, r2266, p2267, p2268, p2269, p2270, p2271

| | | | |
|--|--|--|--|
| r2273 | CO: Technology controller error / Tec_ctrl error | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: 9_1 Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1 Factory setting - [%] |
| Description: | Displays the error (system deviation) between the setpoint and actual value of the technology controller. | | |
| Dependency: | Refer to: p2263 | | |

| | | | |
|--|---|---|--|
| p2274 | Technology controller differentiation time constant / Tec_ctrl D comp T | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60.000 [s] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0.000 [s] |
| Description: | Sets the time constant for the differentiation (D component) of the technology controller. | | |
| Note: | p2274 = 0: Differentiation is disabled. | | |

| | | | |
|--|---|---|--|
| p2280 | Technology controller proportional gain / Tec_ctrl Kp | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.000 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1000.000 | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 1.000 |
| Description: | Sets the proportional gain (P component) of the technology controller. | | |
| Dependency: | Refer to: p2252 | | |
| Note: | p2280 = 0: The proportional gain is disabled. | | |

| | | | |
|--|---|---|--|
| p2285 | Technology controller integral time / Tec_ctrl Tn | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60.000 [s] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0.000 [s] |
| Description: | Sets the integral time (I component, integrating time constant) of the technology controller. | | |
| Dependency: | Refer to: p2252 | | |
| Note: | p2285 = 0: The integral time is disabled. | | |

| | | | |
|--|--|---|--|
| p2286[0...n] | BI: Hold technology controller integrator / Tec_ctr integ hold | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: Unsigned32 / Binary P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source to hold the integrator for the technology controller. | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|--|---|--|
| p2289[0...n] | CI: Technology controller pre-control signal / Tec_ctr prectr_sig | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Sets the signal source for the pre-control signal of the technology controller.

| | | | |
|--|---|---|---|
| p2291 | CO: Technology controller maximum limiting / Tec_ctrl max_lim | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 100.00 [%] |

Description: Sets the maximum limit of the technology controller.

Dependency: Refer to: p2292

Caution: The maximum limit must always be greater than the minimum limit (p2291 > p2292).



| | | | |
|--|---|---|---|
| p2292 | CO: Technology controller minimum limiting / Tec_ctrl min_lim | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |

Description: Sets the minimum limit of the technology controller.

Dependency: Refer to: p2291

Caution: The maximum limit must always be greater than the minimum limit (p2291 > p2292).



| | | | |
|--|--|---|---|
| p2293 | Technology controller ramp-up/ramp-down time / Tec_ctr t_RU/RD | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 100.00 [s] | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 1.00 [s] |

Description: Sets the ramping time for the output signal of the technology controller.

Dependency: Refer to: p2291, p2292

Note: The time refers to the set maximum and minimum limits (p2291, p2292).

| | | | | |
|--|--|---|---|--|
| r2294 | CO: Technology controller output signal / Tec_ctrl outp_sig | | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting - [%] | |
| Description: | Display and connector output for the output signal of the technology controller. | | | |
| Dependency: | Refer to: p2295 | | | |
| p2295 | CO: Technology controller output scaling / Tec_ctrl outp scal | | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: - Min -100.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 100.00 [%] | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 100.00 [%] | |
| Description: | Sets the scaling for the output signal of the technology controller. | | | |
| p2296[0...n] | CI: Technology controller output scaling / Tec_ctrl outp scal | | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 2295[0] | |
| Description: | Sets the signal source for the scaling value of the technology controller. | | | |
| Dependency: | Refer to: p2295 | | | |
| p2297[0...n] | CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src | | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 2291[0] | |
| Description: | Sets the signal source for the maximum limiting of the technology controller. | | | |
| Dependency: | Refer to: p2291 | | | |
| p2298[0...n] | CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s | | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 2292[0] | |
| Description: | Sets the signal source for the minimum limiting of the technology controller. | | | |
| Dependency: | Refer to: p2292 | | | |

| | | | |
|--|--|---|--|
| p2299[0...n] | CI: Technology controller limit offset / Tech_ctrl lim offs | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the offset of the output limiting of the technology controller. | | |

| | | | |
|--|--|--|--|
| p2306 | Technology controller fault signal inversion / Tec_ctrl fault inv | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: Integer16 P-Group: Technology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Setting to invert the fault signal of the technology controller. The setting depends on the type of control loop.

Value:
0: No inversion
1: Inversion

Caution: If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!



Note: The correct setting can be determined as follows:

- inhibit the technology controller (p2200 = 0).
- increase the motor speed and in so doing, measure the actual value signal (of the technology controller).
- if the actual value increases with increasing motor speed, then the inversion should be switched out.
- if the actual value decreases with increasing motor speed, then the inversion should be set.

If value = 0:
The drive reduces the output speed when the actual value rises (e.g. for heating fans, intake pump, compressor).

If value = 1:
The drive increases the output speed when the actual value increases (e.g. for cooling fans, discharge pumps).

| | | | |
|--|---|--|--|
| r2349.0...11 | CO/BO: Technology controller status word / Tec_ctrl status | | |
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: - Data type: Unsigned32 P-Group: Technology Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1 Factory setting - |

Description: Displays the status word of the technology controller.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---|----------|----------|----|
| | 00 | Technology controller de-activated | Yes | No | - |
| | 01 | Technology controller limited | Yes | No | - |
| | 02 | Technology controller motorized potentiometer limited max | Yes | No | - |
| | 03 | Technology controller motorized potentiometer limited min | Yes | No | - |
| | 08 | Technology controller actual value at the minimum | Yes | No | - |
| | 09 | Technology controller actual value at the maximum | Yes | No | - |

| | | | | |
|----|---|-----|----|---|
| 10 | Technology controller output at the minimum | Yes | No | - |
| 11 | Technology controller output at the maximum | Yes | No | - |

p2398 Energy-saving mode / En_save mode

| | | | |
|--|--|--|---|
| DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL_S (Tech_ctrl) | Can be changed: T Data type: Integer16 P-Group: Technology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
|--|--|--|---|

Description: Sets the operating mode for the energy-saving mode function.

Value:
0: Energy-saving mode inhibited
1: Energy-saving mode activated

Dependency: Refer to: p2200

Caution: When this function is active, the motor can start again automatically.



Note: When the energy-saving mode function (p2398 = 1) is activated, its behavior is defined as to whether the technology controller is additionally switched in (closed-loop) or switched out (open-loop).

The technology controller is enabled via binector input p2200 and its mode is set in p2251.

p2200 = 0, p2251 = 0, 1:

Energy-saving mode operates without technology controller (open-loop)

p2200 = 1, p2251 = 0:

Energy-saving mode operates with technology controller (closed-loop)

p2200 = 1, p2251 = 1:

Energy-saving mode operates without technology controller (open-loop) as its output is only used as supplementary setpoint and not as main setpoint.

p2504[0...n] LR motor/load motor revolutions / Mot/load motor rev

| | | | |
|---|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 1 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1048576 | Access level: 1 Func. diagram: 4704, 4711 Unit selection: - Expert list: 1 Factory setting 1 |
|---|--|---|--|

Description: Sets the motor revolutions for the gearbox factor between the motor shaft and load shaft.

Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)

Dependency: Refer to: p0432, p0433, p2505

Note: The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.

p2505[0...n] LR motor/load load revolutions / Mot/load load rev

| | | | |
|---|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Integer32 P-Group: Encoder Not for motor type: - Min -1048576 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1048576 | Access level: 1 Func. diagram: 4704, 4711 Unit selection: - Expert list: 1 Factory setting 1 |
|---|--|---|--|

Description: Sets the load revolutions for the gearbox factor between the motor shaft and load shaft.

Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)

Dependency: Refer to: p0432, p0433, p2504

Note: The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.

| | | | |
|---|--|--|---|
| r2700 | CO: Reference speed / n_ref | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output for reference speed p2000. All speeds specified as relative values refer to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit rpm. | | |
| Dependency: | Refer to: p2000 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |
| r2701 | CO: Reference voltage / Reference voltage | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output of the reference quantity for voltages p2001. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit [Vrms]. | | |
| Dependency: | Refer to: p2001 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2001 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |
| r2702 | CO: Reference current / Reference current | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output of the reference quantity for currents p2002. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit Arms. | | |
| Dependency: | Refer to: p2002 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2002 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |

| | | | |
|---|--|----------------------|--------------------------|
| r2703 | CO: Reference torque / Reference torque | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Connector output of the reference quantity p2003 for torque (r0108.12 = 0) or force (r0108.12 = 1). The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). The unit of this parameter is the same as the unit selected for p2003. | | |
| Dependency: | p0505, r0108.12 Refer to: p2003 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2003 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |
| r2704 | CO: Reference power / Reference power | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Connector output of the reference quantity for powers p2004. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). The unit of this parameter is the same as the unit selected for p2004. | | |
| Dependency: | This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls. Refer to: r2004 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2004 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. The reference power is calculated as follows: - $2 * \text{Pi} * \text{reference speed} / 60 * \text{reference torque (motor)}$ - $\text{reference voltage} * \text{reference current} * \text{root}(3) \text{ (infeed)}$ | | |
| r2705 | CO: Reference angle / Reference angle | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Connector output of the reference quantity for angles p2005. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit degree. | | |
| Dependency: | Refer to: p2005 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2005 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |

| | | | |
|---|---|--|---|
| r2706 | CO: Reference temp / Reference temp | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output of the reference quantity for temperatures. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit degree Celsius. | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |
| r2706 | CO: Reference temp / Reference temp | | |
| TM150, TM31 | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output of the reference quantity for temperatures. All temperatures specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit degree Celsius. | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |
| r2707 | CO: Reference acceleration / Ref accel | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Connector output of the reference quantity for accelerations p2007. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). The unit of this parameter is the same as the unit selected for p2007. | | |
| Dependency: | r0108.12, p0505 Refer to: p2007 | | |
| Note: | This BICO parameter provides the numerical value of the reference quantity p2007 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value in the currently selected unit can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication. | | |

| p2720[0...n] | | Load gear configuration / Load gear config | | |
|---|---|---|---|-----------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: 4704 Unit selection: - Expert list: 1 Factory setting 0000 bin | |
| Description: | Sets the configuration for position tracking of a load gear. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Load gear activate position tracking | Yes | No |
| | 01 | Axis type | Linear axis | Rotary axis |
| | 02 | Load gear reset position | Yes | No |
| Note: | For the following events, the non-volatile, saved position values are automatically reset: - when an encoder replacement has been identified. - when changing the configuration of the Encoder Data Set (EDS). - when adjusting the absolute encoder again | | | |

| p2721[0...n] | | Load gear rotary absolute encoder revolutions virtual / Abs rot rev | | |
|---|--|---|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 4194303 | Access level: 1 Func. diagram: 4704 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gear. | | | |
| Dependency: | This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gear (p2720.0 = 1). | | | |
| Note: | The resolution that is set must be able to be represented using r2723. For rotary axes/modulo axes, the following applies: This parameter is pre-set with p0421 when activating position tracking and can be changed. For linear axes, the following applies: This parameter is pre-assigned with p0421 when activating position tracking, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed. | | | |

| p2722[0...n] | | Load gear position tracking tolerance window / Pos track tol | | |
|---|--|---|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1, 4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: - Min 0.00 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 4294967300.00 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 | |
| Description: | Sets a tolerance window for position tracking. After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated: Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value. Difference outside the tolerance window --> An appropriate message is output. Rotation, e.g. through a complete encoder range is not detected. | | | |
| Caution: | | | | |



2 Parameters

2.2 List of parameters

Note: The value is entered in integer (complete) encoder pulses.
 For p2720.0 = 1, the value is automatically pre-assigned quarter of the encoder range.
 Example:
 Quarter of the encoder range = (p0408 * p0421) / 4
 It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

| | | | |
|---|---|-------------------------------|----------------------------|
| r2723[0...n] | CO: Load gear absolute value / Load gear abs_val | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: DDS, p0180 | Func. diagram: 4704 |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the absolute value after the load gear. | | |
| Notice: | The encoder position actual value must be requested using the encoder control word Gn_STW.13. | | |
| Note: | The increments are displayed in the format the same as r0483. | | |

| | | | |
|---|---|-------------------------------|--------------------------|
| r2724[0...n] | CO: Load gear position difference / Load gear pos diff | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Integer32 | Dyn. index: DDS, p0180 | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the position difference before the load gear between powering down and powering up. | | |
| Note: | The increments are displayed in the same format as for r0483/r2723. If the measuring gear of the motor encoder is not activated, the position difference should be read in encoder increments. If the measuring gear of the motor encoder is activated, the position difference is converted using the measuring gear factor. | | |

| | | | |
|---|--|----------------------|----------------------------|
| p2810[0...1] | BI: AND logic operation inputs / AND inputs | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2634 |
| | P-Group: Functions | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for the inputs of the AND logic operation. | | |
| Dependency: | Refer to: r2811 | | |
| Note: | [0]: AND logic operation, input 1 --> the result is displayed in r2811.0. [1]: AND logic operation, input 2 --> the result is displayed in r2811.0. | | |

| | | | |
|---|---|----------------------|----------------------------|
| r2811.0 | CO/BO: AND logic operation result / AND result | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 2634 |
| | P-Group: Functions | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the result of the AND logic operation | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | | | | - |

Dependency: Refer to: p2810

p2816[0...1] **BI: OR logic operation inputs / OR inputs**

| | | | |
|--------------|---------------------------------------|----------------------|----------------------------|
| DC_CTRL, | Can be changed: T | Calculated: - | Access level: 2 |
| DC_CTRL_R, | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2634 |
| DC_CTRL_R_S, | P-Group: Functions | Unit group: - | Unit selection: - |
| DC_CTRL_S | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal sources for the inputs of the OR logic operation.

Dependency: Refer to: r2817

Note: [0]: OR logic operation, input 1 --> the result is displayed in r2817.0.

[1]: OR logic operation, input 2 --> the result is displayed in r2817.0.

r2817.0 **CO/BO: OR logic operation result / OR result**

| | | | |
|--------------|------------------------------|----------------------|----------------------------|
| DC_CTRL, | Can be changed: - | Calculated: - | Access level: 2 |
| DC_CTRL_R, | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 2634 |
| DC_CTRL_R_S, | P-Group: Functions | Unit group: - | Unit selection: - |
| DC_CTRL_S | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the result of the OR logic operation.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---------------------------|----------|----------|----|
| | 00 | OR logic operation result | Yes | No | - |

Dependency: Refer to: p2816

p2900[0...n] **CO: Fixed value 1 [%] / Fixed value 1 [%]**

| | | | |
|--------------|--------------------------------------|-------------------------------|--------------------------|
| DC_CTRL, | Can be changed: U, T | Calculated: - | Access level: 3 |
| DC_CTRL_R, | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: - |
| DC_CTRL_R_S, | P-Group: Free function blocks | Unit group: - | Unit selection: - |
| DC_CTRL_S | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -10000.00 [%] | 10000.00 [%] | 0.00 [%] |

Description: Setting and connector output for a fixed percentage value.

Dependency: Refer to: p2901, r2902, p2930

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)

p2901[0...n] **CO: Fixed value 2 [%] / Fixed value 2 [%]**

| | | | |
|--------------|--------------------------------------|-------------------------------|--------------------------|
| DC_CTRL, | Can be changed: U, T | Calculated: - | Access level: 3 |
| DC_CTRL_R, | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: - |
| DC_CTRL_R_S, | P-Group: Free function blocks | Unit group: - | Unit selection: - |
| DC_CTRL_S | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -10000.00 [%] | 10000.00 [%] | 0.00 [%] |

Description: Setting and connector output for a fixed percentage value.

Dependency: Refer to: p2900, p2930

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)

| | | | |
|---|---|--|---|
| r2902[0...14] | CO: Fixed values [%] / Fixed values [%] | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: Free function blocks Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for frequently used percentage values. | | |
| Index: | [0] = Fixed value +0 % [1] = Fixed value +5 % [2] = Fixed value +10 % [3] = Fixed value +20 % [4] = Fixed value +50 % [5] = Fixed value +100 % [6] = Fixed value +150 % [7] = Fixed value +200 % [8] = Fixed value -5 % [9] = Fixed value -10 % [10] = Fixed value -20 % [11] = Fixed value -50 % [12] = Fixed value -100 % [13] = Fixed value -150 % [14] = Fixed value -200 % | | |
| Dependency: | Refer to: p2900, p2901, p2930 | | |
| Note: | The signal sources can, for example, be used to interconnect scalings. | | |
| p2930[0...n] | CO: Fixed value M [Nm] / Fixed value M [Nm] | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Free function blocks Not for motor type: REL Min -100000.00 [Nm] | Calculated: - Dyn. index: DDS, p0180 Unit group: 7_1 Scaling: p2003 Max 100000.00 [Nm] | Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1 Factory setting 0.00 [Nm] |
| Description: | Setting and connector output for a fixed torque value. | | |
| Dependency: | Refer to: p2900, p2901, r2902 | | |
| Notice: | A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set. | | |
| Note: | The value can, for example, be used to interconnect a supplementary torque. | | |
| p3100 | RTC time stamp mode / RTC t_stamp mode | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2 |
| Description: | Sets the mode for the time stamp p3100 = 0: Time stamp, operating hours p3100 = 1: Time stamp, UTC format p3100 = 2: Time stamp, operating hours + 01.01.2000 | | |
| Notice: | The realtime format (p3100 = 1), once selected, remains until the next time that the system is switched off. Switching back to operating hours (p3100 = 0) or operating hours + 01.01.2000 (p3100=2) is prevented. | | |
| Note: | RTC: Real-time clock UTC: Universal Time Coordinates The UTC time started, according to the definition on 01.01.1970 at 00:00:00 and is output in days and milliseconds. | | |

| | | | |
|--|--|---|---|
| p3101[0...1] | RTC set UTC time / RTC set UTC | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4294967295 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting the UTC time. This means that the drive system is synchronized to the time specified by the time master. To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted. p3101[0]: Milliseconds p3101[1]: Days | | |
| r3102[0...1] | RTC read UTC time / RTC read UTC | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the actual UTC time in the drive system. p3102[0]: Milliseconds p3102[1]: Days | | |
| p3103 | RTC synchronization source / RTC sync_source | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the synchronization source/technique. | | |
| Value: | 0: PROFIBUS 1: PROFINET 2: PPI 3: PROFINET PTP | | |
| p3104 | BI: RTC real time synchronization PING / RTC PING | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the PING event to set the UTC time. | | |
| Notice: | The parameter may be protected as a result of p0922 or p2079 and cannot be changed. | | |

| | | | |
|--|---|----------------------|----------------------------|
| r3107[0...3] | | | |
| RTC synchronizing time / RTC t_sync | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the last synchronizing event in the drive system. 3107[0, 1]: synchronizing event after synchronization r3107[0]: milliseconds r3107[1]: days 3107[2, 3]: synchronizing event before synchronization r3107[2]: milliseconds r3107[3]: days | | |
| <hr/> | | | |
| r3108[0...1] | | | |
| RTC last synchronization deviation / RTC sync_dev | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the absolute value of the last synchronization deviation that was determined. r3108[0]: Milliseconds r3108[1]: Days | | |
| <hr/> | | | |
| p3109 | | | |
| RTC real time synchronization tolerance window / RTC sync tol | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 1000 [ms] | 100 [ms] |
| Description: | Sets the tolerance window for time synchronization. When this tolerance window is exceeded, an appropriate alarm is output. | | |
| <hr/> | | | |
| p3110 | | | |
| External fault 3 power-up delay / Ext fault 3 t_on | | | |
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2546 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 1000 [ms] | 0 [ms] |
| Description: | Sets the delay time for external fault 3. | | |
| Dependency: | Refer to: p2108, p3111, p3112 | | |

| | | | |
|---|---|---|--|
| p3111 | BI: External fault 3 enable / Ext fault 3 enab | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - Max - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated | | |
| Dependency: | Refer to: p2108, p3110, p3112 | | |
| p3111[0...n] | BI: External fault 3 enable / Ext fault 3 enab | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - Max - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated | | |
| Dependency: | Refer to: p2108, p3110, p3112 | | |
| p3112 | BI: External fault 3 enable negated / Ext flt 3 enab neg | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - Max - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated | | |
| Dependency: | Refer to: p2108, p3110, p3111 | | |
| p3112[0...n] | BI: External fault 3 enable negated / Ext flt 3 enab neg | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min - Max - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the negated enable signal of external fault 3. | | |

2 Parameters

2.2 List of parameters

External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p2108, p3110, p3111

r3113.0...15

CO/BO: NAMUR message bit bar / NAMUR bit bar

All objects

| | | |
|------------------------------|----------------------|--------------------------|
| Can be changed: - | Calculated: - | Access level: 3 |
| Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| P-Group: Messages | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| - | - | - |

Description:

Display and BICO output for the status of the NAMUR message bit bar.

The faults and alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|--|----------|----------|----|
| 00 | Fault converter information electronics/software error | Yes | No | - |
| 01 | Network fault | Yes | No | - |
| 02 | DC link overvoltage | Yes | No | - |
| 03 | Fault drive converter power electronics | Yes | No | - |
| 04 | Drive converter overtemperature | Yes | No | - |
| 05 | Ground fault | Yes | No | - |
| 06 | Motor overload | Yes | No | - |
| 07 | Bus error | Yes | No | - |
| 08 | External safety-relevant shutdown | Yes | No | - |
| 09 | Mot encoder fault | Yes | No | - |
| 10 | Error communication internal | Yes | No | - |
| 11 | Fault infeed | Yes | No | - |
| 15 | Other faults | Yes | No | - |

Note:

Re bit 00:

Hardware or software malfunction was identified. Carry out a POWER ON of the component involved. If it occurs again, contact the hotline.

Re bit 01:

A line supply fault has occurred (phase failure, voltage level, ...). Check the line supply / fuses. Check the supply voltage. Check the wiring.

Re bit 02:

The DC link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings.

Re bit 03:

An inadmissible operating state of the power electronics was identified (overcurrent, overtemperature, IGBT failure, ...). Check that the permissible load cycles are maintained. Check the ambient temperatures (fan).

Re bit 04:

The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet cooling.

Re bit 05:

A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cable (connection). Check the motor.

Re bit 06:

The motor was operated outside the permissible limits (temperature, current, torque, ...). Check the load cycles and limits that have been set. Check the ambient temperature / motor cooling.

Re bit 07:

The communication to the higher-level control system (internal coupling, PROFIBUS, PROFINET, ...) is faulted or interrupted. Check the state of the higher-level control system. Check the communication connection/wiring. Check the bus configuration / clock cycles.

Re bit 08:

A safety operation monitoring function (Safety) has detected an error.

Re bit 09:

When evaluating the encoder signals (track signals, zero marks, absolute values, ...) an illegal signal state was detected. Check the encoder / state of the encoder signals. Observe the maximum frequencies.

Re bit 10:

The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant design. Observe the maximum permissible quantity structure / clock cycles.

Re bit 11:

The infeed is faulted or has failed. Check the infeed and the surroundings (line supply, filter, reactors, fuses, ...). Check the closed-loop infeed control.

Re bit 15:

Group fault. Determine the precise cause of the fault using the commissioning tool.

r3114.9...11

CO/BO: Messages status word global / Msg ZSW global

| | | | |
|--|-----------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description:

Displays the global status word for messages.

The appropriate bit is set if at least one message is present at the drive objects.

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|------------------------------|----------|----------|------|
| 09 | Group alarm present | Yes | No | 8065 |
| 10 | Group fault present | Yes | No | 8060 |
| 11 | Safety group message present | Yes | No | - |

Note:

The status bits are displayed with delay.

r3115[0...63]

Fault drive object initiating / F DO initiating

| | | | |
|---|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description:

Displays the drive object number of the initiating drive object for this fault as integer number.

Value = 63:

The fault was initiated by the drive object itself.

Dependency:

Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Note:

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

r3115[0...63]

Fault drive object initiating / F DO initiating

| | | | |
|---------------------------|------------------------------|----------------------|----------------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: 8050, 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description:

Displays the drive object number of the initiating drive object for this fault as integer number.

Value = 63:

The fault was initiated by the drive object itself.

Dependency:

Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Note:

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

The structure of the fault buffer and the assignment of the indices is shown in r0945.

| | | | |
|--|---|----------------------|----------------------------|
| p3116 | BI: Acknowledgement automatically suppressed / Ackn suppress | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the automatic acknowledgement on the device drive object. BI: p3116 = 0 signal Faults present are automatically acknowledged on the device drive object. Local device faults are forwarded to the first active drive object. BI: p3116 = 1 signal Faults present are not automatically acknowledged on the device drive object. Local device faults are not forwarded. | | |
| Dependency: | Refer to: p2102, p2103, p2104, p2105, p3981 | | |
| Note: | When selecting a standard telegram, the BICO interconnection for control signal STW1.10 (master control by PLC) is automatically established. | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r3120[0...63] | Component fault / Comp fault | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the component of the fault which has occurred. | | |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3122 | | |
| Note: | Value = 0: Assignment to a component not possible. The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945. | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r3121[0...63] | Component alarm / Comp alarm | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the component of the alarm which has occurred. | | |
| Dependency: | Refer to: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3123 | | |
| Note: | Value = 0: Assignment to a component not possible. The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122. | | |

| | | | |
|----------------------|--|----------------------|----------------------------|
| r3122[0...63] | Diagnostic attribute fault / Diag_attr fault | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the diagnostic attribute of the fault which has occurred. | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|--------------------|---|----------------------------------|----------|----------|----|
| | 00 | Hardware replacement recommended | Yes | No | - |
| | 15 | Message has gone | Yes | No | - |
| | 16 | PROFIdrive fault class bit 0 | High | Low | - |
| | 17 | PROFIdrive fault class bit 1 | High | Low | - |
| | 18 | PROFIdrive fault class bit 2 | High | Low | - |
| | 19 | PROFIdrive fault class bit 3 | High | Low | - |
| | 20 | PROFIdrive fault class bit 4 | High | Low | - |
| Dependency: | Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120 | | | | |
| Note: | The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945. Re bits 20 ... 16: Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault | | | | |

r3123[0...63] Diagnostic attribute alarm / Diag_attr alarm

| | | | |
|-------------|------------------------------|----------------------|----------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8065 |
| | P-Group: Messages | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the diagnostic attribute of the alarm which has occurred.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|----------------------------------|----------|----------|----|
| | 00 | Hardware replacement recommended | Yes | No | - |
| | 11 | Alarm class bit 0 | High | Low | - |
| | 12 | Alarm class bit 1 | High | Low | - |
| | 13 | Maintenance required | Yes | No | - |
| | 14 | Maintenance urgently required | Yes | No | - |
| | 15 | Message has gone | Yes | No | - |
| | 16 | PROFIdrive fault class bit 0 | High | Low | - |
| | 17 | PROFIdrive fault class bit 1 | High | Low | - |
| | 18 | PROFIdrive fault class bit 2 | High | Low | - |
| | 19 | PROFIdrive fault class bit 3 | High | Low | - |
| | 20 | PROFIdrive fault class bit 4 | High | Low | - |

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3121

2 Parameters

2.2 List of parameters

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

Re bit 12, 11:
These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

Re bits 20 ... 16:

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned
 Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error
 Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault
 Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault
 Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault
 Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted
 Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components
 Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected
 Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload
 Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control
 Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error
 Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available
 Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error
 Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted
 Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted
 Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted
 Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range
 Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted
 Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence
 Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault

r3131

CO: Actual fault value / Act fault val

All objects

Can be changed: -

Calculated: -

Access level: 3

Data type: Integer32

Dyn. index: -

Func. diagram: 8060

P-Group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the fault value of the oldest active fault.

Dependency:

Refer to: r2131, r3132

r3132

CO: Actual component number / Comp_no act

All objects

Can be changed: -

Calculated: -

Access level: 3

Data type: Integer32

Dyn. index: -

Func. diagram: 8060

P-Group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the component number of the oldest fault that is still active.

Dependency:

Refer to: r2131, r3131

| | | | | |
|---|--|---------------------------------------|----------------------------------|-----------------|
| p3135 | Suppress active fault / Supp act flt | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 4 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8060 | |
| | P-Group: Messages | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 0000 0000 0000 0000 bin | |
| Description: | Sets the suppression of r2139.3 "Fault present" for certain fault responses. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 08 | Suppression of fault response ENCODER | ON | OFF |
| | 10 | Suppression of fault response NONE | ON | OFF |
| Dependency: | Refer to: p0491, r2139 | | | |
| Note: | Depending on the suppression of a fault reaction in this parameter, r2139.1 "Acknowledgement required" is set when at least one fault occurs. | | | |
| | Re bit 08: | | | |
| | The suppression is only effective if p0491 = 1. | | | |
| r3770 | CO: Load speed / n_load | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 1580, 4711 | |
| | P-Group: Setpoints | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Display and connector output for the load speed for APC (Advanced Positioning Control). | | | |
| Dependency: | Refer to: r3771 | | | |
| r3771[0...1] | CO: Load speed smoothed / n_load smooth | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 1580, 4711 | |
| | P-Group: Setpoints | Unit group: 3_1 | Unit selection: p0505 | |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [rpm] | - [rpm] | - [rpm] | |
| Description: | Display and connector output for the speed actual values for APC (Advanced Positioning Control). | | | |
| | Index 0: | | | |
| | Displays the smoothed load speed. | | | |
| | Index 1: | | | |
| | Displays the load/motor speed actual value weighted with p3702 for p3700.8=1. | | | |
| Index: | [0] = Load actual value speed smoothed | | | |
| | [1] = Load/motor actual speed weighted | | | |
| Dependency: | Refer to: p1441, r3770 | | | |
| p3900 | Completion of quick commissioning / Compl quick_comm | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(1) | Calculated: - | Access level: 1 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 3 | 0 | |
| Description: | Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning. | | | |

2 Parameters

2.2 List of parameters

p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.

Value: 0: No quick parameterization

3: Quick parameterization for motor parameters (only)

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of zero.

p3950

Service parameter / Serv par

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: C1, U, T

Data type: Unsigned16

P-Group: -

Not for motor type: -

Min

-

Calculated: -

Dyn. index: -

Unit group: -

Scaling: -

Max

-

Access level: 3

Func. diagram: -

Unit selection: -

Expert list: 1

Factory setting

-

Description: For service personnel only.

r3974

Drive unit status word / Drv_unit ZSW

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -

Data type: Unsigned32

P-Group: -

Not for motor type: -

Min

-

Calculated: -

Dyn. index: -

Unit group: -

Scaling: -

Max

-

Access level: 1

Func. diagram: -

Unit selection: -

Expert list: 1

Factory setting

-

Description: Displays the status word for the drive unit.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--|----------|----------|----|
| | 00 | Software reset active | Yes | No | - |
| | 01 | Writing of parameters disabled as parameter save in progress | Yes | No | - |
| | 02 | Writing of parameters disabled as macro is running | Yes | No | - |

r3977

BICO counter topology / BICO counter topo

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -

Data type: Unsigned32

P-Group: Commands

Not for motor type: -

Min

-

Calculated: -

Dyn. index: -

Unit group: -

Scaling: -

Max

-

Access level: 4

Func. diagram: -

Unit selection: -

Expert list: 1

Factory setting

-

Description: Displays the BICO interconnections that have been parameterized in the complete (overall) topology. The counter is incremented by one for each modified BICO interconnection.

Dependency: Refer to: r3978, r3979

r3978

BICO CounterDevice / BICO CounterDevice

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -

Data type: Unsigned32

P-Group: Commands

Not for motor type: -

Min

-

Calculated: -

Dyn. index: -

Unit group: -

Scaling: -

Max

-

Access level: 4

Func. diagram: -


Unit selection: -

Expert list: 1

Factory setting

-

Description: Displays the counter reading for modified BICO interconnections on this device. The counter is incremented by one for each modified BICO interconnection.

| | | | |
|---|--|--|--|
| r3979 | BICO counter drive object / BICO counter DO | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the counter reading for modified BICO interconnections on this drive object. The counter is incremented by one for each modified BICO interconnection. | | |
| p3981 | Faults acknowledge drive object / Faults ackn DO | | |
| All objects | Can be changed: U, T Data type: Unsigned8 P-Group: Messages Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 8060 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting to acknowledge all active faults of a drive object. | | |
| Notice: | Safety messages cannot be acknowledged using this parameter. | | |
| Note: | Parameter should be set from 0 to 1 to acknowledge. After acknowledgement, the parameter is automatically reset to 0. | | |
| p3985 | Master control mode selection / PcCtrl mode select | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Integer16 P-Group: Setpoints Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the mode to change over the master control / LOCAL mode. | | |
| Value: | 0: Change master control for STW1.0 = 0 1: Change master control in operation | | |
| Danger: | When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint. | | |
|  | | | |
| r3986 | Parameter count / Parameter No. | | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the number of parameters for this drive unit. The number comprises the device-specific and the drive-specific parameters. | | |
| Dependency: | Refer to: r0980, r0981, r0989 | | |

| r3988[0...1] | Boot state / Boot_state | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 10800 | - |
| Description: | Index 0: Displays the boot state. Index 1: Displays the partial boot state | | |
| Value: | 0: Not active 1: Fatal fault 10: Fault 20: Reset all parameters 30: Drive object modified 40: Download using commissioning software 50: Parameter download using commissioning software 90: Reset Control Unit and delete drive objects 100: Start initialization 110: Instantiate Control Unit basis 150: Wait until actual topology determined 160: Evaluate topology 170: Instantiate Control Unit reset 180: Initialization YDB configuration information 200: First commissioning 210: Create drive packages 250: Wait for topology acknowledge 325: Wait for input of drive type 350: Determine drive type 360: Write into topology-dependent parameters 370: Wait until p0009 = 0 is set 380: Check topology 550: Call conversion functions for parameter 625: Wait non-cyclic starting DRIVE-CLiQ 650: Start cyclic operation 660: Evaluate drive commissioning status 670: Autom. FW update DRIVE-CLiQ components 680: Wait for CU LINK slaves 690: Wait non-cyclic starting DRIVE-CLiQ 700: Save parameters 725: Wait until DRIVE-CLiQ cyclic 740: Check the ability to operate 745: Start of the time slices 750: Interrupt enable 800: Initialization finished 10050: Wait for synchronization 10100: Wait for CU LINK slaves 10150: Wait until actual topology determined 10200: Evaluation component status 10250: Call conversion functions for parameter 10300: Preparation cyclic operation 10350: Autom. FW update DRIVE-CLiQ components 10400: Wait for slave properties 10450: Check CX/NX status 10500: Wait until DRIVE-CLiQ cyclic 10550: Carry out warm start 10600: Evaluate, encoder status 10800: Partial boot completed | | |
| Index: | [0] = System [1] = Partial boot | | |

| r3996[0...1] | | Parameter write inhibit status / Par_write inhib st | | | |
|---------------------|--|--|--|-----------------|-----------|
| All objects | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays whether writing to parameters is inhibited. | | | | |
| | r3996[0] = 0: Parameter write not inhibited. | | | | |
| | 0 < r3996[0] < 100: Parameter write inhibited. The value shows how the calculations are progressing. | | | | |
| Index: | [0] = Progress calculations [1] = Cause | | | | |
| Note: | Re index 1: Only for internal Siemens troubleshooting. | | | | |
| r4021 | | TM15DI/DO digital inputs terminal actual value / TM15D DI act val | | | |
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9400, 9401, 9402 | | |
| | P-Group: Commands | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the actual value at the digital inputs. | | | | |
| | This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0). | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | DI/DO 0 (X520.2) | High | Low | - |
| | 01 | DI/DO 1 (X520.3) | High | Low | - |
| | 02 | DI/DO 2 (X520.4) | High | Low | - |
| | 03 | DI/DO 3 (X520.5) | High | Low | - |
| | 04 | DI/DO 4 (X520.6) | High | Low | - |
| | 05 | DI/DO 5 (X520.7) | High | Low | - |
| | 06 | DI/DO 6 (X520.8) | High | Low | - |
| | 07 | DI/DO 7 (X520.9) | High | Low | - |
| | 08 | DI/DO 8 (X521.2) | High | Low | - |
| | 09 | DI/DO 9 (X521.3) | High | Low | - |
| | 10 | DI/DO 10 (X521.4) | High | Low | - |
| | 11 | DI/DO 11 (X521.5) | High | Low | - |
| | 12 | DI/DO 12 (X521.6) | High | Low | - |
| | 13 | DI/DO 13 (X521.7) | High | Low | - |
| | 14 | DI/DO 14 (X521.8) | High | Low | - |
| | 15 | DI/DO 15 (X521.9) | High | Low | - |
| | 16 | DI/DO 16 (X522.2) | High | Low | - |
| | 17 | DI/DO 17 (X522.3) | High | Low | - |
| | 18 | DI/DO 18 (X522.4) | High | Low | - |
| | 19 | DI/DO 19 (X522.5) | High | Low | - |
| | 20 | DI/DO 20 (X522.6) | High | Low | - |
| | 21 | DI/DO 21 (X522.7) | High | Low | - |
| | 22 | DI/DO 22 (X522.8) | High | Low | - |
| | 23 | DI/DO 23 (X522.9) | High | Low | - |
| Note: | If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed. DI/DO: Bidirectional Digital Input/Output | | | | |

| r4021 | | TM31 digital inputs terminal actual value / TM31 DI act value | | | |
|---------------------|--|--|--|-----------------|-----------|
| TM31 | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9549, 9550, 9552, 9560, 9562 | | |
| | P-Group: Commands | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the actual value at the digital inputs. This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0). | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | DI 0 (X520.1) | High | Low | - |
| | 01 | DI 1 (X520.2) | High | Low | - |
| | 02 | DI 2 (X520.3) | High | Low | - |
| | 03 | DI 3 (X520.4) | High | Low | - |
| | 04 | DI 4 (X530.1) | High | Low | - |
| | 05 | DI 5 (X530.2) | High | Low | - |
| | 06 | DI 6 (X530.3) | High | Low | - |
| | 07 | DI 7 (X530.4) | High | Low | - |
| | 08 | DI/DO 8 (X541.2) | High | Low | - |
| | 09 | DI/DO 9 (X541.3) | High | Low | - |
| | 10 | DI/DO 10 (X541.4) | High | Low | - |
| | 11 | DI/DO 11 (X541.5) | High | Low | - |
| Note: | If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed. DI: Digital Input DI/DO: Bidirectional Digital Input/Output | | | | |

| r4022.0...23 | | CO/BO: TM15DI/DO digital inputs status / TM15D DI status | | | |
|---------------------|---|---|--|-----------------|-----------|
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9399, 9400, 9401, 9402 | | |
| | P-Group: Commands | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the status of the digital inputs of Terminal Module 15 (TM15). | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | DI/DO 0 (X520.2) | High | Low | - |
| | 01 | DI/DO 1 (X520.3) | High | Low | - |
| | 02 | DI/DO 2 (X520.4) | High | Low | - |
| | 03 | DI/DO 3 (X520.5) | High | Low | - |
| | 04 | DI/DO 4 (X520.6) | High | Low | - |
| | 05 | DI/DO 5 (X520.7) | High | Low | - |
| | 06 | DI/DO 6 (X520.8) | High | Low | - |
| | 07 | DI/DO 7 (X520.9) | High | Low | - |
| | 08 | DI/DO 8 (X521.2) | High | Low | - |
| | 09 | DI/DO 9 (X521.3) | High | Low | - |
| | 10 | DI/DO 10 (X521.4) | High | Low | - |
| | 11 | DI/DO 11 (X521.5) | High | Low | - |
| | 12 | DI/DO 12 (X521.6) | High | Low | - |
| | 13 | DI/DO 13 (X521.7) | High | Low | - |
| | 14 | DI/DO 14 (X521.8) | High | Low | - |
| | 15 | DI/DO 15 (X521.9) | High | Low | - |
| | 16 | DI/DO 16 (X522.2) | High | Low | - |
| | 17 | DI/DO 17 (X522.3) | High | Low | - |
| | 18 | DI/DO 18 (X522.4) | High | Low | - |
| | 19 | DI/DO 19 (X522.5) | High | Low | - |

| | | | | |
|----|-------------------|------|-----|---|
| 20 | DI/DO 20 (X522.6) | High | Low | - |
| 21 | DI/DO 21 (X522.7) | High | Low | - |
| 22 | DI/DO 22 (X522.8) | High | Low | - |
| 23 | DI/DO 23 (X522.9) | High | Low | - |

Dependency:

Refer to: r4023, r4024, r4025

Notice:

For the BICO interconnection of the connector output (CO) only bit 00 ... 15 are transferred.

Note:

DI/DO: Bidirectional Digital Input/Output

r4022.0...11**CO/BO: TM31 digital inputs status / TM31 DI status**

TM31

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dyn. index:** -**Func. diagram:** 9549, 9550, 9552, 9560, 9562**P-Group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the status of the digital inputs of Terminal Module 31 (TM31).

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------------|----------|----------|----|
| 00 | DI 0 (X520.1) | High | Low | - |
| 01 | DI 1 (X520.2) | High | Low | - |
| 02 | DI 2 (X520.3) | High | Low | - |
| 03 | DI 3 (X520.4) | High | Low | - |
| 04 | DI 4 (X530.1) | High | Low | - |
| 05 | DI 5 (X530.2) | High | Low | - |
| 06 | DI 6 (X530.3) | High | Low | - |
| 07 | DI 7 (X530.4) | High | Low | - |
| 08 | DI/DO 8 (X541.2) | High | Low | - |
| 09 | DI/DO 9 (X541.3) | High | Low | - |
| 10 | DI/DO 10 (X541.4) | High | Low | - |
| 11 | DI/DO 11 (X541.5) | High | Low | - |

Dependency:

Refer to: r4023

Note:

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r4023.0...23**CO/BO: TM15DI/DO digital inputs status inverted / TM15D DI stat inv**

TM15DI_DO

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dyn. index:** -**Func. diagram:** 9399, 9400, 9401, 9402**P-Group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the inverted status of the digital inputs of Terminal Module 15 (TM15).

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------------|----------|----------|----|
| 00 | DI/DO 0 (X520.2) | High | Low | - |
| 01 | DI/DO 1 (X520.3) | High | Low | - |
| 02 | DI/DO 2 (X520.4) | High | Low | - |
| 03 | DI/DO 3 (X520.5) | High | Low | - |
| 04 | DI/DO 4 (X520.6) | High | Low | - |
| 05 | DI/DO 5 (X520.7) | High | Low | - |
| 06 | DI/DO 6 (X520.8) | High | Low | - |
| 07 | DI/DO 7 (X520.9) | High | Low | - |
| 08 | DI/DO 8 (X521.2) | High | Low | - |
| 09 | DI/DO 9 (X521.3) | High | Low | - |
| 10 | DI/DO 10 (X521.4) | High | Low | - |
| 11 | DI/DO 11 (X521.5) | High | Low | - |
| 12 | DI/DO 12 (X521.6) | High | Low | - |
| 13 | DI/DO 13 (X521.7) | High | Low | - |

2 Parameters

2.2 List of parameters

| | | | | |
|----|-------------------|------|-----|---|
| 14 | DI/DO 14 (X521.8) | High | Low | - |
| 15 | DI/DO 15 (X521.9) | High | Low | - |
| 16 | DI/DO 16 (X522.2) | High | Low | - |
| 17 | DI/DO 17 (X522.3) | High | Low | - |
| 18 | DI/DO 18 (X522.4) | High | Low | - |
| 19 | DI/DO 19 (X522.5) | High | Low | - |
| 20 | DI/DO 20 (X522.6) | High | Low | - |
| 21 | DI/DO 21 (X522.7) | High | Low | - |
| 22 | DI/DO 22 (X522.8) | High | Low | - |
| 23 | DI/DO 23 (X522.9) | High | Low | - |

Dependency: Refer to: r4022, r4024, r4025

Notice: For the BICO interconnection of the connector output (CO) only bit 00 ... 15 are transferred.

Note: DI/DO: Bidirectional Digital Input/Output

r4023.0...11 CO/BO: TM31 digital inputs status inverted / TM31 DI status inv

| | | | |
|------|------------------------------|----------------------|--|
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9549, 9550, 9552, 9560, 9562 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the inverted status of the digital inputs of Terminal Module 31 (TM31).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------|----------|----------|----|
| | 00 | DI 0 (X520.1) | High | Low | - |
| | 01 | DI 1 (X520.2) | High | Low | - |
| | 02 | DI 2 (X520.3) | High | Low | - |
| | 03 | DI 3 (X520.4) | High | Low | - |
| | 04 | DI 4 (X530.1) | High | Low | - |
| | 05 | DI 5 (X530.2) | High | Low | - |
| | 06 | DI 6 (X530.3) | High | Low | - |
| | 07 | DI 7 (X530.4) | High | Low | - |
| | 08 | DI/DO 8 (X541.2) | High | Low | - |
| | 09 | DI/DO 9 (X541.3) | High | Low | - |
| | 10 | DI/DO 10 (X541.4) | High | Low | - |
| | 11 | DI/DO 11 (X541.5) | High | Low | - |

Dependency: Refer to: r4022

Note: DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r4024 CO: TM15DI/DO digital inputs 16 ... 23 status / TM15D DI 16-23 St

| | | | |
|-----------|------------------------------|----------------------|----------------------------|
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the status of digital inputs 16 ... 23 of Terminal Module 15 (TM15).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------|----------|----------|----|
| | 00 | DI/DO 16 (X522.2) | ON | OFF | - |
| | 01 | DI/DO 17 (X522.3) | ON | OFF | - |
| | 02 | DI/DO 18 (X522.4) | ON | OFF | - |
| | 03 | DI/DO 19 (X522.5) | ON | OFF | - |
| | 04 | DI/DO 20 (X522.6) | ON | OFF | - |
| | 05 | DI/DO 21 (X522.7) | ON | OFF | - |
| | 06 | DI/DO 22 (X522.8) | ON | OFF | - |
| | 07 | DI/DO 23 (X522.9) | ON | OFF | - |

Dependency: Refer to: r4022, r4023, r4025

Note: DI: Digital Input

r4025 CO: TM15DI/DO digital inputs 16 ... 23 status inverted / TM15D DI 16-23 inv

| | | | |
|-----------|------------------------------|----------------------|----------------------------|
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the inverted status of digital inputs 16 ... 23 of Terminal Module 15 (TM15).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | DI/DO 16 (X522.2) | ON | OFF | - |
| | 01 | DI/DO 17 (X522.3) | ON | OFF | - |
| | 02 | DI/DO 18 (X522.4) | ON | OFF | - |
| | 03 | DI/DO 19 (X522.5) | ON | OFF | - |
| | 04 | DI/DO 20 (X522.6) | ON | OFF | - |
| | 05 | DI/DO 21 (X522.7) | ON | OFF | - |
| | 06 | DI/DO 22 (X522.8) | ON | OFF | - |
| | 07 | DI/DO 23 (X522.9) | ON | OFF | - |

Dependency: Refer to: r4022, r4023, r4024

Note: DI: Digital Input

p4028 TM15DI/DO set input or output / TM15D DI or DO

| | | | |
|-----------|------------------------------|----------------------|--|
| TM15DI_DO | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9399, 9400, 9401, 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin |

Description: Sets the bidirectional digital inputs/outputs on the Terminal Module 15 (TM15) as input or output.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | DI/DO 0 (X520.2) | Output | Input | - |
| | 01 | DI/DO 1 (X520.3) | Output | Input | - |
| | 02 | DI/DO 2 (X520.4) | Output | Input | - |
| | 03 | DI/DO 3 (X520.5) | Output | Input | - |
| | 04 | DI/DO 4 (X520.6) | Output | Input | - |
| | 05 | DI/DO 5 (X520.7) | Output | Input | - |
| | 06 | DI/DO 6 (X520.8) | Output | Input | - |
| | 07 | DI/DO 7 (X520.9) | Output | Input | - |
| | 08 | DI/DO 8 (X521.2) | Output | Input | - |
| | 09 | DI/DO 9 (X521.3) | Output | Input | - |
| | 10 | DI/DO 10 (X521.4) | Output | Input | - |
| | 11 | DI/DO 11 (X521.5) | Output | Input | - |
| | 12 | DI/DO 12 (X521.6) | Output | Input | - |
| | 13 | DI/DO 13 (X521.7) | Output | Input | - |
| | 14 | DI/DO 14 (X521.8) | Output | Input | - |
| | 15 | DI/DO 15 (X521.9) | Output | Input | - |
| | 16 | DI/DO 16 (X522.2) | Output | Input | - |
| | 17 | DI/DO 17 (X522.3) | Output | Input | - |
| | 18 | DI/DO 18 (X522.4) | Output | Input | - |
| | 19 | DI/DO 19 (X522.5) | Output | Input | - |
| | 20 | DI/DO 20 (X522.6) | Output | Input | - |
| | 21 | DI/DO 21 (X522.7) | Output | Input | - |
| | 22 | DI/DO 22 (X522.8) | Output | Input | - |
| | 23 | DI/DO 23 (X522.9) | Output | Input | - |

Note: DI/DO: Bidirectional Digital Input/Output

2 Parameters

2.2 List of parameters

| | | | |
|--------------|---|----------------------|--|
| p4028 | TM31 set input or output / TM31 DI or DO | | |
| TM31 | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9549, 9560, 9562 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 bin |

Description: Sets the bidirectional digital inputs/outputs as input or output on the Terminal Module 31 (TM31).

| | | | | | |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 08 | DI/DO 8 (X541.2) | Output | Input | - |
| | 09 | DI/DO 9 (X541.3) | Output | Input | - |
| | 10 | DI/DO 10 (X541.4) | Output | Input | - |
| | 11 | DI/DO 11 (X541.5) | Output | Input | - |

Note: DI/DO: Bidirectional Digital Input/Output

| | | | |
|--------------|--|----------------------|----------------------------------|
| p4030 | BI: TM15DI/DO signal source for terminal DI/DO 0 / TM15D s_srcDI/DO 0 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9399, 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for terminal DI/DO 0 (X520.2) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.0 = 1).

DI/DO: Bidirectional Digital Input/Output

| | | | |
|--------------|---|----------------------|----------------------------------|
| p4030 | BI: TM31 signal source for terminal DO 0 / TM31 s s DO 0 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9549, 9556 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the digital output DO 0 (X542.1, X542.2, X542.3) of Terminal Module 31 (TM31).
Digital output 0 of TM31 is a relay output.

If the signal at the binector input p4030 is low, then terminal COM 0 (X542.2) is connected to NC 0 (X542.1). This connection also matches the mechanical quiescent setting of the relay.

If the signal at the binector input p4030 is high, then terminal COM 0 (X542.2) is connected to NO 0 (X542.3).

Note: DO: Digital Output

NC: Normally Closed contact

NO: Normally Open contact

| | | | |
|--------------|--|----------------------|----------------------------|
| p4031 | BI: TM15DI/DO signal source for terminal DI/DO 1 / TM15D s_src DI/DO1 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for terminal DI/DO 1 (X520.3) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.1 = 1).

DI/DO: Bidirectional Digital Input/Output

| | | | |
|---------------------|---|----------------------|----------------------------------|
| p4031 | BI: TM31 signal source for terminal DO 1 / TM31 s s DO 1 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9549, 9556 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the digital output DO 1 (X542.4, X542.5, X542.6) of Terminal Module 31 (TM31). Digital output 1 of TM31 is a relay output. If the signal at the binector input p4031 is low, then terminal COM 1 (X542.5) is connected to NC 1 (X542.4). This connection also matches the mechanical quiescent setting of the relay. If the signal at the binector input p4031 is high, then terminal COM 1 (X542.5) is connected to NO 1 (X542.6). | | |
| Note: | DO: Digital Output NC: Normally Closed contact NO: Normally Open contact | | |
| p4032 | BI: TM15DI/DO signal source for terminal DI/DO 2 / TM15D s_src DI/DO2 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 2 (X520.4) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.2 = 1). DI/DO: Bidirectional Digital Input/Output | | |
| p4033 | BI: TM15DI/DO signal source for terminal DI/DO 3 / TM15D s_src DI/DO3 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 3 (X520.5) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.3 = 1). DI/DO: Bidirectional Digital Input/Output | | |
| p4034 | BI: TM15DI/DO signal source for terminal DI/DO 4 / TM15D s_src DI/DO4 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 4 (X520.6) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.4 = 1). DI/DO: Bidirectional Digital Input/Output | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4035 | BI: TM15DI/DO signal source for terminal DI/DO 5 / TM15D s_src DI/DO5 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 5 (X520.7) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.5 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4036 | BI: TM15DI/DO signal source for terminal DI/DO 6 / TM15D s_src DI/DO6 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 6 (X520.8) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.6 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4037 | BI: TM15DI/DO signal source for terminal DI/DO 7 / TM15D s_src DI/DO7 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 7 (X520.9) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.7 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4038 | BI: TM15DI/DO signal source for terminal DI/DO 8 / TM15D s_src DI/DO8 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 8 (X521.2) of terminal module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.8 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------------|
| p4038 | BI: TM31 signal source for terminal DI/DO 8 / TM31 S_src DI/DO8 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9549, 9560 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 8 (X541.2) of Terminal Module 31 (TM31). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.8 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4039 | BI: TM15DI/DO signal source for terminal DI/DO 9 / TM15D s_src DI/DO9 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 9 (X521.3) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.9 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4039 | BI: TM31 signal source for terminal DI/DO 9 / TM31 S_src DI/DO9 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9560 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 9 (X541.3) of Terminal Module 31 (TM31). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.9 = 1). DI/DO: Bidirectional Digital Input/Output | | |


| | | | |
|---------------------|---|----------------------|----------------------------|
| p4040 | BI: TM15DI/DO signal source for terminal DI/DO 10 / TM15D s_srcDI/DO10 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 10 (X521.4) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.10 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4040 | BI: TM31 signal source for terminal DI/DO 10 / TM31 S_src DI/DO10 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9562 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 10 (X541.4) of Terminal Module 31 (TM31). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.10 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4041 | BI: TM15DI/DO signal source for terminal DI/DO 11 / TM15D s_srcDI/DO11 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 11 (X521.5) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.11 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------------|
| p4041 | BI: TM31 signal source for terminal DI/DO 11 / TM31 S_src DI/DO11 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9549, 9562 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 11 (X541.5) of Terminal Module 31 (TM31). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.11 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4042 | BI: TM15DI/DO signal source for terminal DI/DO 12 / TM15D s_srcDI/DO12 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 12 (X521.6) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.12 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---|--|----------------------|----------------------------|
| p4043 | BI: TM15DI/DO signal source for terminal DI/DO 13 / TM15D s_srcDI/DO13 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 13 (X521.7) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.13 = 1). DI/DO: Bidirectional Digital Input/Output | | |
| p4044 | BI: TM15DI/DO signal source for terminal DI/DO 14 / TM15D s_srcDI/DO14 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 14 (X521.8) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.14 = 1). DI/DO: Bidirectional Digital Input/Output | | |
| p4045 | BI: TM15DI/DO signal source for terminal DI/DO 15 / TM15D s_srcDI/DO15 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9401 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 15 (X521.9) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.15 = 1). DI/DO: Bidirectional Digital Input/Output | | |
| p4046 | TM31 digital outputs limit current / TM31 DO limit curr | | |
| TM31 | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9560 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the limit for the total output voltage of terminals X541.1, X541.2, X541.3 and X541.4 (DI/DO 8 ... 11) of Terminal Module 31 (TM31). | | |
| Value: | 0: 0.1 A total current limit DI/DO 8 ... 11 1: 1.0 A total current limit DI/DO 8 ... 11 | | |
| Dependency: | Refer to: p4028 | | |
| Warning: | Since the sum of the output currents at terminals X541.1, X541.2, X541.3 and X541.4 is limited, an overcurrent or short circuit at one output terminal can cause a dip in the signal at the other terminals. | | |
|  | | | |

r4047 TM15DI/DO digital outputs status / TM15D DO status

| | | | |
|-----------|------------------------------|----------------------|--|
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9400, 9401, 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the status of the digital outputs of Terminal Module 15 (TM15).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------|----------|----------|----|
| | 00 | DI/DO 0 (X520.2) | High | Low | - |
| | 01 | DI/DO 1 (X520.3) | High | Low | - |
| | 02 | DI/DO 2 (X520.4) | High | Low | - |
| | 03 | DI/DO 3 (X520.5) | High | Low | - |
| | 04 | DI/DO 4 (X520.6) | High | Low | - |
| | 05 | DI/DO 5 (X520.7) | High | Low | - |
| | 06 | DI/DO 6 (X520.8) | High | Low | - |
| | 07 | DI/DO 7 (X520.9) | High | Low | - |
| | 08 | DI/DO 8 (X521.2) | High | Low | - |
| | 09 | DI/DO 9 (X521.3) | High | Low | - |
| | 10 | DI/DO 10 (X521.4) | High | Low | - |
| | 11 | DI/DO 11 (X521.5) | High | Low | - |
| | 12 | DI/DO 12 (X521.6) | High | Low | - |
| | 13 | DI/DO 13 (X521.7) | High | Low | - |
| | 14 | DI/DO 14 (X521.8) | High | Low | - |
| | 15 | DI/DO 15 (X521.9) | High | Low | - |
| | 16 | DI/DO 16 (X522.2) | High | Low | - |
| | 17 | DI/DO 17 (X522.3) | High | Low | - |
| | 18 | DI/DO 18 (X522.4) | High | Low | - |
| | 19 | DI/DO 19 (X522.5) | High | Low | - |
| | 20 | DI/DO 20 (X522.6) | High | Low | - |
| | 21 | DI/DO 21 (X522.7) | High | Low | - |
| | 22 | DI/DO 22 (X522.8) | High | Low | - |
| | 23 | DI/DO 23 (X522.9) | High | Low | - |

Note: Inversion using p4048 has been taken into account.
 The setting of the DI/DO as either input or output is of no significance (p4028).
 DI/DO: Bidirectional Digital Input/Output

r4047 TM31 digital outputs status / TM31 DO status

| | | | |
|------|------------------------------|----------------------|--|
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9556, 9560, 9562 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the status of the digital outputs of Terminal Module 31 (TM31).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------|----------|----------|----|
| | 00 | DO 0 (X542.1 - 3) | High | Low | - |
| | 01 | DO 1 (X542.4 - 6) | High | Low | - |
| | 08 | DI/DO 8 (X541.2) | High | Low | - |
| | 09 | DI/DO 9 (X541.3) | High | Low | - |
| | 10 | DI/DO 10 (X541.4) | High | Low | - |
| | 11 | DI/DO 11 (X541.5) | High | Low | - |

Note: Inversion using p4048 has been taken into account.
 The setting of the DI/DO as either input or output is of no significance (p4028).
 DO: Digital Output
 DI/DO: Bidirectional Digital Input/Output

p4048**TM15DI/DO invert digital outputs / TM15D DO inv**

TM15DI_DO

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dyn. index:** -**Func. diagram:** 9400, 9401, 9402**P-Group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

0000 0000 0000 0000 0000
0000 0000 0000 bin**Description:**

Setting to invert the signals at the digital outputs of Terminal Module 15 (TM15).

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------------|----------|--------------|----|
| 00 | DI/DO 0 (X520.2) | Inverted | Not inverted | - |
| 01 | DI/DO 1 (X520.3) | Inverted | Not inverted | - |
| 02 | DI/DO 2 (X520.4) | Inverted | Not inverted | - |
| 03 | DI/DO 3 (X520.5) | Inverted | Not inverted | - |
| 04 | DI/DO 4 (X520.6) | Inverted | Not inverted | - |
| 05 | DI/DO 5 (X520.7) | Inverted | Not inverted | - |
| 06 | DI/DO 6 (X520.8) | Inverted | Not inverted | - |
| 07 | DI/DO 7 (X520.9) | Inverted | Not inverted | - |
| 08 | DI/DO 8 (X521.2) | Inverted | Not inverted | - |
| 09 | DI/DO 9 (X521.3) | Inverted | Not inverted | - |
| 10 | DI/DO 10 (X521.4) | Inverted | Not inverted | - |
| 11 | DI/DO 11 (X521.5) | Inverted | Not inverted | - |
| 12 | DI/DO 12 (X521.6) | Inverted | Not inverted | - |
| 13 | DI/DO 13 (X521.7) | Inverted | Not inverted | - |
| 14 | DI/DO 14 (X521.8) | Inverted | Not inverted | - |
| 15 | DI/DO 15 (X521.9) | Inverted | Not inverted | - |
| 16 | DI/DO 16 (X522.2) | Inverted | Not inverted | - |
| 17 | DI/DO 17 (X522.3) | Inverted | Not inverted | - |
| 18 | DI/DO 18 (X522.4) | Inverted | Not inverted | - |
| 19 | DI/DO 19 (X522.5) | Inverted | Not inverted | - |
| 20 | DI/DO 20 (X522.6) | Inverted | Not inverted | - |
| 21 | DI/DO 21 (X522.7) | Inverted | Not inverted | - |
| 22 | DI/DO 22 (X522.8) | Inverted | Not inverted | - |
| 23 | DI/DO 23 (X522.9) | Inverted | Not inverted | - |

Note:

DI/DO: Bidirectional Digital Input/Output

p4048**TM31 invert digital outputs / TM31 DO inv**

TM31

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** Unsigned32**Dyn. index:** -**Func. diagram:** 9556, 9560, 9562**P-Group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

0000 0000 0000 0000 bin

Description:

Setting to invert the signals at the digital outputs of Terminal Module 31 (TM31).

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------------|----------|--------------|----|
| 00 | DO 0 (X542.1 - 3) | Inverted | Not inverted | - |
| 01 | DO 1 (X542.4 - 6) | Inverted | Not inverted | - |
| 08 | DI/DO 8 (X541.2) | Inverted | Not inverted | - |
| 09 | DI/DO 9 (X541.3) | Inverted | Not inverted | - |
| 10 | DI/DO 10 (X541.4) | Inverted | Not inverted | - |
| 11 | DI/DO 11 (X541.5) | Inverted | Not inverted | - |

Note:


DO: Digital Output

DI/DO: Bidirectional Digital Input/Output

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|-------------------------|--|
| r4052[0...1] | CO: TM31 analog inputs current input voltage/current / TM31 AI U/I_inp | | |
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the actual input voltage in V when set as voltage input. Displays the actual input current in mA when set as current input and with the load resistor switched in. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Dependency: | The type of analog input AI x (voltage or current input) is set using p4056. Refer to: p4056 | | |
| Note: | AI: Analog Input | | |
| p4053[0...1] | TM31 analog inputs smoothing time constant / TM31 AI T_smooth | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [ms] | 1000.0 [ms] | 0.0 [ms] |
| Description: | Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Note: | AI: Analog Input | | |
| r4055[0...1] | CO: TM31 analog inputs actual value in percent / TM31 AI value in % | | |
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9549, 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the currently referred input value of the analog inputs of Terminal Module 31 (TM31). When interconnected, the signals are referred to the reference quantities p200x and p205x. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Note: | AI: Analog Input | | |
| p4056[0...1] | TM31 analog inputs type / TM31 AI type | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 5 | 4 |
| Description: | Sets the type of analog inputs of Terminal Module 31 (TM31). p4056[x] = 0, 4 correspond to a voltage input (r4052, p4057, p4059 are displayed in V). p4056[x] = 2, 3, 5 correspond to a current input (r4052, p4057, p4059 are displayed in mA). In addition, the associated switch S5 must be appropriately set. | | |

| | |
|---|--|
| | AI 0: S5.0 = V --> voltage input, S5.0 = I --> current input (burden resistor = 250 Ohm) |
| | AI 1: S5.1 = V --> voltage input, S5.1 = I --> current input (burden resistor = 250 Ohm) |
| Value: | 0: Unipolar voltage input (0 V ... +10 V) 2: Unipolar current input (0 mA ... +20 mA) 3: Unipolar current input monitored (+4 mA to +20 mA) 4: Bipolar voltage input (-10 V ... +10 V) 5: Bipolar current input (-20 mA to +20 mA) |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) |
| Warning: | The maximum voltage difference between the analog input terminals AI+, AI- and the ground of the TM31 (X520.6, X530.3) may not exceed 35 V. |
|  | For operation with the load resistor switched in, the voltage between the differential inputs AI+ and AI- may not exceed 15 V or the impressed current of 60 mA; if this is not carefully observed, the input will be damaged. |
| Notice: | For operation as a voltage input/current input, switch S5.0 or S5.1 must be appropriately set. |
| Note: | When changing p4056, the parameters of the scaling characteristic (p4057, p4058, p4059, p4060) are overwritten with the following default values: For p4056 = 0, 4, p4057 is set to 0.0 V, p4058 to 0.0 %, p4059 to 10.0 V and p4060 to 100.0 %. For p4056 = 2, 5, p4057 is set to 0.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %. For p4056 = 3, p4057 is set to 4.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %. |

| | | | |
|---------------------|--|----------------------|----------------------------------|
| p4057[0...1] | TM31 analog inputs characteristic value x1 / TM31 AI char x1 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -20.000 | 20.000 | 0.000 |
| Description: | Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31). The scaling characteristic for the analog inputs is defined using 2 points. This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 1st value pair of the characteristic. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Dependency: | The unit of this parameter (V or mA) depends on the analog input type. Refer to: p4056 | | |
| Notice: | This parameter is automatically overwritten when the analog input type (p4056) is modified. | | |
| Note: | The parameters for the characteristic do not have a limiting effect. | | |

| | | | |
|---------------------|---|----------------------|----------------------------------|
| p4058[0...1] | TM31 analog inputs characteristic value y1 / TM31 AI char y1 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.00 [%] | 1000.00 [%] | 0.00 [%] |
| Description: | Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31). The scaling characteristic for the analog inputs is defined using 2 points. This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Notice: | This parameter is automatically overwritten when the analog input type (p4056) is modified. | | |
| Note: | The parameters for the characteristic do not have a limiting effect. | | |

| p4059[0...1] | | TM31 analog inputs characteristic value x2 / TM31 AI char x2 | |
|---------------------|--|---|----------------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -20.000 | 20.000 | 10.000 |
| Description: | Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31). The scaling characteristic for the analog inputs is defined using 2 points. This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 2nd value pair of the characteristic. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Dependency: | The unit of this parameter (V or mA) depends on the analog input type. Refer to: p4056 | | |
| Notice: | This parameter is automatically overwritten when the analog input type (p4056) is modified. | | |
| Note: | The parameters for the characteristic do not have a limiting effect. | | |

| p4060[0...1] | | TM31 analog inputs characteristic value y2 / TM31 AI char y2 | |
|---------------------|---|---|----------------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.00 [%] | 1000.00 [%] | 100.00 [%] |
| Description: | Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31). The scaling characteristic for the analog inputs is defined using 2 points. This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Notice: | This parameter is automatically overwritten when the analog input type (p4056) is modified. | | |
| Note: | The parameters for the characteristic do not have a limiting effect. | | |

| p4061[0...1] | | TM31 analog inputs wire breakage monitoring response threshold / TM31 WireBrkThresh | |
|---------------------|---|--|----------------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [mA] | 20.00 [mA] | 2.00 [mA] |
| Description: | Sets the response threshold for wire-breakage monitoring of the analog inputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Dependency: | For the following analog input type, the wire breakage monitoring is active: p4056[x] = 3 (unipolar current input monitored (+4 mA ... +20 mA)) Refer to: p4056 | | |

| | | | |
|---------------------|--|--|---|
| p4062[0...1] | TM31 analog inputs wire breakage monitoring delay time / TM31 wirebrk t_del | | |
| TM31 | Can be changed: U, T Data type: Unsigned16 P-Group: Terminals Not for motor type: - Min 0 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1000 [ms] | Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 100 [ms] |
| Description: | Sets the delay time for wire-breakage monitoring of the analog inputs on Terminal Module 31 (TM31). | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| p4063[0...1] | TM31 analog inputs offset / TM31 AI offset | | |
| TM31 | Can be changed: U, T Data type: FloatingPoint32 P-Group: Terminals Not for motor type: - Min -20.000 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 20.000 | Access level: 2 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0.000 |
| Description: | Sets the offset for the analog inputs of Terminal Module 31 (TM31). The offset is added to the input signal before the scaling characteristic. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| p4066[0...1] | TM31 analog inputs activate absolute value generation / TM31 AI absVal act | | |
| TM31 | Can be changed: U, T Data type: Integer16 P-Group: Terminals Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Activates the absolute value generation for the analog input signals of Terminal Module 31 (TM31). | | |
| Value: | 0: No absolute value generation 1: Absolute value generation switched in | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| p4067[0...1] | BI: TM31 analog inputs invert signal source / TM31 AI inv s s | | |
| TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Terminals Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source to invert the analog inputs signals of Terminal Module 31 (TM31). | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |

| | | | |
|---------------------|---|--|---|
| p4068[0...1] | TM31 analog inputs window to suppress noise / TM31 AI window | | |
| TM31 | Can be changed: U, T Data type: FloatingPoint32 P-Group: Terminals Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 20.00 [%] | Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets the noise suppression window of the analog inputs for Terminal Module31 (TM31). Changes less than the window are suppressed. | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| Note: | AI: Analog Input | | |
| p4069[0...1] | BI: TM31 analog inputs signal source for enable / TM31 AI enable | | |
| TM31 | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Terminals Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 9566, 9568 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for the enable signal of the analog inputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = AI 0 (X521.1/X521.2, S5.0) [1] = AI 1 (X521.3/X521.4, S5.1) | | |
| p4071[0...1] | CI: TM31 analog outputs signal source / TM31 AO s s | | |
| TM31 | Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Terminals Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - | Access level: 1 Func. diagram: 9549, 9572 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the analog outputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |
| Note: | AO: Analog Output | | |
| r4072[0...1] | TM31 analog outputs output value currently referred / TM31 AO outp_val | | |
| TM31 | Can be changed: - Data type: FloatingPoint32 P-Group: Terminals Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [%] | Access level: 1 Func. diagram: 9572 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Displays the actual referred output value of the analog outputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |

| p4073[0...1] | | TM31 analog outputs smoothing time constant / TM31 AO T_smooth | |
|---------------------|--|---|----------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [ms] | 1000.0 [ms] | 0.0 [ms] |
| Description: | Sets the smoothing time constant of the 1st-order low pass filter for the analog outputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |

| r4074[0...1] | | TM31 analog outputs current output voltage/current / TM31 AO U/I_outp | |
|---------------------|---|--|----------------------------|
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2001 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the actual output voltage in V when set as voltage output. Displays the actual output voltage in mA when set as current output. | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |
| Dependency: | The type of the analog output AO x (voltage or current output) is set using p4076. Refer to: p4076 | | |
| Note: | AO: Analog Output | | |

| p4075[0...1] | | TM31 analog outputs activate absolute value generation / TM31 AO absVal act | |
|---------------------|--|--|----------------------------|
| TM31 | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Activates the absolute value generation for the analog outputs of Terminal Module 31 (TM31). | | |
| Value: | 0: No absolute value generation 1: Absolute value generation switched in | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |

| p4076[0...1] | | TM31 analog outputs type / TM31 AO type | |
|---------------------|---|--|----------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 4 | 4 |
| Description: | Sets the type of analog outputs of Terminal Module 31 (TM31). p4076[x] = 1, 4 correspond to a voltage output (p4074, p4078, p4080, p4083 are displayed in V). p4076[x] = 0, 2, 3 correspond to a current output (p4074, p4078, p4080, p4083 are displayed in mA). | | |
| Value: | 0: Current output (0 mA ... +20 mA) 1: Voltage output (0 V ... +10 V) 2: Current output (+4 mA ... +20 mA) | | |

2 Parameters

2.2 List of parameters

| | |
|--------------------|--|
| | 3: Current output (-20 mA ... +20 mA) |
| | 4: Voltage output (-10 V ... +10 V) |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) |
| Dependency: | Refer to: p4077, p4078, p4079, p4080 |
| Note: | When changing p4076, the parameters of the scaling characteristic (p4077, p4078, p4079, p4080) are overwritten with the following default values: For p4076 = 0, 3, p4077 is set to 0.0 %, p4078 to 0.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA. For p4076 = 1, 4, p4077 is set to 0.0 %, p4078 to 0.0 V, p4079 to 100.0 % and p4080 to 10.0 V. For p4076 = 2, p4077 is set to 0.0 %, p4078 to 4.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA. |

p4077[0...1]

TM31 analog outputs characteristic value x1 / TM31 AO char x1

| | | | |
|------|-----------------------------------|----------------------|----------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.00 [%] | 1000.00 [%] | 0.00 [%] |

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog outputs is defined using 2 points.

This parameter specifies the x coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: Refer to: p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4078[0...1]

TM31 analog outputs characteristic value y1 / TM31 AO char y1

| | | | |
|------|-----------------------------------|----------------------|----------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -20.000 [V] | 20.000 [V] | 0.000 [V] |

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog outputs is defined using 2 points.

This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The unit of this parameter (V or mA) depends on the analog output type.

Refer to: p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4079[0...1]

TM31 analog outputs characteristic value x2 / TM31 AO char x2

| | | | |
|------|-----------------------------------|----------------------|----------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.00 [%] | 1000.00 [%] | 100.00 [%] |

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog outputs is defined using 2 points.

| | |
|--------------------|---|
| | This parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic. |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) |
| Dependency: | Refer to: p4076 |
| Notice: | This parameter is automatically overwritten when changing p4076 (type of analog outputs). |
| Note: | The parameters for the characteristic do not have a limiting effect. |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4080[0...1] | TM31 analog outputs characteristic value y2 / TM31 AO char y2 | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -20.000 [V] | 20.000 [V] | 10.000 [V] |
| Description: | Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31). The scaling characteristic for the analog outputs is defined using 2 points. This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 2nd value pair of the characteristic. | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |
| Dependency: | The unit of this parameter (V or mA) depends on the analog output type. Refer to: p4076 | | |
| Notice: | This parameter is automatically overwritten when changing p4076 (type of analog outputs). | | |
| Note: | The parameters for the characteristic do not have a limiting effect. | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4082[0...1] | BI: TM31 analog outputs invert signal source / TM31 AO inv s s | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to invert the analog output signals of Terminal Module 31 (TM31). | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p4083[0...1] | TM31 analog outputs offset / TM31 AO offset | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9572 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -20.000 | 20.000 | 0.000 |
| Description: | Sets the offset for the analog outputs of Terminal Module 31 (TM31). The offset is added to the output signal after the scaling characteristic. | | |
| Index: | [0] = AO 0 (X522.1, X522.2, X522.3) [1] = AO 1 (X522.4, X522.5, X522.6) | | |
| Dependency: | The unit of this parameter (V or mA) depends on the analog input type. Refer to: p4076 | | |
| Note: | This means, for example, the offset of a downstream isolating amplifier can be compensated. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4086 | BI: TM15DI/DO signal source for terminal DI/DO 16 / TM15D s_srcDI/DO16 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 16 (X522.2) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.16 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4087 | BI: TM15DI/DO signal source for terminal DI/DO 17 / TM15D s_srcDI/DO17 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 17 (X522.3) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.17 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4088 | BI: TM15DI/DO signal source for terminal DI/DO 18 / TM15D s_srcDI/DO18 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 18 (X522.4) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.18 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4089 | BI: TM15DI/DO signal source for terminal DI/DO 19 / TM15D s_srcDI/DO19 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 19 (X522.5) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.19 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4090 | BI: TM15DI/DO signal source for terminal DI/DO 20 / TM15D s_srcDI/DO20 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 20 (X522.6) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.20 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4091 | BI: TM15DI/DO signal source for terminal DI/DO 21 / TM15D s_srcDI/DO21 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 21 (X522.7) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.21 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4092 | BI: TM15DI/DO signal source for terminal DI/DO 22 / TM15D s_srcDI/DO22 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 22 (X522.8) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.22 = 1). DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p4093 | BI: TM15DI/DO signal source for terminal DI/DO 23 / TM15D s_srcDI/DO23 | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9402 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for terminal DI/DO 23 (X522.9) of Terminal Module 15 (TM15). | | |
| Note: | Prerequisite: The DI/DO must be set as an output (p4028.23 = 1). DI/DO: Bidirectional Digital Input/Output | | |

r4094.0...23 BO: TM15 digital inputs status inverted raw data internal / TM15 DI st raw dat

| | | | |
|-----------|------------------------------|----------------------|--------------------------|
| TM15DI_DO | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the inverted status of the raw data of the digital inputs of the Terminal Module 15 (TM15).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | DI/DO 0 (X520.2) | High | Low | - |
| | 01 | DI/DO 1 (X520.3) | High | Low | - |
| | 02 | DI/DO 2 (X520.4) | High | Low | - |
| | 03 | DI/DO 3 (X520.5) | High | Low | - |
| | 04 | DI/DO 4 (X520.6) | High | Low | - |
| | 05 | DI/DO 5 (X520.7) | High | Low | - |
| | 06 | DI/DO 6 (X520.8) | High | Low | - |
| | 07 | DI/DO 7 (X520.9) | High | Low | - |
| | 08 | DI/DO 8 (X521.2) | High | Low | - |
| | 09 | DI/DO 9 (X521.3) | High | Low | - |
| | 10 | DI/DO 10 (X521.4) | High | Low | - |
| | 11 | DI/DO 11 (X521.5) | High | Low | - |
| | 12 | DI/DO 12 (X521.6) | High | Low | - |
| | 13 | DI/DO 13 (X521.7) | High | Low | - |
| | 14 | DI/DO 14 (X521.8) | High | Low | - |
| | 15 | DI/DO 15 (X521.9) | High | Low | - |
| | 16 | DI/DO 16 (X522.2) | High | Low | - |
| | 17 | DI/DO 17 (X522.3) | High | Low | - |
| | 18 | DI/DO 18 (X522.4) | High | Low | - |
| | 19 | DI/DO 19 (X522.5) | High | Low | - |
| | 20 | DI/DO 20 (X522.6) | High | Low | - |
| | 21 | DI/DO 21 (X522.7) | High | Low | - |
| | 22 | DI/DO 22 (X522.8) | High | Low | - |
| | 23 | DI/DO 23 (X522.9) | High | Low | - |

Notice: The raw data of the digital inputs is directly displayed (e.g. without any debounce).

Note: Should only used for internal Siemens purposes (alternative r4022, r4023).

p4095 TM15DI/DO digital inputs simulation mode / TM15D DI sim_mode

| | | | |
|-----------|------------------------------|----------------------|--|
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9400, 9401, 9402 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin |

Description: Sets the simulation mode for the digital inputs of Terminal Module 15 (TM15).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | DI/DO 0 (X520.2) | Simulation | Terminal eval | - |
| | 01 | DI/DO 1 (X520.3) | Simulation | Terminal eval | - |
| | 02 | DI/DO 2 (X520.4) | Simulation | Terminal eval | - |
| | 03 | DI/DO 3 (X520.5) | Simulation | Terminal eval | - |
| | 04 | DI/DO 4 (X520.6) | Simulation | Terminal eval | - |
| | 05 | DI/DO 5 (X520.7) | Simulation | Terminal eval | - |
| | 06 | DI/DO 6 (X520.8) | Simulation | Terminal eval | - |
| | 07 | DI/DO 7 (X520.9) | Simulation | Terminal eval | - |
| | 08 | DI/DO 8 (X521.2) | Simulation | Terminal eval | - |
| | 09 | DI/DO 9 (X521.3) | Simulation | Terminal eval | - |
| | 10 | DI/DO 10 (X521.4) | Simulation | Terminal eval | - |
| | 11 | DI/DO 11 (X521.5) | Simulation | Terminal eval | - |

| | | | | |
|----|-------------------|------------|---------------|---|
| 12 | DI/DO 12 (X521.6) | Simulation | Terminal eval | - |
| 13 | DI/DO 13 (X521.7) | Simulation | Terminal eval | - |
| 14 | DI/DO 14 (X521.8) | Simulation | Terminal eval | - |
| 15 | DI/DO 15 (X521.9) | Simulation | Terminal eval | - |
| 16 | DI/DO 16 (X522.2) | Simulation | Terminal eval | - |
| 17 | DI/DO 17 (X522.3) | Simulation | Terminal eval | - |
| 18 | DI/DO 18 (X522.4) | Simulation | Terminal eval | - |
| 19 | DI/DO 19 (X522.5) | Simulation | Terminal eval | - |
| 20 | DI/DO 20 (X522.6) | Simulation | Terminal eval | - |
| 21 | DI/DO 21 (X522.7) | Simulation | Terminal eval | - |
| 22 | DI/DO 22 (X522.8) | Simulation | Terminal eval | - |
| 23 | DI/DO 23 (X522.9) | Simulation | Terminal eval | - |

Dependency: The setpoint for the input signals is specified using p4096.
Refer to: p4096

Warning: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while the Terminal Module is being activated or de-activated.



Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI/DO: Bidirectional Digital Input/Output

p4095 TM31 digital inputs simulation mode / TM31 DI sim_mode

| | | | |
|------|------------------------------|----------------------|--|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9549, 9550, 9552, 9560, 9562 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 bin |

Description: Sets the simulation mode for the digital inputs of Terminal Module 31 (TM31).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------|------------|---------------|----|
| | 00 | DI 0 (X520.1) | Simulation | Terminal eval | - |
| | 01 | DI 1 (X520.2) | Simulation | Terminal eval | - |
| | 02 | DI 2 (X520.3) | Simulation | Terminal eval | - |
| | 03 | DI 3 (X520.4) | Simulation | Terminal eval | - |
| | 04 | DI 4 (X530.1) | Simulation | Terminal eval | - |
| | 05 | DI 5 (X530.2) | Simulation | Terminal eval | - |
| | 06 | DI 6 (X530.3) | Simulation | Terminal eval | - |
| | 07 | DI 7 (X530.4) | Simulation | Terminal eval | - |
| | 08 | DI/DO 8 (X541.2) | Simulation | Terminal eval | - |
| | 09 | DI/DO 9 (X541.3) | Simulation | Terminal eval | - |
| | 10 | DI/DO 10 (X541.4) | Simulation | Terminal eval | - |
| | 11 | DI/DO 11 (X541.5) | Simulation | Terminal eval | - |

Dependency: The setpoint for the input signals is specified using p4096.
Refer to: p4096

Warning: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while the Terminal Module is being activated or de-activated.



Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

| | | | |
|--------------|---|----------------------|--|
| p4096 | TM15DI/DO digital inputs simulation mode, setpoint / TM15D DI sim setp | | |
| TM15DI_DO | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9400, 9401, 9402 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin |

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of Terminal Module 15 (TM15).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------|----------|----------|----|
| | 00 | DI/DO 0 (X520.2) | High | Low | - |
| | 01 | DI/DO 1 (X520.3) | High | Low | - |
| | 02 | DI/DO 2 (X520.4) | High | Low | - |
| | 03 | DI/DO 3 (X520.5) | High | Low | - |
| | 04 | DI/DO 4 (X520.6) | High | Low | - |
| | 05 | DI/DO 5 (X520.7) | High | Low | - |
| | 06 | DI/DO 6 (X520.8) | High | Low | - |
| | 07 | DI/DO 7 (X520.9) | High | Low | - |
| | 08 | DI/DO 8 (X521.2) | High | Low | - |
| | 09 | DI/DO 9 (X521.3) | High | Low | - |
| | 10 | DI/DO 10 (X521.4) | High | Low | - |
| | 11 | DI/DO 11 (X521.5) | High | Low | - |
| | 12 | DI/DO 12 (X521.6) | High | Low | - |
| | 13 | DI/DO 13 (X521.7) | High | Low | - |
| | 14 | DI/DO 14 (X521.8) | High | Low | - |
| | 15 | DI/DO 15 (X521.9) | High | Low | - |
| | 16 | DI/DO 16 (X522.2) | High | Low | - |
| | 17 | DI/DO 17 (X522.3) | High | Low | - |
| | 18 | DI/DO 18 (X522.4) | High | Low | - |
| | 19 | DI/DO 19 (X522.5) | High | Low | - |
| | 20 | DI/DO 20 (X522.6) | High | Low | - |
| | 21 | DI/DO 21 (X522.7) | High | Low | - |
| | 22 | DI/DO 22 (X522.8) | High | Low | - |
| | 23 | DI/DO 23 (X522.9) | High | Low | - |

Dependency: The simulation of a digital input is selected using p4095.
Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI/DO: Bidirectional Digital Input/Output

| | | | |
|--------------|--|----------------------|--|
| p4096 | TM31 digital inputs simulation mode setpoint / TM31 DI sim setp | | |
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 9549, 9550, 9552, 9560, 9562 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 bin |

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of Terminal Module 31 (TM31).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---------------|----------|----------|----|
| | 00 | DI 0 (X520.1) | High | Low | - |
| | 01 | DI 1 (X520.2) | High | Low | - |
| | 02 | DI 2 (X520.3) | High | Low | - |
| | 03 | DI 3 (X520.4) | High | Low | - |
| | 04 | DI 4 (X530.1) | High | Low | - |
| | 05 | DI 5 (X530.2) | High | Low | - |
| | 06 | DI 6 (X530.3) | High | Low | - |
| | 07 | DI 7 (X530.4) | High | Low | - |

| | | | | |
|----|-------------------|------|-----|---|
| 08 | DI/DO 8 (X541.2) | High | Low | - |
| 09 | DI/DO 9 (X541.3) | High | Low | - |
| 10 | DI/DO 10 (X541.4) | High | Low | - |
| 11 | DI/DO 11 (X541.5) | High | Low | - |

Dependency: The simulation of a digital input is selected using p4095.

Refer to: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p4097[0...1] TM31 analog inputs simulation mode / TM31 AI sim_mode

| | | | |
|------|------------------------------|----------------------|----------------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Sets the simulation mode for the analog inputs of Terminal Module 31 (TM31).

Value:
0: Terminal evaluation for analog input x
1: Simulation for analog input x

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The setpoint for the input voltage is specified via p4098.

Refer to: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).

AI: Analog Input

p4098[0...1] TM31 analog inputs simulation mode setpoint / TM31 AI sim setp

| | | | |
|------|-----------------------------------|----------------------|----------------------------------|
| TM31 | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9566, 9568 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -20.000 | 20.000 | 0.000 |

Description: Sets the setpoint for the input value in simulation mode of the analog inputs of Terminal Module 31 (TM31).

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The simulation of an analog input is selected using p4097.

If AI x is parameterized as voltage input (p4056), then the setpoint is a voltage in V.

If AI x is parameterized as current input (p4056), then the setpoint is a current in mA.

Refer to: p4056, p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).

AI: Analog Input

p4099[0] TM15DI/DO inputs/outputs sampling time / TM15D I/O t_sampl

| | | | |
|-----------|-----------------------------------|----------------------|----------------------------------|
| TM15DI_DO | Can be changed: C1(3) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9399, 9400 |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [μs] | 5000.00 [μs] | 4000.00 [μs] |

Description: Sets the sampling time for the inputs and outputs of Terminal Module 15 (TM15).

Index: [0] = TM15 input/output sampling time

2 Parameters

2.2 List of parameters

- Dependency:** The parameter can only be modified for p0009 = 3, 29.
The following applies for the sampling time:
The sampling times at a DRIVE-CLiQ line must be integral multiples of one another.
The sampling times of this TM must be an integral multiple of a servo or vector drive that exists in the system.
The minimum permissible sampling time is 125 µs.
Refer to: p0009, r0110, r0111
- Note:** The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).
Parameter p4099[0] must never be equal to zero.

| p4099[0...2] | TM31 inputs/outputs sampling time / TM31 I/O t_sample | | |
|---------------------|---|---|---|
| TM31 | Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Commands Not for motor type: - Min 0.00 [µs] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 5000.00 [µs] | Access level: 3 Func. diagram: 9549, 9550 Unit selection: - Expert list: 1 Factory setting 4000.00 [µs] |
| Description: | Sets the sampling time for the inputs and outputs of Terminal Module 31 (TM31). | | |
| Index: | [0] = Digital inputs/outputs (DI/DO) [1] = Analog inputs (AI) [2] = Analog outputs (AO) | | |
| Dependency: | The parameter can only be modified for p0009 = 3, 29. The following applies for the sampling time: The sampling times at a DRIVE-CLiQ line must be integral multiples of one another. The sampling times of this TM must be an integral multiple of a servo or vector drive that exists in the system. The minimum permissible sampling time is 125 µs. The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs). Refer to: p0009, r0110, r0111 | | |
| Notice: | The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs). | | |
| Note: | The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0). Parameter p4099[0] must never be equal to zero. | | |

| p4100[0...11] | TM150 sensor type / TM150 sensor type | | |
|----------------------|---|--|--|
| TM150 | Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 6 | Access level: 1 Func. diagram: 9626, 9627 Unit selection: - Expert list: 1 Factory setting 5 |
| Description: | Sets the sensor type for Terminal Module 150 (TM150) This means that the temperature sensor type is selected and the evaluation is switched in. | | |
| Value: | 0: Evaluation disabled 1: PTC thermistor 2: KTY84 4: Bimetallic NC contact 5: PT100 6: PT1000 | | |
| Index: | [0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 | | |

[9] = Temperature channel 9
 [10] = Temperature channel 10
 [11] = Temperature channel 11

Notice: For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.
 For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:
 To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.

Note: The temperature sensors are connected to the following terminals:
 X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
 X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
 X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
 X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
 X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
 X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
 Details on the wiring are included in the parameter description for p4108.

p4100 TM31 sensor type / TM31 sensor type

| | | | |
|------|------------------------------|----------------------|----------------------------|
| TM31 | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9576 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |

Description: Sets the sensor type for Terminal Module 31 (TM31)
 This means that the temperature sensor type is selected and the evaluation is switched in.

Value:
 0: Evaluation disabled
 1: PTC thermistor
 2: KTY84

Notice: For p4102[0...1] = 251 °C, evaluation of the corresponding threshold is deactivated.
 For sensor type "PTC thermistor" (p4100 = 1), the following applies:
 To activate the corresponding alarm or fault, p4102[0...1] must be set <= 250 °C.

Note: The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

r4101[0...11] TM150 sensor resistance / TM150 R_sensor

| | | | |
|-------|-----------------------------------|-------------------------|----------------------------------|
| TM150 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9626, 9627 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [ohm] | - [ohm] | - [ohm] |

Description: Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Index:
 [0] = Temperature channel 0
 [1] = Temperature channel 1
 [2] = Temperature channel 2
 [3] = Temperature channel 3
 [4] = Temperature channel 4
 [5] = Temperature channel 5
 [6] = Temperature channel 6
 [7] = Temperature channel 7
 [8] = Temperature channel 8
 [9] = Temperature channel 9
 [10] = Temperature channel 10
 [11] = Temperature channel 11

2 Parameters

2.2 List of parameters

Note: The maximum measurable resistance value is approx. 2500 Ohm.
For 1x2 and 2x2 wire evaluation:
The actual sensor resistance is displayed in this parameter (i.e. the wire resistance (p4110) is taken into account).
The temperature sensors are connected to the following terminals:
X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
Details on the wiring are included in the parameter description for p4108.

| | | | |
|--------------|---|-------------------------|----------------------------|
| r4101 | TM31 sensor resistance / TM31 R_sensor | | |
| TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9576 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [ohm] | - [ohm] | - [ohm] |

Description: Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Note: The maximum measurable resistance value is approx. 2170 Ohm.
The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

| | | | |
|----------------------|---|----------------------|----------------------------------|
| p4102[0...23] | TM150 fault threshold/alarm threshold / TM150 F/A_thresh | | |
| TM150 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9626, 9627 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -99 [°C] | 251 [°C] | 251 [°C] |

Description: Sets the fault threshold/alarm threshold for Terminal Module 150 (TM150).

For alarms (even indices [0, 2, 4 ... 22]), the following applies:

- The corresponding alarm is initiated, if the temperature actual value associated with a temperature channel exceeds the associated alarm threshold ($r4105[x] > p4102[2x]$). In addition, the timer is started ($p4103[x]$).
- The alarm remains until the temperature actual value ($r4105[x]$) reaches or falls below the threshold value ($p4102[2x]$ - hysteresis ($p4118[x]$)).

For faults (uneven indices [1, 3, 5 ... 23]), the following applies:

- The corresponding fault is initiated, if the temperature actual value associated with a temperature channel exceeds the associated fault threshold ($r4105[x] > p4102[2x+1]$) or the associated timer ($p4103[x]$) has expired.
- The fault remains until the temperature actual value ($r4105[x]$) reaches or falls below the threshold value ($p4102[2x+1]$) - hysteresis ($p4118[x]$) and the fault has been acknowledged.

Index:
[0] = Channel 0 alarm threshold (A35211)
[1] = Channel 0 fault threshold (F35207)
[2] = Channel 1 alarm threshold (A35212)
[3] = Channel 1 fault threshold (F35208)
[4] = Channel 2 alarm threshold (A35213)
[5] = Channel 2 fault threshold (F35209)
[6] = Channel 3 alarm threshold (A35214)
[7] = Channel 3 fault threshold (F35210)
[8] = Channel 4 alarm threshold (A35410)
[9] = Channel 4 fault threshold (F35400)
[10] = Channel 5 alarm threshold (A35411)
[11] = Channel 5 fault threshold (F35401)
[12] = Channel 6 alarm threshold (A35412)
[13] = Channel 6 fault threshold (F35402)
[14] = Channel 7 alarm threshold (A35413)
[15] = Channel 7 fault threshold (F35403)

[16] = Channel 8 alarm threshold (A35414)
 [17] = Channel 8 fault threshold (F35404)
 [18] = Channel 9 alarm threshold (A35415)
 [19] = Channel 9 fault threshold (F35405)
 [20] = Channel 10 alarm threshold (A35416)
 [21] = Channel 10 fault threshold (F35406)
 [22] = Channel 11 alarm threshold (A35417)
 [23] = Channel 11 fault threshold (F35407)

Dependency:

Refer to: p4103, r4104, r4105, p4118

Notice:

Faults F35207 ... F35210 and F35400 ... F35407 only result in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150.

For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" (p4100[0...11] = 1), the following applies:

To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.

Note:

The hysteresis can be set in p4118[0...11].

p4102[0...1]**TM31 fault threshold/alarm threshold / TM31 F/A_thresh**

TM31

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** Integer16**Dyn. index:** -**Func. diagram:** 9576**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-48 [°C]

251 [°C]

[0] 100 [°C]

[1] 120 [°C]

Description:

Sets the fault threshold/alarm threshold for Terminal Module 31 (TM31).

A35211 is initiated, if the temperature actual value r4105[0] > p4102[0]

F35207 is initiated if the temperature actual value r4105[0] > p4102[1] or timer p4103[0] has expired

For alarm A35211 the following applies:

- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[0] - hysteresis).

For fault F35207 the following applies:

- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[1] - hysteresis) and the fault has been acknowledged.

- The hysteresis value is 5 K and cannot be changed by the user.

Index:

[0] = Alarm threshold

[1] = Fault threshold

Dependency:

Refer to: r4104

Notice:

Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.

For p4102[0...1] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" (p4100 = 1), the following applies:

To activate the alarm or fault, p4102[0...1] must be set <= 250 °C.

p4103[0...11]**TM150 delay time / TM150 t_delay**

TM150

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** 9626, 9627**P-Group:** Motor**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0.0 [s]

600.0 [s]

0.0 [s]

Description:

Sets the delay time for the output of the fault for the Terminal Module 150 (TM150).

The timer is started when the alarm threshold (e.g. p4102[0]) is exceeded.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then the corresponding fault is output.

The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below.

2 Parameters

2.2 List of parameters

For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- If the fault threshold (e.g. p4102[1]) is exceeded before the delay time has expired, then the corresponding fault is immediately output.

For sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

Index:

[0] = Temperature channel 0
 [1] = Temperature channel 1
 [2] = Temperature channel 2
 [3] = Temperature channel 3
 [4] = Temperature channel 4
 [5] = Temperature channel 5
 [6] = Temperature channel 6
 [7] = Temperature channel 7
 [8] = Temperature channel 8
 [9] = Temperature channel 9
 [10] = Temperature channel 10
 [11] = Temperature channel 11

Dependency:

Refer to: p4102, r4104, r4105, p4118

Warning:

The fault F35207 ... F35210 and F35400 ... 35407 only results in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150.



Note:

For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- The corresponding fault can only be initiated via the fault threshold (output of the timer is always a logical 0).

For p4103 = 0 s and sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- The corresponding alarm and fault are simultaneously output (delay time = 0 s).

p4103

TM31 temperature evaluation delay time / TM31 temp t_delay

TM31

Can be changed: U, T

Calculated: -

Access level: 1

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: 9576

P-Group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0.000 [ms]

600000.000 [ms]

0.000 [ms]

Description:

Sets the delay time for the output of the fault for the Terminal Module 31 (TM31).

The timer is started when the alarm threshold (p4102[0]) is exceeded.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F35207 is output.

The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below.

For sensor type "KTY84" (p4100 = 2), the following applies:

If the fault threshold (p4102[1]) is exceeded before the delay time has expired, then fault F35207 is immediately output.

For sensor type "PTC thermistor" (p4100 = 1), the following applies:

- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

Dependency:

Refer to: r4104

Warning:

Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.



Note:

With p4103 = 0 ms, the timer is de-activated and only the fault threshold is effective.

r4104.0...23

BO: TM150 temperature evaluation status / TM150 temp status

TM150

Can be changed: -

Calculated: -

Access level: 1

Data type: Unsigned32

Dyn. index: -

Func. diagram: 9626, 9627

P-Group: Terminals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Display and binector output for the status for the Terminal Module 150 (TM150).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--------------------------|----------|----------|------|
| | 00 | Channel 0 alarm present | Yes | No | 9626 |
| | 01 | Channel 0 fault present | Yes | No | 9626 |
| | 02 | Channel 1 alarm present | Yes | No | 9626 |
| | 03 | Channel 1 fault present | Yes | No | 9626 |
| | 04 | Channel 2 alarm present | Yes | No | 9626 |
| | 05 | Channel 2 fault present | Yes | No | 9626 |
| | 06 | Channel 3 alarm present | Yes | No | 9626 |
| | 07 | Channel 3 fault present | Yes | No | 9626 |
| | 08 | Channel 4 alarm present | Yes | No | 9626 |
| | 09 | Channel 4 fault present | Yes | No | 9626 |
| | 10 | Channel 5 alarm present | Yes | No | 9626 |
| | 11 | Channel 5 fault present | Yes | No | 9626 |
| | 12 | Channel 6 alarm present | Yes | No | 9627 |
| | 13 | Channel 6 fault present | Yes | No | 9627 |
| | 14 | Channel 7 alarm present | Yes | No | 9627 |
| | 15 | Channel 7 fault present | Yes | No | 9627 |
| | 16 | Channel 8 alarm present | Yes | No | 9627 |
| | 17 | Channel 8 fault present | Yes | No | 9627 |
| | 18 | Channel 9 alarm present | Yes | No | 9627 |
| | 19 | Channel 9 fault present | Yes | No | 9627 |
| | 20 | Channel 10 alarm present | Yes | No | 9627 |
| | 21 | Channel 10 fault present | Yes | No | 9627 |
| | 22 | Channel 11 alarm present | Yes | No | 9627 |
| | 23 | Channel 11 fault present | Yes | No | 9627 |

Dependency: Refer to: p4102, p4103, r4105, p4118

r4104.0...1 **BO: TM31 temperature evaluation status / TM31 temp status**

| | | | |
|------|------------------------------|----------------------|----------------------------------|
| TM31 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9549, 9576 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector output for the status for the Terminal Module 31 (TM31).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|------------------|----------|----------|----|
| | 00 | Alarm is present | Yes | No | - |
| | 01 | Fault is present | Yes | No | - |

Dependency: Refer to: p4102

r4105[0...11] **CO: TM150 temperature actual value / TM150 temp_act val**

| | | | |
|-------|-----------------------------------|-----------------------|----------------------------------|
| TM150 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9626, 9627 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2006 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |

Description: Displays the temperature actual value for the Terminal Module 150 (TM150)

Index:

- [0] = Temperature channel 0
- [1] = Temperature channel 1
- [2] = Temperature channel 2
- [3] = Temperature channel 3
- [4] = Temperature channel 4
- [5] = Temperature channel 5
- [6] = Temperature channel 6
- [7] = Temperature channel 7
- [8] = Temperature channel 8
- [9] = Temperature channel 9
- [10] = Temperature channel 10
- [11] = Temperature channel 11

2 Parameters

2.2 List of parameters

Dependency: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- below the nominal response temperature, r4105[0...11] = -50 °C.
- above the nominal response temperature, r4105[0...11] = 250 °C.

For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- the displayed value corresponds to the temperature actual value.

Refer to: p4100, p4111, r4112, r4113, r4114

Note: r4105[0...11] = -300 °C is displayed in the following cases:

- temperature actual value invalid (F35920 ... F35931 output).
- no sensor selected (p4100[0...11] = 0).

The temperature actual values can be grouped using p4111[0...2] and the maximum value, minimum value as well as the average value for each group evaluated (r4112[0...2], r4113[0...2], r4114[0...2]).

r4105

CO: TM31 temperature actual value / TM31 temp_act val

TM31

Can be changed: -

Calculated: -

Access level: 1

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: 9549, 9576

P-Group: Terminals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: p2006

Expert list: 1

Min

Max

Factory setting

- [°C]

- [°C]

- [°C]

Description: Displays the temperature actual value for the Terminal Module 31 (TM31)

Dependency: For sensor type "PTC thermistor" (p4100 = 1), the following applies:

- below the nominal response temperature, r4105 = -50°C.
- above the nominal response temperature, r4105 = 250 °C.

For sensor type "KTY84" (p4100 = 2), the following applies:

- the displayed value corresponds to the temperature actual value.

Refer to: p4100

Note: r4105 = -300 °C is displayed in the following cases:

- temperature actual value invalid (F35920 output).
- no sensor selected (p4100 = 0).

The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

p4108[0...5]

TM150 terminal block measuring method / TM150 meas method

TM150

Can be changed: T

Calculated: -

Access level: 1

Data type: Integer16

Dyn. index: -

Func. diagram: 9625, 9626, 9627

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

3

1

Description: Sets the measuring method for the terminal block X531 ... X536 for the Terminal Module 150 (TM150).

Re p4108[0...5] = 0 (1x2 wire evaluation):

- the temperature sensor is connected at terminals 1(+) and 2(-).

Re p4108[0...5] = 1 (2x2 wire evaluation):

- The first temperature sensor is connected at terminals 1(+) and 2(-).
- The second temperature sensor is connected at terminals 3(+) and 4(-).

Re p4108[0...5] = 2 (3 wire evaluation):

- the temperature sensor is connected at terminals 3(+) and 4(-).
- the measuring conductor is connected at terminal 1(+).

- terminals 2(-) and 4(-) must be jumpered.

Re p4108[0...5] = 3 (4 wire evaluation):

- the temperature sensor is connected at terminals 3(+) and 4(-).
- the measuring conductor is connected at terminals 1(+) and 2(-).

| | |
|---------------|--|
| Value: | 0: 1x2 wire evaluation 1: 2x2 wire evaluation 2: 3 wire evaluation 3: 4 wire evaluation |
| Index: | [0] = X531 [1] = X532 [2] = X533 [3] = X534 [4] = X535 [5] = X536 |
| Note: | The temperature sensors are connected to the following terminals: X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6) X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7) X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8) X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9) X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10) X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11) Re p4108[0...5] = 0, 2, 3 (1x2, 3, 4 wire evaluation): The temperature channel belonging to the terminal block with the higher number is automatically deactivated (e.g. for X531 with 3-wire evaluation, channel 6 is deactivated). |

p4109[0...11] TM150 wire resistance measurement / TM150 R_wire meas

| | | | |
|-------|------------------------------|----------------------|----------------------------------|
| TM150 | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9626, 9627 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Setting to start the measurement of the wire resistance for a channel for the Terminal Module 150 (TM150).
For a 2 wire evaluation, the total wire resistance is measured and saved. During the temperature evaluation, the temperature actual value is automatically calibrated using the measured wire resistance.
Procedure:

1. Select the measuring method (1x2/2x2) for the corresponding terminal block (p4108[0...5] = 0, 1).
2. Set the required sensor type for the corresponding channel (p4100[x] = 1 ... 6, x = 0...5 or 0...11).
3. Jumper the sensor to be connected (short-circuit the sensor conductor close to the sensor).
4. Connect the sensor conductors to the appropriate terminals 1(+), 2(-) or 3(+), 4(-).
5. For the corresponding channel, start the measurement of the wire resistance (p4109[x] = 1).
6. After p4109[x] = 0, check the measured resistance value in p4110[x].
7. Remove the jumper across the temperature sensor.

| | |
|---------------|--|
| Value: | 0: Inactive 1: Start |
| Index: | [0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 [9] = Temperature channel 9 [10] = Temperature channel 10 [11] = Temperature channel 11 |

Dependency: Refer to: p4100, p4108, p4110

Notice: Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).

Note: The wire resistance value can be also directly entered into p4110[0...11].
The automatic conductor calibration for 1x2 and 2x2 wire evaluation is always performed with the value in p4110[0...11].

| p4110[0...11] | | TM150 wire resistance value / TM150 R_wire value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|--|--|--|----------|----------|----|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|-----------------------|-----|----|---|----|------------------------|-----|----|---|----|------------------------|-----|----|---|--|--|--|
| TM150 | Can be changed: T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [ohm] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3000.00 [ohm] | Access level: 1 Func. diagram: 9626, 9627 Unit selection: - Expert list: 1 Factory setting 0.00 [ohm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description: | Sets and displays the wire resistance for Terminal Module 150 (TM150). The value is used for the automatic conductor calibration. The value is automatically set by starting the wire resistance measurement (p4109[0...11]) of the corresponding channel. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Index: | [0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 [9] = Temperature channel 9 [10] = Temperature channel 10 [11] = Temperature channel 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dependency: | Refer to: p4109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice: | Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: | Automatic conductor calibration is deactivated using p4110[0...11] = 0. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| p4111[0...2] | | TM150 group channel assignment / TM150 grp channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TM150 | Can be changed: T Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: 9625 Unit selection: - Expert list: 1 Factory setting 0000 0000 0000 0000 bin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description: | Assigns the temperature channels to groups for the Terminal Module 150 (TM150) For each group, the following calculated values are provided from the temperature actual values (r4105[0...11]): - Maximum value (r4112[0...2]) - Minimum value (r4113[0...2]) - average value (r4114[0...2]) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Index: | [0] = Group 0 [1] = Group 1 [2] = Group 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit field: | <table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr><td>00</td><td>Temperature channel 0</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>01</td><td>Temperature channel 1</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>02</td><td>Temperature channel 2</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>03</td><td>Temperature channel 3</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>04</td><td>Temperature channel 4</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>05</td><td>Temperature channel 5</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>06</td><td>Temperature channel 6</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>07</td><td>Temperature channel 7</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>08</td><td>Temperature channel 8</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>09</td><td>Temperature channel 9</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>10</td><td>Temperature channel 10</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>11</td><td>Temperature channel 11</td><td>Yes</td><td>No</td><td>-</td></tr> </tbody> </table> | Bit | Signal name | 1 signal | 0 signal | FP | 00 | Temperature channel 0 | Yes | No | - | 01 | Temperature channel 1 | Yes | No | - | 02 | Temperature channel 2 | Yes | No | - | 03 | Temperature channel 3 | Yes | No | - | 04 | Temperature channel 4 | Yes | No | - | 05 | Temperature channel 5 | Yes | No | - | 06 | Temperature channel 6 | Yes | No | - | 07 | Temperature channel 7 | Yes | No | - | 08 | Temperature channel 8 | Yes | No | - | 09 | Temperature channel 9 | Yes | No | - | 10 | Temperature channel 10 | Yes | No | - | 11 | Temperature channel 11 | Yes | No | - | | | |
| Bit | Signal name | 1 signal | 0 signal | FP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 | Temperature channel 0 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | Temperature channel 1 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 | Temperature channel 2 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | Temperature channel 3 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | Temperature channel 4 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 | Temperature channel 5 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | Temperature channel 6 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07 | Temperature channel 7 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 | Temperature channel 8 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 09 | Temperature channel 9 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Temperature channel 10 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Temperature channel 11 | Yes | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dependency: | Refer to: r4105, r4112, r4113, r4114 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

- Notice:** When forming groups, it must be ensured that in one particular group, only temperature channels with the following sensor types are included:
 - "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6), real temperature actual value
 or alternatively
 - "PTC thermistor", "bimetallic NC contact" (p4100[0...11] = 1, 4), fictitious temperature actual value (-50 °C, 250 °C)
 If these sensor types are combined within one group, then the calculated values for maximum, minimum and average value will be falsified.
- Note:** Active and inactive temperature channels can be included in one group. However, when calculating the values (r4112, r4113, r4114) only the active temperature channels with valid actual value are taken into account (r4105[0...11] not equal to -300 °C).

r4112[0...2] CO: TM150 group temperature actual value maximum value / TM150 grp temp max

| | | | |
|-------|-----------------------------------|-----------------------|----------------------------|
| TM150 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9625 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2006 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |

Description: Display and connector output for the maximum value of each group for the Terminal Module 150 (TM150). This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:

- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index:
 [0] = Group 0
 [1] = Group 1
 [2] = Group 2

Dependency: Refer to: r4105, p4111, r4113, r4114

r4113[0...2] CO: TM150 group temperature actual value minimum value / TM150 grp temp min

| | | | |
|-------|-----------------------------------|-----------------------|----------------------------|
| TM150 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9625 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2006 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |

Description: Display and connector output for the minimum value of each group for the Terminal Module 150 (TM150). This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:

- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index:
 [0] = Group 0
 [1] = Group 1
 [2] = Group 2

Dependency: Refer to: r4105, p4111, r4112, r4114

| | | | |
|------------------------|---|-----------------------|----------------------------------|
| r4114[0...2] | CO: TM150 group temperature average actual value / TM150 grp temp av | | |
| TM150 | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9625 |
| | P-Group: Terminals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2006 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |
| Description: | Display and connector output for the average value of each group for the Terminal Module 150 (TM150). This value is calculated from the actual temperature values (r4105[0...11]) of each group. | | |
| Recommendation: | The following connector inputs can use these connector outputs for interconnection: - CI: p0603 - CI: p0608[0...3] - CI: p0609[0...3] - CI: p2051 | | |
| Index: | [0] = Group 0 [1] = Group 1 [2] = Group 2 | | |
| Dependency: | Refer to: r4105, p4111, r4112, r4113 | | |
| Note: | If one group is assigned sensor type "PTC" or "bimetal NC contact", then the average value -300 °C is output. | | |
| p4117[0...2] | TM150 group sensor error effect / TM150 error effect | | |
| TM150 | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9625 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the effect for an error of a sensor of a group for Terminal Module TM150 (TM150). For p4117 = 0, the following applies: The defective temperature sensor assigned to a group is not take into account when forming the group. For p4117 = 1, the following applies: For a sensor error, for the maximum value, minimum value and average value of the corresponding group, a value of -300 °C is output. | | |
| Value: | 0: Skip sensor 1: Output value = -300 °C | | |
| Index: | [0] = Group 0 [1] = Group 1 [2] = Group 2 | | |
| Dependency: | Refer to: r4105, p4111, r4112, r4113, r4114 | | |
| p4118[0...11] | TM150 fault threshold/alarm threshold hysteresis / TM150 thresh hyst | | |
| TM150 | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9626, 9627 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [K] | 50 [K] | 5 [K] |
| Description: | Sets the hysteresis for the fault threshold/alarm threshold (p4102[0...23]) for the Terminal Module 150 (TM150). | | |
| Index: | [0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 | | |

[6] = Temperature channel 6
 [7] = Temperature channel 7
 [8] = Temperature channel 8
 [9] = Temperature channel 9
 [10] = Temperature channel 10
 [11] = Temperature channel 11

Dependency:

Refer to: p4102, p4103, r4104, r4105

Note:

The following applies for a corresponding alarm:

- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x]) - hysteresis (p4118[x]).

The following applies for a corresponding fault:

- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1]) - hysteresis (p4118[x]) and the fault has been acknowledged.

p4119[0...11]**TM150 activate/deactivate smoothing / TM150 smooth act**

TM150

Can be changed: T

Calculated: -

Access level: 1

Data type: Integer16

Dyn. index: -

Func. diagram: 9626, 9627

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

1

0

Description:

Setting to activate/deactivate the filter to smooth the temperature signal for the Terminal Module 150 (TM150).

The smoothing is realized with a 1st order lowpass filter

The effective smoothing time constant depends on the number of channels that are simultaneously active and is displayed in r4120.

Value:

0: Filter deactivated

1: Filter activated

Index:

[0] = Temperature channel 0

[1] = Temperature channel 1

[2] = Temperature channel 2

[3] = Temperature channel 3

[4] = Temperature channel 4

[5] = Temperature channel 5

[6] = Temperature channel 6

[7] = Temperature channel 7

[8] = Temperature channel 8

[9] = Temperature channel 9

[10] = Temperature channel 10

[11] = Temperature channel 11

Dependency:

Refer to: r4120

r4120**TM150 temperature filter time constant / TM150 temp_filt T**

TM150

Can be changed: -

Calculated: -

Access level: 1

Data type: Unsigned16

Dyn. index: -

Func. diagram: 9626, 9627

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

- [ms]

- [ms]

- [ms]

Description:

Displays the smoothing time constant for the temperature filter for Terminal Module 150 (TM150).

Dependency:

Refer to: r4105, p4111, r4112, r4113

Note:

The time constant lies in the range from 80 to 1000 ms and depends on the number of channels that are simultaneously active.

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|----------------------|----------------------------------|
| p4121 | TM150 filter rated line frequency / TM150 filt f_line | | |
| TM150 | Can be changed: T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9626, 9627 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the rated line frequency for the filter to skip the line frequency for Terminal Module 150 (TM150). | | |
| Value: | 0: 50 Hz 1: 60 Hz | | |

| | | | |
|---|--|----------------------|--------------------------|
| r4640[0...95] | Encoder diagnostics state machine / Enc diag stat_ma | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the encoder diagnostics for the PROFIdrive interface. | | |

| | | | |
|---|---|----------------------|--------------------------|
| p4641[0...2] | OEM encoder diagnostic signal selection / OEM enc diag sel | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Encoder | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Trace functionality for OEM encoder manufacturers. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3 | | |

| | | | |
|--|---|----------------------|--------------------------|
| p4650 | Encoder functional reserve component number / Enc fct_res num | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 399 | 0 |
| Description: | Sets the component number (p0141) of the encoder whose functional reserve is to be displayed (r4651). | | |
| Dependency: | Refer to: r4651 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4651[0...3] | Encoder functional reserve / Enc fct_reserve | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Displays, signals | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the functional reserve of the encoder selected via p4650. | | |

0 ... 25 %:

The function limit has been reached. A service is recommended.

26 ... 100 %:

The encoder is working in the specified range.

Index:
 [0] = Function reserve 1
 [1] = Function reserve 2
 [2] = Function reserve 3
 [3] = Function reserve 4

Dependency: Refer to: p4650

Note: Value = 999 means:
 - the component specified in p4650 is not connected
 - the encoder does not support the display of the functional reserve

p4652[0...2]

XIST1_ERW reset mode / XIST1_ERW res mode

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: C1(3)

Calculated: -

Access level: 3

Data type: Integer16

Dyn. index: -

Func. diagram: 4750

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

3

0

Description: Sets the mode to reset the actual value in XIST_ERW (CO: r4653).

Value:
 0: Inactive
 1: Reset with zero mark
 2: Reset with BICO
 3: Reset with selected zero mark

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = -

Dependency: Refer to: r4653, r4654, p4655

Note: If value = 1:
 The value in XIST1_ERW is reset when passing every zero mark.
 If value = 2:
 The value in XIST1_ERW is reset with a 0/1 edge via binector input p4655.
 If value = 3:
 The value in XIST1_ERW is reset after a 0/1 edge via binector input p4655 when passing the next zero mark.

r4653[0...2]

CO: XIST1_ERW actual value / XIST1_ERW actual

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned32

Dyn. index: -

Func. diagram: 4750

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Display and connector output for the actual value XIST1_ERW.

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = -

Dependency: Refer to: p4652, r4654, p4655

2 Parameters

2.2 List of parameters

| | | | | |
|---|---|---------------------------|----------------------------|-----------------|
| r4654.0...8 | CO/BO: XIST1_ERW status / XIST1_ERW stat | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 4750 | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and binector output to reset XIST1_ERW. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Encoder 1 XIST1_ERW reset | High | Low |
| | 08 | Encoder 2 XIST1_ERW reset | High | Low |
| | | | | FP |
| | | | | - |
| | | | | - |
| Dependency: | Refer to: p4652, r4653, p4655 | | | |
| Note: | The reset of XIST1_ERW is initiated via binector input p4655. Binector output r4654 is reset with a 0 signal from binector input p4655. | | | |
| p4655[0...2] | BI: XIST1_ERW reset signal source / XIST1_ERW resS_src | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 4750 | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 0 | |
| Description: | Sets the signal source to reset XIST1_ERW (CO: r4653). | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | | |
| Dependency: | Refer to: p4652, r4653, r4654 | | | |
| Note: | The reset of XIST1_ERW depends on the selected mode (p4652). | | | |
| p4660[0...2] | Sensor Module filter bandwidth / SM Filt_bandw | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Encoder | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0.00 [kHz] | 20000.00 [kHz] | 0.00 [kHz] | |
| Description: | Sets the filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos). The value set on the Sensor Module is displayed in r4661. The Sensor Module hardware only supports the following values: - 0: The Sensor Module's default is used. - 50 kHz - 170 kHz - 500 kHz - Unlimited: Only the bandwidth of the operational amplifier is effective. | | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = Reserved | | | |
| Dependency: | Refer to: r4661 | | | |
| Note: | A value of zero is displayed if an encoder is not present. | | | |

| | | | |
|---|---|--|---|
| p4661[0...2] | Sensor Module filter bandwidth display / SM Filt_bandw disp | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: FloatingPoint32 P-Group: Encoder Not for motor type: - Min - [kHz] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [kHz] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [kHz] |
| Description: | Display of the effective filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos). The bandwidth of the filter is set using p4660. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = Reserved | | |
| Dependency: | Refer to: p4660 | | |
| Note: | A value of zero is displayed if an encoder is not present. | | |
| p4678[0...n] | Analog sensor LVDT ratio / An_sens LVDT ratio | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 200.00 [%] | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 50.00 [%] |
| Description: | Sets the ratio for the LVDT sensor. | | |
| p4679[0...n] | Analog sensor LVDT phase / An_sens LVDT ph | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4), T Data type: FloatingPoint32 P-Group: Encoder Not for motor type: - Min -360.00 [°] | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 360.00 [°] | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00 [°] |
| Description: | Sets the phase for the LVDT sensor. | | |
| p4680[0...n] | Zero mark monitoring tolerance permissible / ZM_monit tol perm | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 1000 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 4 |
| Description: | Sets the permissible tolerance in encoder pulses for the zero mark distance in the context of zero mark monitoring. Causes fault F3x100 to appear less frequently. | | |
| p4681[0...n] | Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 1000 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2 |
| Description: | Sets the positive tolerance window in encoder pulses for limit 1 for the zero mark monitoring. | | |

2 Parameters

2.2 List of parameters

If the deviation is less than this limit, then the pulse number is not corrected. If it is higher than this limit, fault F3x131 is triggered.

If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). The accumulator can be de-activated using p0437.7.

Dependency:

Refer to: p0437, p4688

Note:

This monitoring is activated by setting p0437.2 = 1 (position actual value correction).

The positive limit describes additional pulses due to EMC.

p4682[0...n]

Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: Integer32

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-1001

0

-1001

Description:

Sets the negative tolerance window in encoder pulses for limit 1 for the zero mark monitoring.

If the deviation is less than this limit, the PPR is not corrected. If it is higher than this limit, fault F3x131 is triggered.

If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). The accumulator can be de-activated using p0437.7.

Dependency:

Refer to: p0437, p4681, p4688

Note:

This monitoring is activated by setting p0437.2 = 1 (position actual value correction).

For a set value = -1001, the negated value of p4681 is effective.

The negative limit describes the pulses lost due to a covered glass panel in the incremental encoder.

p4683[0...n]

Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: Unsigned32

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

100000

0

Description:

Sets the positive tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency:

Refer to: p0437, p4681, p4682, p4688

Note:

Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).

p4684[0...n]

Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: C2(4)

Calculated: -

Access level: 3

Data type: Integer32

Dyn. index: EDS, p0140

Func. diagram: -

P-Group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-100001

0

-100001

Description:

Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency:

Refer to: p0437, p4683, p4688

Note:

Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).

For a set value = -100001, the negated value of p4683 is effective.

| | | | |
|---|--|--|---|
| p4685[0...n] | Speed actual value mean value generation / n_act mean val | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 20 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the number of current controller clock cycles for mean value generation of the speed actual value. | | |
| Note: | Value = 0, 1: No mean value generation. Higher values also mean higher dead times for the speed actual value. | | |
| p4686[0...n] | Zero mark minimum length / ZM min length | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min 0 | Calculated: - Dyn. index: EDS, p0140 Unit group: - Scaling: - Max 10 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the minimum length for the zero mark in 1/4 encoder pulses. | | |
| Dependency: | Refer to: p0425, p0437 | | |
| Note: | The value for the minimum length of the zero mark must be set less than p0425. The parameter is activated using p0437.1 = 1 (zero mark edge detection). | | |
| p4688[0...2] | CO: Zero mark monitoring differential pulse count / ZM diff_pulse qty | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T Data type: Integer32 P-Group: - Not for motor type: - Min -2147483648 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2147483647 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Displays the number of differential pulses for the zero mark monitoring that have accumulated. If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Dependency: | Refer to: p4681, p4682, p4683, p4684 | | |
| Note: | The display can only be reset to zero. | | |
| r4689[0...2] | CO: Squarewave encoder diagnostics / Sq-wave enc diag | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the encoder status according to PROFIdrive for a squarewave encoder. | | |
| Index: | [0] = Encoder 1 [1] = Encoder 2 [2] = - | | |
| Note: | After alarm A3x422 is output, this parameter is set for 100 ms. | | |

2 Parameters

2.2 List of parameters

| | | | | |
|--|---|--|--------------------------|-----------------|
| p4700[0...1] | Trace control / Trace control | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 0 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | 0 | |
| Description: | Setting to control the trace function. | | | |
| Value: | 0: Stop trace 1: Start trace 2: Start trace and save values | | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | | |
| p4701 | Measuring function control / Meas fct ctrl | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 0 | |
| | Min | Max | Factory setting | |
| | 0 | 3 | 0 | |
| Description: | Setting to control the measurement function. | | | |
| Value: | 0: Stop measuring function 1: Start measuring function 2: Measuring function check parameterization 3: Start measuring function without enable signals | | | |
| p4703[0...1] | Trace options / Trace options | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 0 | |
| | Min | Max | Factory setting | |
| | - | - | 0000 bin | |
| Description: | Sets the options for the trace. | | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Automatically start trace with time slices | Yes | No |
| Dependency: | Refer to: p4700 | | | |
| Note: | Re bit 00: 0: The trace starts with p4700 as before. 1: When powering up, the trace starts immediately with the saved parameter settings with the start of the time slices. | | | |
| r4705[0...1] | Trace status / Trace status | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 0 | |
| | Min | Max | Factory setting | |
| | 0 | 4 | - | |
| Description: | Displays the actual status of the trace. | | | |

| | |
|---------------|---------------------------------------|
| Value: | 0: Trace inactive |
| | 1: Trace is recording presamples |
| | 2: Trace is waiting for trigger event |
| | 3: Trace is recording |
| | 4: Recording (trace) ended |
| Index: | [0] = Trace 0 |
| | [1] = Trace 1 |

| | | | |
|--|---|----------------------|--------------------------|
| r4706 | Measuring function status / Meas fct status | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 5 | - |
| Description: | Displays the actual status of the measuring function. | | |
| Value: | 0: Measurement function inactive | | |
| | 1: Measuring function parameterization checked | | |
| | 2: Measuring function waits for stabilizing time | | |
| | 3: Measuring function recording (tracing) | | |
| | 4: Measuring function trace ended with error | | |
| | 5: Measuring function trace successfully completed | | |

| | | | |
|--|--|----------------------|--------------------------|
| p4707 | Measurement function configuration / Meas fct config | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to configure the measurement function. | | |
| Value: | 0: Standard | | |
| | 1: Free meas fct | | |
| Dependency: | The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3). | | |
| Note: | This parameter involves the free measuring functions and is only active for p4810=6. | | |
| | For value = 0: The free measuring function is parameterized with master control. | | |
| | For value = 1: The free measuring function is parameterized without master control. | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4708[0...1] | Trace memory space required / Trace mem required | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the required memory in bytes for the actual parameterization. | | |
| Index: | [0] = Trace 0 | | |
| | [1] = Trace 1 | | |
| Dependency: | Refer to: r4799 | | |

| | | | |
|--|---|--|---|
| r4709[0...1] | Trace memory space required for measuring functions / Trace mem required | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the required memory in bytes for the actual parameterization. This applies, if the trace for the measurement functions is used. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Refer to: r4799 | | |
| p4710[0...1] | Trace trigger condition / Trace Trig_cond | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: Trace and function generator Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 8 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 2 |
| Description: | Sets the trigger condition for the trace. | | |
| Value: | 1: Immediate trace start 2: Positive edge 3: Negative edge 4: Entry to hysteresis band 5: Leaving hysteresis band 6: Trigger at bit mask 7: Start with function generator 8: Trigger at bit mask with edge | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4711[0...5] | Trace trigger signal / Trace trig_signal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Selects the trigger signal for the trace. | | |
| Index: | [0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id | | |
| Dependency: | Only effective when p4710 does not equal 1. | | |
| Note: | It only makes sense to trace the PINs using the commissioning software. For index 2(4) and 3(5) equal to zero, index 0(1) can only be written and vice versa. Re index 0 ... 1: Here, the trigger signal for trace 0 or 1 is entered as parameter in the BICO format. For trace with a physical address (p4789), the data type of the trigger signal is set here. | | |

Re index 2 ...3:

The triggering PIN for trace 0 is entered here.

Index 2 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart

Index 3 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

Re index 4 ... 5:

The triggering PIN for trace 1 is entered here.

Index 4 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart

Index 5 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

| | | | |
|--|--|----------------------|--------------------------|
| p4712[0...1] | Trace trigger threshold / Trace trig_thresh | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -340.28235E36 | 340.28235E36 | 0.00 |
| Description: | Sets the trigger threshold for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Only effective when p4710 = 2, 3. | | |

| | | | |
|--|--|----------------------|--------------------------|
| p4713[0...1] | Trace tolerance band trigger threshold 1 / Trace trig thr 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -340.28235E36 | 340.28235E36 | 0.00 |
| Description: | Sets the first trigger threshold for trigger via tolerance band. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Only effective when p4710 = 4, 5. | | |

| | | | |
|--|--|----------------------|--------------------------|
| p4714[0...1] | Trace tolerance band trigger threshold 2 / Trace trig thr 2 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -340.28235E36 | 340.28235E36 | 0.00 |
| Description: | Sets the second trigger threshold for trigger via tolerance band | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Only effective when p4710 = 4, 5. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p4715[0...1] | Trace bit mask trigger, bit mask / Trace trig mask | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 4294967295 | 0 |
| Description: | Sets the bit mask for the bit mask trigger. | | |

2 Parameters

2.2 List of parameters

Index: [0] = Trace 0
[1] = Trace 1
Dependency: Only effective when p4710 = 6.

| | | | |
|--|--|---|---|
| p4716[0...1] | Trace bit mask trigger trigger condition / Trace Trig_cond | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4294967295 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Sets the trigger condition for bit mask trigger. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Only effective when p4710 = 6. | | |

| | | | |
|--|---|--|---|
| r4719[0...1] | Trace trigger index / Trace Trig_index | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the trigger index in the trace buffer. The trigger event occurred at this point. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Only valid when p4705 = 4. | | |

| | | | |
|--|--|---|--|
| p4720[0...1] | Trace recording cycle / Trace record_cyc | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.000 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60000.000 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1.000 [ms] |
| Description: | Sets the recording cycle for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

| | | | |
|--|--|---|---|
| p4721[0...1] | Trace recording time / Trace record_time | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.000 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3600000.000 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1000.000 [ms] |
| Description: | Sets the recording time for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

| | | | |
|--|---|----------------------|--------------------------|
| p4722[0...1] | Trace trigger delay / Trace trig_delay | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -3600000.000 [ms] | 3600000.000 [ms] | 0.000 [ms] |
| Description: | Sets the trigger delay for the trace. Trigger delay < 0: Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs. Trigger delay > 0: Post trigger: Tracing does not start until the set time after the trigger event. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4723[0...1] | Trace time slice cycle / Trace cycle | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0.03125 [ms] | 4.00000 [ms] | 0.12500 [ms] |
| Description: | Sets the time slice cycle in which the trace is called. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4724[0...1] | Trace average in the time range / Trace average | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 0001 bin | 0000 bin |
| Description: | Sets the averaging in the time range for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4725[0...1] | Trace data type 1 traced / Trace rec type 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the recorded data type 1 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

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| | | | |
|--|--|--|---|
| r4726[0...1] | Trace data type 2 traced / Trace rec type 2 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 2 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4727[0...1] | Trace data type 3 traced / Trace rec type 3 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 3 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4728[0...1] | Trace data type 4 traced / Trace rec type 4 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 4 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4729[0...1] | Trace number of recorded values / Trace rec values | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the number of traced values for each signal. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Only valid when p4705 = 4. | | |
| p4730[0...5] | Trace record signal 0 / Trace record sig 0 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Selects the first signal to be traced. | | |

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4731[0...5] Trace record signal 1 / Trace record sig 1

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects the second signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4732[0...5] Trace record signal 2 / Trace record sig 2

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects the third signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4733[0...5] Trace record signal 3 / Trace record sig 3

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects the fourth signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

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| | | | |
|--|--|--|---|
| p4734[0...5] | Trace record signal 4 / Trace record sig 4 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Selects the fifth signal to be traced. | | |
| Index: | [0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id | | |
| <hr/> | | | |
| p4735[0...5] | Trace record signal 5 / Trace record sig 5 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Selects the sixth signal to be traced. | | |
| Index: | [0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id | | |
| <hr/> | | | |
| p4736[0...5] | Trace record signal 6 / Trace record sig 6 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Selects the seventh signal to be traced. | | |
| Index: | [0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id | | |
| <hr/> | | | |
| p4737[0...5] | Trace record signal 7 / Trace record sig 7 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Selects the eighth signal to be traced. | | |

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

r4740[0...16383] Trace 0 trace buffer signal 0 floating point / Trace 0 tr sig 0

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0.
 The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks.
 Example A:
 The first 16384 values of signal 0, trace 0 are to be read out.
 In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read out using r4740[0] to r4740[16383].
 Example B:
 The values 16385 to 32768 from signal 0, trace 0 are to be read out.
 In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].

Dependency: Refer to: p4795

r4741[0...16383] Trace 0 trace buffer signal 1 floating point / Trace 0 tr sig 1

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.
Dependency: Refer to: r4740, p4795

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 tr sig 2

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.
Dependency: Refer to: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 tr sig 3

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

2 Parameters

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Dependency: Refer to: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 tr sig 4

| | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
|--|--|--|---|

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 tr sig 5

| | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
|--|--|--|---|

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 tr sig 6

| | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
|--|--|--|---|

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 tr sig 7

| | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
|--|--|--|---|

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace 1 trace sig0

| | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
|--|--|--|---|

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: Refer to: r4740, p4795

| | | | |
|--|--|----------------------|--------------------------|
| r4751[0...16383] | Trace 1 trace buffer signal 1 floating point / Trace 1 tr sig 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 1. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4752[0...16383] | Trace 1 trace buffer signal 2 floating point / Trace 1 tr sig 2 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 2. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4753[0...16383] | Trace 1 trace buffer signal 3 floating point / Trace 1 tr sig 3 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 3. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4754[0...16383] | Trace 1 trace buffer signal 4 floating point / Trace 1 tr sig 4 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 4. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4755[0...16383] | Trace 1 trace buffer signal 5 floating point / Trace 1 tr sig 5 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 5. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4756[0...16383] | Trace 1 trace buffer signal 6 floating point / Trace 1 tr sig 6 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 6. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4757[0...16383] | Trace 1 trace buffer signal 7 floating point / Trace 1 tr sig 7 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 7. | | |
| Dependency: | Refer to: r4740, p4795 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4760[0...16383] | Trace 0 trace buffer signal 0 / Trace 0 tr sig 0 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 0 and signal 0 as integer number. | | |
| Note: | For signals, data type I32 or U32, the trace buffer is assigned as follows: r4760[0] = value 0 r4760[1] = value 1 ... r4760[8191] = value 8191 For signals, data type I16 or U16, the trace buffer is assigned as follows: r4760[0] = value 1 (bit 31 ... 16) and value 0 (bit 15 ... 0) r4760[1] = value 3 (bit 31 ... 16) and value 2 (bit 15 ... 0) ... r4760[8191] = value 16383 (bit 31 ... 16) and value 16382 (bit 15 ... 0) For signals, data type I8 or U8, the trace buffer is assigned as follows: r4760[0] = value 3 (bit 31 ... 24) value 2 (bit 23 ... 16) value 1 (bit 15 ... 8) value 0 (bit 7 ... 0) r4760[1] = value 7 (bit 31 ... 24) value 6 (bit 23 ... 16) value 5 (bit 15 ... 8) value 4 (bit 7 ... 0) ... r4760[8191] = value 32767 (bit 31 ... 24) value 32766 (bit 23 ... 16) value 32765 (bit 15 ... 8) value 32764 (bit 7 ... 0) | | |

| | | | |
|--|---|----------------------|--------------------------|
| r4761[0...16383] | Trace 0 trace buffer signal 1 / Trace 0 tr sig 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the trace buffer (record buffer) for trace 0 and signal 1. | | |

Dependency: Refer to: r4760

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 tr sig 2

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4760

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 tr sig 3

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4760

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 tr sig 4

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4760

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 tr sig 5

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4760

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 tr sig 6

| | | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4760

2 Parameters

2.2 List of parameters

| | | | | |
|--|---|--|---|--|
| r4767[0...16383] | Trace 0 trace buffer signal 7 / Trace 0 tr sig 7 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 0 and signal 7. | | | |
| Dependency: | Refer to: r4760 | | | |
| <hr/> | | | | |
| r4770[0...16383] | Trace 1 trace buffer signal 0 / Trace 1 trace sig0 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 0. | | | |
| Dependency: | Refer to: r4760 | | | |
| <hr/> | | | | |
| r4771[0...16383] | Trace 1 trace buffer signal 1 / Trace 1 tr sig 1 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 1. | | | |
| Dependency: | Refer to: r4760 | | | |
| <hr/> | | | | |
| r4772[0...16383] | Trace 1 trace buffer signal 2 / Trace 1 tr sig 2 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 2. | | | |
| Dependency: | Refer to: r4760 | | | |
| <hr/> | | | | |
| r4773[0...16383] | Trace 1 trace buffer signal 3 / Trace 1 tr sig 3 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 3. | | | |
| Dependency: | Refer to: r4760 | | | |

| | | | | |
|--|---|---|--|--|
| r4774[0...16383] | Trace 1 trace buffer signal 4 / Trace 1 tr sig 4 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 4. | | | |
| Dependency: | Refer to: r4760 | | | |
| r4775[0...16383] | Trace 1 trace buffer signal 5 / Trace 1 tr sig 5 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 5. | | | |
| Dependency: | Refer to: r4760 | | | |
| r4776[0...16383] | Trace 1 trace buffer signal 6 / Trace 1 tr sig 6 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 6. | | | |
| Dependency: | Refer to: r4760 | | | |
| r4777[0...16383] | Trace 1 trace buffer signal 7 / Trace 1 tr sig 7 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - | |
| Description: | Displays the trace buffer (record buffer) for trace 1 and signal 7. | | | |
| Dependency: | Refer to: r4760 | | | |
| p4780[0...1] | Trace physical address signal 0 / Trace PhyAddr Sig0 | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min 0000 bin | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1111 1111 1111 1111 1111 1111 1111 1111 bin | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0000 bin | |
| Description: | Sets the physical address for the first signal to be traced. The data type is defined using p4730. | | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | | |

| | | | |
|--|--|--|--------------------------|
| p4781[0...1] | Trace physical address signal 1 / Trace PhyAddr Sig1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the second signal to be traced. The data type is defined using p4731. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4782[0...1] | Trace physical address signal 2 / Trace PhyAddr Sig2 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the third signal to be traced. The data type is defined using p4732. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4783[0...1] | Trace physical address signal 3 / Trace PhyAddr Sig3 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the fourth signal to be traced. The data type is defined using p4733. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4784[0...1] | Trace physical address signal 4 / Trace PhyAddr Sig4 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the fifth signal to be traced. The data type is defined using p4734. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

| | | | |
|--|---|--|--------------------------|
| p4785[0...1] | Trace physical address signal 5 / Trace PhyAddr Sig5 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the sixth signal to be traced. The data type is defined using p4735. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

| | | | |
|--|---|--|--------------------------|
| p4786[0...1] | Trace physical address signal 6 / Trace PhyAddr Sig6 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the seventh signal to be traced. The data type is defined using p4736. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

| | | | |
|--|--|--|--------------------------|
| p4787[0...1] | Trace physical address signal 7 / Trace PhyAddr Sig7 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 1111 1111 1111 1111 1111 1111 bin | 0000 bin |
| Description: | Sets the physical address for the eighth signal to be traced. The data type is defined using p4737. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

| | | | |
|--|---|----------------------|--------------------------|
| p4789[0...1] | Trace physical address trigger signal / Trace PhyAddr Trig | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Sets the physical address for the trigger signal. The data type is defined by making the appropriate selection in p4711. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

2 Parameters

2.2 List of parameters

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|--|--|--|---|
| r4790[0...1] | Trace data type 5 traced / Trace rec type 5 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 5 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4791[0...1] | Trace data type 6 traced / Trace rec type 6 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 6 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4792[0...1] | Trace data type 7 traced / Trace rec type 7 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 7 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| r4793[0...1] | Trace data type 8 traced / Trace rec type 8 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the recorded data type 8 for the trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| p4795 | Trace memory bank changeover / Trace mem changeov | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 500 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Changes over the memory bank to read out the contents of the trace buffer. | | |
| Dependency: | Refer to: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r4797[0...1] | Trace 0 trigger instant / Trace 0 t_trigger | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the instant in time for fulfilling the trigger condition for trace recorder 0. The time comprises milliseconds (index 0) and days (index 1). | | |
| Index: | [0] = Milliseconds [1] = Days | | |
| Dependency: | Refer to: r2114, r3102, r4719 | | |
| Notice: | The accuracy of the trigger instant depends on the accuracy of the underlying basis time. For clarification: The trigger instant is calculated with a μ s accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur. When referred to r4719, the trigger instant can therefore deviate somewhat. | | |
| Note: | If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114). | | |
| r4798[0...1] | Trace 1 trigger instant / Trace 1 t_trigger | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the instant in time for fulfilling the trigger condition for trace recorder 1. The time comprises milliseconds (index 0) and days (index 1). | | |
| Index: | [0] = Milliseconds [1] = Days | | |
| Dependency: | Refer to: r2114, r3102, r4719 | | |
| Notice: | The accuracy of the trigger instant depends on the accuracy of the underlying basis time. For clarification: The trigger instant is calculated with a μ s accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur. When referred to r4719, the trigger instant can therefore deviate somewhat. | | |
| Note: | If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114). | | |
| r4799 | Trace memory location free / Trace mem free | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the free memory for the trace in bytes. | | |
| Dependency: | Refer to: r4708 | | |

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|--|---|----------------------|--------------------------|
| p4800 | Function generator control / FG control | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | The function generator is started with p4800 = 1. The signal is only generated for a 1 signal of binector input p4819. | | |
| Value: | 0: Stop function generator 1: Start function generator 2: Check function generator parameterization 3: Start function generator without enable signals | | |
| Dependency: | Refer to: p4819 | | |

| | | | |
|--|---|----------------------|--------------------------|
| r4805 | Function generator status / FG status | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 6 | - |
| Description: | Displays the actual status of the function generator. | | |
| Value: | 0: Inactive 1: Generate accelerating ramp to offset 2: Generate parameterized signal shape 3: Generate braking ramp 4: Function generator stopped due to missing enable signals 5: Function generator waits for BI: p4819 6: Function generator parameterization has been checked | | |
| Dependency: | Refer to: p4800, p4819 | | |

| | | | | | |
|--|---|----------------------|--------------------------|-----------------|-----------|
| r4806.0 | BO: Function generator status signal / FG status signal | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 0 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the status of the function generator. 0 signal: Function generator inactive 1 signal: Function generator running | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | ON | OFF | - |

| | | | |
|--|--|----------------------|--------------------------|
| p4810 | Function generator mode / FG operating mode | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 99 | 0 |
| Description: | Sets the operating mode of the function generator. | | |

| | | |
|---------------|-----|--|
| Value: | 0: | Connection at connector output r4818 |
| | 1: | Connection at current setpoint after filter and r4818 |
| | 2: | Connection as disturbing torque and r4818 |
| | 3: | Connection at speed setpoint after filter and r4818 |
| | 4: | Connection at current setpoint before filter and r4818 |
| | 5: | Connection at speed setpoint before filter and r4818 |
| | 6: | Connection for free measurement function r4818 and r4834 |
| | 99: | Connection at physical address and r4818 |

| | | | |
|--|--|----------------------|--------------------------|
| p4812 | Function generator physical address / FG phys address | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 4294967295 | 0 |
| Description: | Sets the physical address where the function generator is to be connected. | | |
| Dependency: | Only effective when p4810 = 99. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p4813 | Function generator physical address reference value / FG phys addr ref | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 1.00 | 1000000.00 | 1.00 |
| Description: | Sets the reference value for 100 % for referred inputs. | | |
| Dependency: | Only effective when p4810 = 99. | | |

| | | | |
|--|--|----------------------|--------------------------|
| p4816 | Function generator output signal integer number scaling / FG outp integ scal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -2147483648 | 2147483647 | 0 |
| Description: | Sets the scaling for the integer number of the output signal for the function generator. | | |
| Dependency: | Refer to: r4805, r4817 | | |
| Note: | The parameter can only be changed in the following operating states: r4805 = 0, 4, 6 | | |

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|--|--|----------------------|--------------------------|
| r4817 | CO: Function generator output signal integer number / FG outp integ no. | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Display and connector output for the integer number of the output signal for the function generator. | | |
| Dependency: | Refer to: p4816 | | |
| Note: | The value is output independent of the function generator operating mode. | | |

| | | | |
|--|---|--|--|
| r4818 | CO: Function generator output signal / FG outp_sig | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - [%] |
| Description: | Displays the output signal for the function generator. | | |
| Dependency: | Refer to: p4810 | | |
| Note: | The value is displayed independently of the function generator mode. | | |
| p4819 | BI: Function generator control / FG control | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Trace and function generator Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1 |
| Description: | Sets the signal source to control the function generator. When the function generator is running, signal generation is stopped with a 0 signal from BI: p4819 and p4800 is set to 0. | | |
| Dependency: | Refer to: p4800 | | |
| p4820 | Function generator signal shape / FG signal shape | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: Trace and function generator Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 5 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1 |
| Description: | Sets the signal to be generated for the function generator. | | |
| Value: | 1: Square-wave 2: Staircase 3: Delta 4: Binary noise - PRBS (Pseudo Random Binary Signal) 5: Sine-wave | | |
| p4821 | Function generator period / FG period duration | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.00 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60000.00 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 1000.00 [ms] |
| Description: | Sets the period of the signal to be generated for the function generator. | | |
| Dependency: | Ineffective when p4820 = 4 (PRBS). | | |

| | | | |
|--|---|--|--|
| p4822 | Function generator pulse width / FG pulse width | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.00 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 60000.00 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 500.00 [ms] |
| Description: | Sets the pulse width for the signal to be generated for the function generator. | | |
| Dependency: | Only effective when p4820 = 1 (square-wave). | | |
| p4823 | Function generator bandwidth / FG bandwidth | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.0025 [Hz] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 16000.0000 [Hz] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 4000.0000 [Hz] |
| Description: | Sets the bandwidth for the signal to be generated for the function generator. | | |
| Dependency: | Only effective when p4820 = 4 (PRBS). Refer to: p4830 | | |
| p4824 | Function generator amplitude / FG amplitude | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -1600.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1600.00 [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 5.00 [%] |
| Description: | Sets the amplitude for the signal to be generated for the function generator. | | |
| Dependency: | Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed). | | |
| p4825 | Function generator 2nd amplitude / FG 2nd amplitude | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -1600.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1600.00 [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 7.00 [%] |
| Description: | Sets the second amplitude for the signal to be generated for the function generator. | | |
| Dependency: | Only effective for p4820 = 2 (staircase). Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed). | | |

2 Parameters

2.2 List of parameters

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|--|---|---|--|
| p4826 | Function generator offset / FG offset | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -1600.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1600.00 [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0.00 [%] |
| Description: | Sets the offset (DC component) of the signal to be generated for the function generator. | | |
| Dependency: | Units are dependent on p4810. If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current). If p4810 = 3, 5: The offset is referred to p2000 (reference speed). If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint. | | |
| p4827 | Function generator ramp-up time to offset / FG ramp-up offset | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.00 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 100000.00 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 32.00 [ms] |
| Description: | Sets the ramp-up time to the offset for the function generator. | | |
| p4828 | Function generator lower limit / FG lower limit | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -10000.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 0.00 [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting -100.00 [%] |
| Description: | Sets the lower limit for the function generator. | | |
| Dependency: | For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset). | | |
| p4829 | Function generator upper limit / FG upper limit | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 10000.00 [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 100.00 [%] |
| Description: | Sets the upper limit for the function generator. | | |
| Dependency: | For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset). | | |
| p4830 | Function generator time slice cycle / FG time slice | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.03125 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2.00000 [ms] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0.12500 [ms] |
| Description: | Sets the time slice cycle in which the function generator is called. | | |

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| p4831 | Function generator amplitude scaling / FG amplitude scal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0.00000 [%] | 200.00000 [%] | 100.00000 [%] |
| Description: | Sets the scaling for the amplitude of the signal waveforms for all output channels. The value can be changed while the function generator is running. | | |
| p4832[0...2] | Function generator amplitude scaling / FG amplitude scal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -340.28235E36 [%] | 340.28235E36 [%] | 100.00000 [%] |
| Description: | Sets the scaling for the amplitude of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running. | | |
| Index: | [0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection | | |
| p4833[0...2] | Function generator offset scaling / FG offset scal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -340.28235E36 [%] | 340.28235E36 [%] | 100.00000 [%] |
| Description: | Sets the scaling for the offset of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running. | | |
| Index: | [0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection | | |
| r4834[0...4] | CO: Function generator free measurement output signal / FG fr MeasFct outp | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 0 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the output signal for the free measurement function. | | |
| Index: | [0] = Signal 1 [1] = Signal 2 [2] = Signal 3 [3] = Signal 4 [4] = Signal 5 | | |
| Dependency: | Refer to: p4810 | | |
| Note: | The signals are only output in the "free measurement function" operating mode (p4810 = 6) | | |

2 Parameters

2.2 List of parameters

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|--|--|----------------------|--------------------------|
| p4835[0...4] | Function generator free measurement function scaling / FG fr MeasFct scal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | -200.00000 [%] | 200.00000 [%] | 100.00000 [%] |
| Description: | Sets the scaling of the output signals for the free measurement function. | | |
| Index: | [0] = Signal 1 [1] = Signal 2 [2] = Signal 3 [3] = Signal 4 [4] = Signal 5 | | |
| Note: | The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3). | | |
| p4840[0...1] | MTrace cycle number setting / Cycle number | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0 | 4294967295 | 0 |
| Description: | Sets the number of cycles of a multiple trace. The multiple trace is de-activated with a value = 0. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Refer to: r4841, p4844 | | |
| Notice: | A multiple trace can have a negative impact on the total system performance. From their inherent principle of operation, flash memory cards are subject to wear as a result of write operations. As a consequence, the lifetime of flash memory cards is reduced when using the multiple trace functionality. | | |
| r4841[0...1] | MTrace cycle actual display / Cycle act display | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the currently running cycle (including deadtime) of the multiple trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |
| Dependency: | Refer to: p4840, p4844 | | |
| p4844[0...1] | MTrace ring buffer files number / Ring buff file qty | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Trace and function generator | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 5 | 5 | 5 |
| Description: | Sets the number of ring buffer files for the measurement results of the multiple trace. | | |
| Index: | [0] = Trace 0 [1] = Trace 1 | | |

Dependency: Refer to: p4840, r4841

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|---------------------|--|----------------------|--------------------------|
| r4950 | OA DO-specific number / OA DO qty | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 16 | - |
| Description: | Displays the number of OA applications installed on this drive object. | | |
| Dependency: | Refer to: r4951, r4952, r4955, p4956, r4957, r4958, r4959, r4960 | | |
| Note: | DO: Drive Object OA: Open Architecture (OA application) | | |

| | | | |
|---------------------|---|----------------------|--------------------------|
| r4951 | OA DO-specific identifier total length / OA DO id tot_lgth | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 144 | - |
| Description: | Displays the total length of the identifiers of the OA applications installed on this drive object. | | |
| Dependency: | Refer to: r4950, r4952, r4955, p4956, r4957, r4958, r4959, r4960 | | |
| Note: | The identifier of an OA application comprises a maximum of 8 characters plus separator. | | |

| | | | |
|---------------------|---|----------------------|--------------------------|
| r4952 | OA DO-specific GUID total length / OA DO GUID length | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 288 | - |
| Description: | Displays the total length of the GUIDs of the OA applications installed on this drive object. | | |
| Dependency: | Refer to: r4950, r4951, r4955, p4956, r4957, r4958, r4959, r4960 | | |
| Note: | The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information. GUID: Globally Unique Identifier | | |

| | | | |
|---------------------|---|--------------------------|--------------------------|
| r4955[0...n] | OA DO-specific identifier / OA DO ident | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned8 | Dyn. index: r4951 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the identifier of the OA applications installed on this drive object. r4955[0...8]: Identifier of OA application 1 r4955[9...17]: Identifier of OA applications 2, ... | | |
| Dependency: | Refer to: r4950, r4951, r4952, p4956, r4957, r4958, r4959, r4960 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |

| | | | |
|---------------------|---|--------------------------|--------------------------|
| p4956[0...n] | OA DO-specific activation / OA DO act | | |
| All objects | Can be changed: C1, T | Calculated: - | Access level: 4 |
| | Data type: Integer16 | Dyn. index: r4950 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate the OA applications installed on this drive object. r4956[0]: Activates OA application 1 r4956[1]: Activates OA application 2, ... | | |
| Value: | 0: OA application inactive 1: OA application active | | |
| Dependency: | Refer to: r4950, r4951, r4952, r4955, r4957, r4958, r4959, r4960 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| r4957[0...n] | OA DO-specific version / OA DO version | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: r4950 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 4294967295 | - |
| Description: | Displays the version of the OA applications installed on this drive object. r4957[0]: Version of OA application 1 r4957[1]: Version of OA application 2, ... | | |
| Dependency: | Refer to: r4950, r4951, r4952, r4955, p4956, r4958, r4959, r4960 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |
| r4958[0...n] | OA DO-specific interface version / OA DO interf_vers | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: r4950 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the interface version of OA applications installed on this drive object. r4958[0]: Interface version of OA application 1 r4958[1]: Interface version of OA applications 2, ... | | |
| Dependency: | Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4959, r4960 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |

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|---|--|--------------------------|--------------------------|
| r4959[0...n] | | | |
| OA DO-specific GUID / OA DO GUID | | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned8 | Dyn. index: r4952 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the GUIDs of the OA applications installed on this drive object. r4959[0...15]: GUID of OA application 1 r4959[16]: Major information of OA application 1 r4959[17]: Minor information of OA application 1 r4959[18...33]: GUID of OA application 2 r4959[34]: Major information of OA application 2 r4959[35]: Minor information of OA application 2, ... | | |
| Dependency: | Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4960 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| <hr/> | | | |
| r4960[0...n] | | | |
| OA DO-specific GUID drive object / OA DO GUID DO | | | |
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned8 | Dyn. index: r4952 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the GUIDs of this drive object of the OA applications installed on the memory card/device memory. r4960[0...15]: GUID of this drive object of OA application 1 r4960[16]: Major information of this drive object of OA application 1 r4960[17]: Minor information of this drive object of OA application 1 r4960[18...33]: GUID of this drive object of OA application 2 r4960[34]: Major information of this drive object of OA application 2 r4960[35]: Minor information of this drive object of OA application 2, ... | | |
| Dependency: | Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4959 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| <hr/> | | | |
| p4961[0...n] | | | |
| OA DO-specific logbook module selection / OA DO log module | | | |
| All objects | Can be changed: T | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: r4950 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | Only for service purposes. | | |
| <hr/> | | | |
| r4975 | | | |
| OA invalid number / OA inv no. | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the number of invalid OA applications installed on the memory card/device memory. | | |
| Dependency: | Refer to: r4976, r4978, r4979 | | |

2 Parameters

2.2 List of parameters

Note: OA: Open Architecture (OA application)

| | | | |
|--|--|--|---|
| r4976 | OA invalid identifier total length / OA inv ID tot_lgth | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the total length of the IDs of all the invalid OA applications installed on the memory card/device memory. | | |
| Dependency: | Refer to: r4975, r4978, r4979 | | |
| Note: | The identifier of an invalid OA application comprises a maximum of 8 characters plus separator. | | |

| | | | |
|--|---|--|---|
| r4978[0...n] | OA invalid identifier / OA inv ID | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: - Min - | Calculated: - Dyn. index: r4976 Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the IDs of all the invalid OA applications installed on the memory card/device memory. r4978[0...8]: Identifier of invalid OA application 1 r4978[9...17]: Identifier of invalid OA application 2, ... | | |
| Dependency: | Refer to: r4975, r4976, r4979 | | |
| Notice: | If there is no invalid OA application, then it is not possible to access an index. | | |

| | | | |
|--|--|--|---|
| r4979[0...n] | OA invalid error code / OA inv error code | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: OEM range Not for motor type: - Min - | Calculated: - Dyn. index: r4975 Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the error code of the invalid OA applications installed on the memory card/device memory. r4979[0]: Fault value of OA application 1 r4979[1]: Fault value of OA application 2, ... | | |
| Dependency: | Refer to: r4975, r4976, r4978 | | |
| Notice: | If there is no invalid OA application, then it is not possible to access an index. | | |
| Note: | The value in the error code must be interpreted in binary form. The bits have the following meaning: Bit 0: Incompatible OA interface version. Bit 1: OA application could not be loaded. Bit 2: Incorrect description files. Bit 3: OA application does not define a CPU type. Bit 4: OA application for this device not supported (incorrect CPU type). Bit 5: OA application for this device not supported (incorrect type ID). Bit 6: Incorrect description files (Const/Startup incompatible). | | |

| | | | | |
|--|--|--|---|--|
| r4985 | OA number / OA no | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 16 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the number of OA applications installed on the memory card/device memory. | | | |
| Dependency: | Refer to: r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994 | | | |
| Note: | OA: Open Architecture (OA application) | | | |
| r4986 | OA identifier total length / OA id tot_length | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 144 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the total length of the IDs of all the OA applications installed on the memory card/device memory. | | | |
| Dependency: | Refer to: r4985, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994 | | | |
| Note: | The identifier of an OA application comprises a maximum of 8 characters plus separator. | | | |
| r4987 | OA GUID total length / OA GUID tot_length | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 288 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the total length of the GUIDs of all the OA applications installed on the memory card/device memory. | | | |
| Dependency: | Refer to: r4985, r4986, r4988, r4989, r4990, r4991, r4992, r4993, r4994 | | | |
| Note: | The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information. GUID: Globally Unique Identifier | | | |
| r4988[0...n] | OA identifier / OA ID | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: - Min - | Calculated: - Dyn. index: r4986 Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the IDs of all the OA applications installed on the memory card/device memory. r4988[0...8]: Identifier of OA application 1 r4988[9...17]: Identifier of OA applications 2, ... | | | |
| Dependency: | Refer to: r4985, r4986, r4987, r4989, r4990, r4991, r4992, r4993, r4994 | | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | | |

| | | | |
|--|--|--------------------------|--------------------------|
| r4989[0...n] | OA version / OA version | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: r4985 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the version of all the OA applications installed on the memory card/device memory. r4989[0]: Version of OA application 1 r4989[1]: Version of OA application 2, ... | | |
| Dependency: | Refer to: r4985, r4986, r4987, r4988, r4990, r4991, r4992, r4993, r4994 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |

| | | | |
|--|---|--------------------------|--------------------------|
| r4990[0...n] | OA interface version / OA interf_vers | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: r4985 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the interface version of all the OA applications installed on the memory card/device memory. r4990[0]: Interface version of OA application 1 r4990[1]: Interface version of OA applications 2, ... | | |
| Dependency: | Refer to: r4985, r4986, r4987, r4988, r4989, r4991, r4992, r4993, r4994 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |
| Note: | Example: The value 1010100 should be interpreted as V01.01.01.00. | | |

| | | | |
|--|--|--------------------------|--------------------------|
| r4991[0...n] | OA GUID / OA GUID | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned8 | Dyn. index: r4987 | Func. diagram: - |
| | P-Group: OEM range | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the GUID of all the OA applications installed on the memory card/device memory. r4991[0...15]: GUID of OA application 1 r4991[16]: Major information of OA application 1 r4991[17]: Minor information of OA application 1 r4991[18...33]: GUID of OA application 2 r4991[34]: Major information of OA application 2 r4991[35]: Minor information of OA application 2, ... | | |
| Dependency: | Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4992, r4993, r4994 | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | |

| | | | | | |
|--|--|------------------------------|--------------------------|-----------------|-----------|
| r4992[0...n] | OA GUID ES / OA GUID ES | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 | | |
| | Data type: Unsigned8 | Dyn. index: r4987 | Func. diagram: - | | |
| | P-Group: OEM range | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the GUID of all the OA applications installed on the memory card/device memory. r4992[0...15]: GUID of OA application 1 r4992[16]: Major information of OA application 1 r4992[17]: Minor information of OA application 1 r4992[18...33]: GUID of OA application 2 r4992[34]: Major information of OA application 2 r4992[35]: Minor information of OA application 2, ... | | | | |
| Dependency: | Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4993, r4994 | | | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | | | |
| r4993[0...n] | OA activation status / OA act stat | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 | | |
| | Data type: Integer16 | Dyn. index: r4985 | Func. diagram: - | | |
| | P-Group: OEM range | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 | 1 | - | | |
| Description: | Displays the activation status of the OA applications installed on the memory card/device memory. r4993[0]: Activates OA application 1 r4993[1]: Activates OA application 2, ... | | | | |
| Value: | 0: OA application inactive 1: OA application active | | | | |
| Dependency: | Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4994 | | | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | | | |
| r4994[0...n] | OA properties / OA property | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 | | |
| | Data type: Unsigned32 | Dyn. index: r4985 | Func. diagram: - | | |
| | P-Group: OEM range | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the properties of all the OA applications installed on the memory card/device memory. r4994[0]: Version of OA application 1 r4994[1]: Version of OA application 2, ... | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Properties diagnostics bit 0 | Yes | No | - |
| | 01 | Properties diagnostics bit 1 | Yes | No | - |
| | 02 | Properties diagnostics bit 2 | Yes | No | - |
| | 03 | OEM | No | Yes | - |
| | 04 | Properties diagnostics bit 4 | Yes | No | - |
| | 05 | Properties diagnostics bit 5 | Yes | No | - |
| Dependency: | Refer to: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993 | | | | |
| Notice: | If there is no OA application, then it is not possible to access an index. | | | | |
| Note: | The parameter is only for internal Siemens diagnostics. | | | | |

2 Parameters

2.2 List of parameters

| | | | | | |
|--|---|--|--------------------------|-----------------|-----------|
| r7758[0...19] | KHP Control Unit serial number / KHP CU ser_no | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the actual serial number of the Control Unit. The individual characters of the serial number are displayed in the ASCII code in the indices. For the commissioning software, the ASCII characters are displayed uncoded. | | | | |
| Dependency: | Refer to: p7765, p7766, p7767, p7768 | | | | |
| Notice: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | | | |
| Note: | KHP: Know-How Protection | | | | |
| p7759[0...19] | KHP Control Unit reference serial number / KHP CU ref ser_no | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Sets the reference serial number for the Control Unit. Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware. | | | | |
| Dependency: | Refer to: p7765, p7766, p7767, p7768 | | | | |
| Note: | KHP: Know-How Protection - The OEM may only change this parameter for the use case "Sending encrypted SINAMICS data". - SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated. | | | | |
| r7760 | Write protection/know-how protection status / Wr_prot/KHP stat | | | | |
| All objects | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the status for the write protection and know-how protection. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Write protection active | Yes | No | - |
| | 01 | Know-how protection active | Yes | No | - |
| | 02 | Know-how protection temporarily withdrawn | Yes | No | - |
| | 03 | Know-how protection cannot be deactivated | Yes | No | - |
| | 04 | Extended copy protection is active | Yes | No | - |
| | 05 | Basic copy protection is active | Yes | No | - |
| | 06 | Trace and measuring functions for diagnostic purposes active | Yes | No | - |
| Dependency: | Refer to: p7761, p7765, p7766, p7767, p7768 | | | | |
| Note: | KHP: Know-How Protection Re bit 00: Write protection can be activated/deactivated via p7761 on the Control Unit. Re bit 01: The know-how protection can be activated by entering a password (p7766 ... p7768). | | | | |

Re bit 02:

If it has already been activated, know-how protection can be temporarily deactivated by entering the valid password in p7766. In this case, bit 1 = 0 and bit 2 = 1 offset.

Re bit 03:

Know-how protection cannot be deactivated, as p7766 is not entered in the OEM exception list (only the factory setting is possible). This bit is only set if know-how protection is active (bit 1 = 1) and p7766 has not been entered in the OEM exception list.

Re bit 04:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards/Control Units. This bit is only set if know-how protection is active and p7765 bit 00 is set.

Re bit 05:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards. This bit is only set if know-how protection is active and in p7765 bit 01 is set and not bit 00.

Re bit 06:

When know-how protection is activated, the drive data can be traced using the device trace function. This bit is only set if know-how protection is active and in p7765.2 is set.

| | | | |
|--|---|----------------------|--------------------------|
| p7761 | Write protection / Write protection | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting for activating/de-activating the write protection for adjustable parameters. | | |
| Value: | 0: Deactivate write protection 1: Activate write protection | | |
| Dependency: | Refer to: r7760 | | |
| Notice: | While write protection is active, a download is prevented; however, it is still possible to restore the factory settings. | | |
| Note: | Parameters with the "WRITE_NO_LOCK" attributes are excluded from the write protection. A product-specific list of these parameters is also available in the corresponding List Manual. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p7762 | Write protection multi-master fieldbus system access behavior / Fieldbus acc_behav | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the behavior for write protection when accessing via multi-master fieldbus systems (e.g. CAN, BACnet). | | |
| Value: | 0: Write access independent of p7761 1: Write access dependent on p7761 | | |
| Dependency: | Refer to: r7760, p7761 | | |

| | | | |
|---------------------|--|----------------------|--------------------------|
| p7763 | KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764 | | |
| All objects | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 500 | 1 |
| Description: | Sets the number of parameters for the OEM exception list (p7764[0...n]). p7764[0...n], with n = p7763 - 1 | | |

2 Parameters

2.2 List of parameters

Dependency: Refer to: p7764
Note: KHP: Know-How Protection
 Even if know-how protection is set, parameters in this list can be read and written to.

| | | | |
|--|--|--------------------------|--------------------------|
| p7764[0...n] | KHP OEM exception list / KHP OEM excep list | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: p7763 | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | [0] 7766 [1...499] 0 |

Description: OEM exception list (p7764[0...n]) for setting parameters that should be excluded from know-how protection. p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.

Refer to: p7763

Note: KHP: Know-How Protection
 Even if know-how protection is set, parameters in this list can be read and written to.

| | | | |
|--|--|--------------------------|--------------------------|
| p7764[0...n] | KHP OEM exception list / KHP OEM excep list | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: p7763 | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |

Description: OEM exception list (p7764[0...n]) for setting parameters that should be excluded from know-how protection. p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.

Refer to: p7763

Note: KHP: Know-How Protection
 Even if know-how protection is set, parameters in this list can be read and written to.

| | | | |
|--|---------------------------------------|----------------------|--------------------------|
| p7765 | KHP configuration / KHP config | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 bin |

Description: Configuration settings for know-how protection.

Re bit 00, 01:

When KHP is activated, this means that the OEM can define whether the parameters and DCC data encrypted on the memory card should be protected before using on other memory cards/Control Units.

Re bit 02:

This means that the OEM can define whether it is possible or not to trace the drive data using the device trace function although KHP is activated.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--|-----------------|-----------------|-----------|
| | 00 | Extended copy protection - linked to the memory card and CU | Yes | No | - |
| | 01 | Basic copy protection - linked to the memory card | Yes | No | - |
| | 02 | Permit trace and measuring functions for diagnostic purposes | Yes | No | - |

Dependency: Refer to: p7766, p7767, p7768

Note: KHP: Know-How Protection
 For copy protection, the serial numbers of the memory card and/or Control Unit are checked.
 The memory card copy protection and preventing data to be traced are only effective when the know-how protection has been activated.
 Re bit 00, 01:
 If both bits are inadvertently set to 1 (e.g. at the BOP), then the setting of bit 0 applies.
 There is no copy protection if both bits are set to 0.

| p7766[0...29] | KHP password input / KHP passw input | | |
|--|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Sets the password for know-how protection. Example of a password: 123aBc = 49 50 51 97 66 99 dec (ASCII characters) [0] = character 1 (e.g. 49 dec) [1] = character 2 (e.g. 50 dec) ... [5] = character 6 (e.g. 99 dec) [29] = 0 dec (completes the entry) | | |
| Dependency: | Refer to: p7767, p7768 | | |
| Notice: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. When using the STARTER commissioning software, the password should be entered using the associated dialogs. The following rules apply when entering the password: - Password entry must start with p7766[0]. - No gaps are permissible in the password. - Entering a password is completed when writing to p7766[29] (p7766[29] = 0 for passwords less than 30 characters). | | |
| Note: | KHP: Know-How Protection When reading, p7766[0...29] = 42 dec (ASCII character = "**") is displayed. Parameters with the "KHP_WRITE_NO_LOCK" attribute are not involved in the know-how protection. Parameters with the "KHP_ACTIVE_READ" attribute can be read even when know-how protection is activated. A product-specific list of these parameters is also available in the corresponding List Manual. | | |

| p7767[0...29] | KHP password new / KHP passw new | | |
|--|---|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Sets the new password for know-how protection. | | |
| Dependency: | Refer to: p7766, p7768 | | |
| Note: | KHP: Know-How Protection When reading, p7767[0...29] = 42 dec (ASCII character = "**") is displayed. | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|---|--|---|
| p7768[0...29] | KHP password confirmation / KHP passw confirm | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Confirms the new password for know-how protection. | | |
| Dependency: | Refer to: p7766, p7767 | | |
| Note: | KHP: Know-How Protection When reading, p7768[0...29] = 42 dec (ASCII character = "**") is displayed. | | |
| <hr/> | | | |
| p7769[0...20] | KHP memory card reference serial number / KHP mem ref ser_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Sets the reference serial number for the memory card. Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware. | | |
| Dependency: | Refer to: p7765, p7766, p7767, p7768 | | |
| Note: | KHP: Know-How Protection - The OEM may only change this parameter for the use case "Sending encrypted SINAMICS data". - SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated. | | |
| <hr/> | | | |
| p7770 | NVRAM action / NVRAM action | | |
| TM150, TM15DI_DO, TM31 | Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the action to be executed for NVRAM data. At the end of the action the value is automatically set to 0. | | |
| Value: | 0: Inactive 1: Load NVRAM data to parameters 2: Load parameters to NVRAM 3: Reset | | |
| Notice: | After action p7770 = 1 no more pulses may be enabled. After action p7770 = 2, it is essential that parameters are backed up (p0977 = 1) and that a warm restart is then performed (p0009 = 30, p0976 = 2, 3). This will apply the values written. | | |
| Note: | If value = 1: This action loads the NVRAM data to the parameters. If value = 2: This action loads the parameters to the NVRAM. If value = 3: This action sets parameters p7771 ... p7774 to the factory setting. It is recommended to avoid placing unnecessary load on the subsequent upload/download operation. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p7775 | NVRAM data backup/import/delete / NVRAM backup | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1, U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 17 | 0 |
| Description: | Setting to backup/import/delete NVRAM data. NVRAM data are non-volatile data in the device (e.g. fault buffer). For NVRAM data actions, the following data are excluded: - Crash diagnostics - CU operating hours counter - CU temperature - Safety logbook | | |
| Value: | 0: Inactive 1: NVRAM data backup to memory card 2: Import NVRAM data from the memory card 3: Delete NVRAM data in the device 10: Error when clearing 11: Error when backing up, memory card not available 12: Error when backing up, insufficient memory space 13: Error when backing up 14: Error when importing, memory card not available 15: Error when importing, checksum error 16: Error when importing, no NVRAM data available 17: Error when importing | | |
| Notice: | Re value = 2, 3: These actions are only possible when pulses are inhibited. | | |
| Note: | After the action has been successfully completed, the parameter is automatically set to zero. The actions importing and deleting NVRAM data immediately initiate a warm restart. If the procedure was not successfully completed, then an appropriate fault value is displayed (p7775 >= 10). | | |

| | | | |
|--|--|----------------------|--------------------------|
| p7820 | DRIVE-CLiQ component component number / DQ compo_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed. | | |
| Dependency: | Refer to: p7821, p7822, r7823 | | |

| | | | |
|--|--|----------------------|--------------------------|
| p7821 | DRIVE-CLiQ component parameter number / DQ para_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the parameter number to access a parameter of a DRIVE-CLiQ component. | | |
| Dependency: | Refer to: p7820, p7822, r7823 | | |

| | | | |
|--|---|----------------------|--------------------------|
| p7822 | DRIVE-CLiQ component parameter index / DQ para_index | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | Sets the parameter index to access a parameter of a DRIVE-CLiQ component. | | |
| Dependency: | Refer to: p7820, p7821, r7823 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r7823 | DRIVE-CLiQ component read parameter value / Read DQ value | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the parameter value read from the DRIVE-CLiQ component. | | |
| Dependency: | Refer to: p7820, p7821, p7822 | | |

| | | | |
|--|---|----------------------|--------------------------|
| r7825[0...6] | DRIVE-CLiQ component versions / DQ comp version | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the firmware and EEPROM versions of the DRIVE-CLiQ component selected using p7828[1]. | | |
| Index: | [0] = Reference firmware version [1] = Actual firmware version [2] = EEPROM0 version [3] = EEPROM1 version [4] = EEPROM2 version [5] = EEPROM3 version [6] = EEPROM4 version | | |
| Dependency: | Refer to: p7828 | | |
| Note: | Re index 0: Firmware version on the memory card/device memory. Re index 1: Actual firmware version of the DRIVE-CLiQ component. Re index 2 ... 6: Actual EEPROM version of the DRIVE-CLiQ component. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p7826 | Firmware update automatic / FW update auto | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 1 |
| Description: | Sets the behavior for the automatic firmware update of the DRIVE-CLiQ components. | | |

| | |
|----------------|---|
| Value: | 0: Deactivated 1: Upgrade and downgrade 2: Upgrade |
| Notice: | If this parameter is changed, it only becomes effective the next time that the drive system boots. |
| Note: | The firmware is automatically updated when the system boots. The boot can take several minutes. After the update has been completed, it is necessary to carry out a new POWER ON (power-down/power-up) for the components involved. The firmware update procedure is displayed as follows: Control Unit (LED RDY): Flashes yellow with 0.5 Hz --> firmware is being updated. Flashing yellow with 2 Hz --> POWER ON is required for the components involved. Components involved: Flashing red/green with 0.5 Hz --> firmware is being updated. Flashing red/green with 2 Hz --> POWER ON of the components is required. Only components from firmware version 2.5 support the red/green flashing at 2 Hz. |

| | | | |
|--|---|--|---|
| r7827 | Firmware update progress display / FW update progress | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [%] | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Displays the progress when updating the firmware of the DRIVE-CLiQ components. | | |

| | | | |
|--|--|--|---|
| p7828[0...1] | Firmware download component number / FW downl comp_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 399 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the component number for the required DRIVE-CLiQ component. Index 0: Component number of the DRIVE-CLiQ component for which a firmware download is to be made. Index 1: Component number of the DRIVE-CLiQ component for which the reference firmware version, saved in r7825 on the memory card/device memory, is to be displayed. | | |
| Index: | [0] = Firmware download [1] = Reference firmware version | | |
| Dependency: | Refer to: p0121, p0141, p0151, p7829 | | |
| Note: | For p7828[0] = 399, the firmware for all of the existing components is downloaded. The firmware download is started with p7829 = 1. | | |

| | | | |
|--|---|--|---|
| p7829 | Activate firmware download / FW download act | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min -1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 999 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Activating the firmware download for the DRIVE-CLiQ components specified in p7828. | | |

2 Parameters

2.2 List of parameters

1: Activate download.
 -1: activate the download and carry out a reset.
 0: Download successfully completed.
 > 1: Fault code
 011: DRIVE-CLiQ component has detected a checksum error.
 015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file.
 018: Firmware version is too old and is not accepted by the component.
 019: Firmware version is not suitable for the hardware release of the component.
 101: After several communication attempts, no response from the DRIVE-CLiQ component.
 140: Firmware file for the DRIVE-CLiQ component not available on the memory card/device memory.
 143: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.
 144: When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card/device memory is defective.
 145: Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.
 156: Component with the specified component number is not available.
 Additional values:
 Only for internal Siemens troubleshooting.
Dependency: Refer to: p7828
Note: p7829 is automatically set to 0 after the firmware has been successfully downloaded.
 The new firmware only becomes active at the next system run-up.

p7830

Telegram diagnostics selection / Telegr diag sel

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

| | | |
|------------------------------|----------------------|--------------------------|
| Can be changed: T | Calculated: - | Access level: 4 |
| Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| P-Group: - | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| 0 | 3 | 0 |

Description: Selects a telegram whose contents should be shown in r7831 ... r7836.

Value:
 0: Reserved
 1: First cyclic receive telegram sensor 1
 2: First cyclic receive telegram sensor 2
 3: First cyclic receive telegram sensor 3

Dependency: Refer to: r7831, r7832, r7833, r7834, r7835, r7836

r7831[0...23]

Telegram diagnostics signals / Telegr diag sig

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

| | | |
|------------------------------|----------------------|--------------------------|
| Can be changed: - | Calculated: - | Access level: 4 |
| Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| P-Group: - | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| 0 | 15157 | - |

Description: Displays the signals contained in the selected telegram (p7830).

Value:
 0: UNUSED
 1: UNKNOWN
 102: SAPAR_ID_DSA_ALARM
 110: SAPAR_ALARMBITS_FLOAT_0
 111: SAPAR_ALARMBITS_FLOAT_1
 112: SAPAR_ALARMBITS_FLOAT_2
 113: SAPAR_ALARMBITS_FLOAT_3
 114: SAPAR_ALARMBITS_FLOAT_4
 115: SAPAR_ALARMBITS_FLOAT_5
 10500: ENC_ID_TIME_PRETRIGGER
 10501: ENC_ID_TIME_SEND_TELEG_1
 10502: ENC_ID_TIME_CYCLE_FINISHED
 10503: ENC_ID_TIME_DELTA_FUNMAN

10504: ENC_ID_SUBTRACE_CALCTIMES
10505: ENC_ID_SYNO_PERIOD
10516: ENC_ID_ADC_TRACK_A
10517: ENC_ID_ADC_TRACK_B
10518: ENC_ID_ADC_TRACK_C
10519: ENC_ID_ADC_TRACK_D
10520: ENC_ID_ADC_TRACK_A_SAFETY
10521: ENC_ID_ADC_TRACK_B_SAFETY
10523: ENC_ID_ADC_TEMP_1
10524: ENC_ID_SUBTRACE_TRACK_A
10525: ENC_ID_SUBTRACE_TRACK_B
10526: ENC_ID_ADC_TRACK_R
10532: ENC_ID_TRACK_AB_X
10533: ENC_ID_TRACK_AB_Y
10534: ENC_ID_OFFSET_CORR_AB_X
10535: ENC_ID_OFFSET_CORR_AB_Y
10536: ENC_ID_AB_ABS_VALUE
10537: ENC_ID_TRACK_CD_X
10538: ENC_ID_TRACK_CD_Y
10539: ENC_ID_TRACK_CD_ABS
10542: ENC_ID_AB_RAND_X
10543: ENC_ID_AB_RAND_Y
10544: ENC_ID_AB_RAND_ABS_VALUE
10545: ENC_ID_SUBTRACE_ABS_ARRAY
10546: ENC_ID_PROC_OFFSET_0
10547: ENC_ID_PROC_OFFSET_4
10550: ENC_ID_SUBTRACE_AMPL
10563: ENC_ID_ENCODER_TEMP
10564: ENC_SELFTEMP_ACT
10565: ENC_ID_MOTOR_TEMP_TOP
10566: ENC_ID_MOTOR_TEMP_1
10567: ENC_ID_MOTOR_TEMP_1_COD
10569: ENC_ID_MOTOR_TEMP_2_COD
10571: ENC_ID_MOTOR_TEMP_3_COD
10580: ENC_ID_RESISTANCE_1
10590: ENC_ID_ANA_CHAN_A
10591: ENC_ID_ANA_CHAN_B
10592: ENC_ID_ANA_CHAN_X
10593: ENC_ID_ANA_CHAN_Y
10596: ENC_ID_AB_ANGLE
10597: ENC_ID_CD_ANGLE
10598: ENC_ID_MECH_ANGLE_HI
10599: ENC_ID_RM_POS_PHI_COMMU
10600: ENC_ID_PHI_COMMU
10601: ENC_ID_SUBTRACE_ANGLE
10612: ENC_ID_DIFF_CD_INC
10613: ENC_ID_RM_POS_PHI_COMMU_RFG
10628: ENC_ID_MECH_ANGLE
10629: ENC_ID_MECH_RM_POS
10644: ENC_ID_INIT_VECTOR
10645: FEAT_INIT_VECTOR
10660: ENC_ID_SENSOR_STATE
10661: ENC_ID_BASIC_SYSTEM
10662: ENC_ID_REFMARK_STATUS
10663: ENC_ID_DSA_STATUS1_SENSOR
10664: ENC_ID_DSA_RMSTAT_HANDSHAKE
10665: ENC_ID_DSA_CONTROL1_SENSOR
10667: ENC_ID_SAFETY
10669: ENC_ID_SUB_STATE
10676: ENC_ID_COUNTCORR_SAW_VALUE
10677: ENC_ID_COUNTCORR_ABS_VALUE
10678: ENC_ID_SAWTOOTH_CORR
10680: ENC_ID_SM_XIST1_CORRECTED_QUADRANTS
10692: ENC_ID_RESISTANCE_CALIB_INSTANT
10693: ENC_ID_SERPROT_POS
10700: ENC_ID_AB_VIOL_COUNT

2 Parameters

2.2 List of parameters

10723: ENC_ID_ACT_STATEMACHINE_FUNCTION
 10724: ENC_ID_ACT_FUNMAN_FUNCTION
 10725: ENC_ID_SAFETY_COUNTER_CRC
 10728: ENC_ID_SUBTRACE_AREA
 10740: ENC_ID_POS_ABSOLUTE
 10741: ENC_ID_POS_REFMARK
 10742: ENC_ID_SAWTOOTH
 10743: ENC_ID_SAFETY_PULSE_COUNTER
 10745: ENC_ID_EIU_ZEROCTRL
 10756: ENC_ID_DSA_ACTUAL_SPEED
 10757: ENC_ID_SPEED_DEV_ABS
 10772: ENC_ID_DSA_POS_XIST1
 10788: ENC_ID_AB_CROSS_CORR
 10789: ENC_ID_AB_GAIN_Y_CORR
 10790: ENC_ID_AB_PEAK_CORR
 11825: ENC_ID_RES_TRANSITION_RATIO
 11826: ENC_ID_RES_PHASE_SHIFT
 15150: ENC_ID_SPINDLE_S1_RAW
 15151: ENC_ID_SPINDLE_S4_RAW
 15152: ENC_ID_SPINDLE_S5_RAW
 15155: ENC_ID_SPINDLE_S1_CAL
 15156: ENC_ID_SPINDLE_S4_CAL
 15157: ENC_ID_SPINDLE_S5_CAL

r7832[0...23]

Telegram diagnostics numerical format / Teleg diag format

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

| | | |
|------------------------------|----------------------|--------------------------|
| Can be changed: - | Calculated: - | Access level: 4 |
| Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| P-Group: - | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| -1 | 14 | - |

Description:

Displays the original numerical format of the signals contained in the telegram.
 The associated signal number is represented in the appropriate index of r7831.

Value:

-1: Unknown
 0: Boolean
 1: Signed 1 byte
 2: Signed 2 byte
 3: Signed 4 byte
 4: Signed 8 byte
 5: Unsigned 1 byte
 6: Unsigned 2 byte
 7: Unsigned 4 byte
 8: Unsigned 8 byte
 9: Float 4 byte
 10: Double 8 byte
 11: mm dd yy HH MM SS MS DOW
 12: ASCII string
 13: SINUMERIK frame type
 14: SINUMERIK axis type

Dependency:

Refer to: r7831

r7833[0...23]

Telegram diagnostics unsigned / Teleg diag unsign

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

| | | |
|------------------------------|----------------------|--------------------------|
| Can be changed: - | Calculated: - | Access level: 4 |
| Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| P-Group: - | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| - | - | - |

Description:

Parameter to display a DSA signal in the unsigned-integer format.
 The associated signal number is represented at the appropriate index in r7831.

| r7834[0...23] | Telegram diagnostics signed / Telegr diag sign | | |
|---|---|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Parameter to display a DSA signal in the signed-integer format. The associated signal number is represented at the appropriate index in r7831. | | |

| r7835[0...23] | Telegram diagnostics real / Telegr diag real | | |
|---|--|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Parameter to display a DSA signal in the float format. The associated signal number is represented at the appropriate index in r7831. | | |

| r7836[0...23] | Telegram diagnostics unit / Telegr diag unit | | |
|---|---|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1 | 147 | - |
| Description: | Displays the units of a DSA signal. The associated signal number is represented at the appropriate index in r7831. | | |

| | |
|---------------|--|
| Value: | -1: Unknown |
| | 0: None |
| | 1: Millimeter or degrees |
| | 2: Millimeter |
| | 3: Degrees |
| | 4: mm/min or RPM |
| | 5: Millimeter / min |
| | 6: Revolutions / min |
| | 7: m/sec ² or U/sec ² |
| | 8: m/sec ² |
| | 9: U/sec ² |
| | 10: m/sec ³ or U/sec ³ |
| | 11: m/sec ³ |
| | 12: U/sec ³ |
| | 13: sec |
| | 14: 16.667 / sec |
| | 15: mm/revolution |
| | 16: ACX_UNIT_COMPENSATION_CORR |
| | 18: Newton |
| | 19: Kilogram |
| | 20: Kilogram meter ² |
| | 21: Percent |
| | 22: Hertz |
| | 23: Volt peak-to-peak |
| | 24: Amps peak-to-peak |
| | 25: Degrees Celsius |
| | 26: Degrees |
| | 28: Millimeter or degrees |

2 Parameters

2.2 List of parameters

| | |
|------|-------------------------------------|
| 29: | Meters / minute |
| 30: | Meters / second |
| 31: | ohm |
| 32: | Millihenry |
| 33: | Newton meter |
| 34: | Newton meter/Ampere |
| 35: | Volt/Ampere |
| 36: | Newton meter second / rad |
| 38: | 31.25 microseconds |
| 39: | Microseconds |
| 40: | Milliseconds |
| 42: | Kilowatt |
| 43: | Micro amps peak-to-peak |
| 44: | Volt seconds |
| 45: | Microvolt seconds |
| 46: | Micro newton meters |
| 47: | Amps / volt seconds |
| 48: | Per mille |
| 49: | Hertz / second |
| 53: | Micrometer or millidegrees |
| 54: | Micrometer |
| 55: | Millidegrees |
| 59: | Nanometer |
| 61: | Newton/Amps |
| 62: | Volt seconds/meter |
| 63: | Newton seconds/meter |
| 64: | Micronewton |
| 65: | Liters / minute |
| 66: | Bar |
| 67: | Cubic centimeters |
| 68: | Millimeter / volt minute |
| 69: | Newton/Volt |
| 80: | Millivolts peak-to-peak |
| 81: | Volt rms |
| 82: | Millivolts rms |
| 83: | Amps rms |
| 84: | Micro amps rms |
| 85: | Micrometers / revolution |
| 90: | Tenths of a second |
| 91: | Hundredths of a second |
| 92: | 10 microseconds |
| 93: | Pulses |
| 94: | 256 pulses |
| 95: | Tenths of a pulse |
| 96: | Revolutions |
| 97: | 100 revolutions / minute |
| 98: | 10 revolutions / minute |
| 99: | 0.1 revolutions / minute |
| 100: | Thousandth revolution / minute |
| 101: | Pulses / second |
| 102: | 100 pulses / second |
| 103: | 10 revolutions / (minute x seconds) |
| 104: | 10000 pulses/second^2 |
| 105: | 0.1 Hertz |
| 106: | 0.01 Hertz |
| 107: | 0.1 / seconds |
| 108: | Factor 0.1 |
| 109: | Factor 0.01 |
| 110: | Factor 0.001 |
| 111: | Factor 0.0001 |
| 112: | 0.1 Volt peak-to-peak |
| 113: | 0.1 Volt peak-to-peak |
| 114: | 0.1 amps peak-to-peak |
| 115: | Watt |
| 116: | 100 Watt |
| 117: | 10 Watt |

| | |
|------|------------------------------|
| 118: | 0.01 percent |
| 119: | 1/second^3 |
| 120: | 0.01 percent/millisecond |
| 121: | Pulses / revolution |
| 122: | Microfarads |
| 123: | Milliohm |
| 124: | 0.01 Newton meter |
| 125: | Kilogram millimeter^2 |
| 126: | Rad / (seconds newton meter) |
| 127: | Henry |
| 128: | Kelvin |
| 129: | Hours |
| 130: | Kilohertz |
| 131: | Milliamperes peak-to-peak |
| 132: | Millifarads |
| 133: | Meter |
| 135: | Kilowatt hours |
| 136: | Percent |
| 137: | Amps / Volt |
| 138: | Volt |
| 139: | Millivolts |
| 140: | Microvolts |
| 141: | Amps |
| 142: | Milliamperes |
| 143: | Micro amps |
| 144: | Milliamperes rms |
| 145: | Millimeter |
| 146: | Nanometer |
| 147: | Joules |

r7843[0...20]**Memory card serial number / Mem_card ser.no**

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned8**Dyn. index:** -**Func. diagram:** -**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the actual serial number of the memory card.

The individual characters of the serial number are displayed in the ASCII code in the indices.

Dependency:

Refer to: p9920, p9921

Notice:

An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note:

Example: displaying the serial number for a memory card:

r7843[0] = 49 dec --> ASCII characters = "1" --> serial number, character 1

r7843[1] = 49 dec --> ASCII characters = "1" --> serial number, character 2

r7843[2] = 49 dec --> ASCII characters = "1" --> serial number, character 3

r7843[3] = 57 dec --> ASCII characters = "9" --> serial number, character 4

r7843[4] = 50 dec --> ASCII characters = "2" --> serial number, character 5

r7843[5] = 51 dec --> ASCII characters = "3" --> serial number, character 6

r7843[6] = 69 dec --> ASCII characters = "E" --> serial number, character 7

r7843[7] = 0 dec --> ASCII characters = " " --> serial number, character 8

...

r7843[19] = 0 dec --> ASCII characters = " " --> serial number, character 20

r7843[20] = 0 dec

Serial number = 111923E

| | | | |
|--|--|--|---|
| r7844[0...2] | Device memory firmware version / Dev_mem FW | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the version of the firmware stored on the device memory. | | |
| Index: | [0] = Internal [1] = External [2] = Parameter backup | | |
| Note: | Re index 0: Displays the internal firmware version (e.g. 01402315). This firmware version is the version of the device memory and not the CU firmware (r0018), however, normally they have the same versions. Re index 1: Displays the external firmware version (e.g. 01040000 -> 1.4). Re index 2: Displays the internal CU firmware version (r0018) of the parameter backup. With this CU firmware version, the parameter backup was saved, which was used when powering up. | | |
| r7850[0...n] | Drive object operational/not operational / DO ready for oper | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Integer16 P-Group: - Not for motor type: - Min -32786 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 32767 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed). 0: Drive object not ready for operation 1: Drive object ready for operation | | |
| p7852 | Number of indices for r7853 / Qty indices r7853 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 200 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Displays the number of indices for r7853[0...n]. This corresponds to the number of DRIVE-CLiQ components that are in the target topology. | | |
| Dependency: | Refer to: r7853 | | |
| Note: | The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up. | | |

| | | | |
|--|---|---|---|
| r7853[0...n] | Component available/not available / Comp present | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min 0000 hex | Calculated: - Dyn. index: p7852 Unit group: - Scaling: - Max FFFF hex | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the component and whether this component is currently present. High byte: Component number Low byte: 0/1 (not available/available) | | |
| Dependency: | Refer to: p7852 | | |
| Note: | The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up. | | |
| p7857 | Sub-boot mode / Sub-boot mode | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the mode for the sub-boot. | | |
| Value: | 0: Sub-boot manual 1: Sub-boot automatic | | |
| Note: | For p7857 = 0 (manual sub-boot) the following applies: The parameter should be set to 1 to start the sub-boot. | | |
| p7859[0...199] | Component number global / Comp_no global | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min -32786 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 32767 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Sets the global and unique component number in a drive system with several Control Units. Each index of the parameter corresponds to a possible local component number on the corresponding Control Unit. The indices are allocated to the global component numbers as follows: p7859[0]: Not used p7859[1]: Sets the global component number for the local component number 1 p7859[2]: Sets the global component number for the local component number 2 ... p7859[199]: Sets the global component number for the local component number 199 | | |
| Notice: | This parameter is preferably set via suitable commissioning software (e.g. UpdateAgent, STARTER, SCOUT). Changing the parameter via the AOP (Advanced Operator Panel) or BOP (Basic Operator Panel) can destroy a valid unique setting. | | |
| Note: | The parameter is not influenced by setting the factory setting. | | |

| | | | |
|--|---|--|---|
| r7867 | Status/configuration changes global / Changes global | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays status and configuration changes of all of the drive objects in the complete unit. When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented. | | |
| Dependency: | Refer to: r7868, r7869, r7870 | | |
| r7868[0...24] | Configuration changes drive object reference / Config_chng DO ref | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Reference to the drive objects whose configuration has changed. Index 0: When changing one of the following indices, then the value in this index is increased. Index 1...n: The drive object with object number in p0101[n-1] has changed its configuration. Example: r7868[3] was incremented since the last time it was read. --> the configuration of the drive object with object number in p0101[2] was changed. | | |
| Index: | [0] = Sum of the following indices [1] = Object number in p0101[0] [2] = Object number in p0101[1] [3] = Object number in p0101[2] [4] = Object number in p0101[3] [5] = Object number in p0101[4] [6] = Object number in p0101[5] [7] = Object number in p0101[6] [8] = Object number in p0101[7] [9] = Object number in p0101[8] [10] = Object number in p0101[9] [11] = Object number in p0101[10] [12] = Object number in p0101[11] [13] = Object number in p0101[12] [14] = Object number in p0101[13] [15] = Object number in p0101[14] [16] = Object number in p0101[15] [17] = Object number in p0101[16] [18] = Object number in p0101[17] [19] = Object number in p0101[18] [20] = Object number in p0101[19] [21] = Object number in p0101[20] [22] = Object number in p0101[21] [23] = Object number in p0101[22] [24] = Object number in p0101[23] | | |
| Dependency: | Refer to: p0101, r7867, r7871 | | |

| | | | |
|--|---|----------------------|--------------------------|
| r7869[0...24] | Status changes drive object reference / Status_chng DO ref | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Reference to the drive objects whose status has changed.
Index 0:
When changing one of the following indices, then the value in this index is increased.
Index 1...n:
The drive object with object number in p0101[n-1] has changed its status.
Example:
r7868[3] was incremented since the last time it was read.
--> the status of the drive object with object number in p0101[2] was changed.

Index:
[0] = Sum of the following indices
[1] = Object number in p0101[0]
[2] = Object number in p0101[1]
[3] = Object number in p0101[2]
[4] = Object number in p0101[3]
[5] = Object number in p0101[4]
[6] = Object number in p0101[5]
[7] = Object number in p0101[6]
[8] = Object number in p0101[7]
[9] = Object number in p0101[8]
[10] = Object number in p0101[9]
[11] = Object number in p0101[10]
[12] = Object number in p0101[11]
[13] = Object number in p0101[12]
[14] = Object number in p0101[13]
[15] = Object number in p0101[14]
[16] = Object number in p0101[15]
[17] = Object number in p0101[16]
[18] = Object number in p0101[17]
[19] = Object number in p0101[18]
[20] = Object number in p0101[19]
[21] = Object number in p0101[20]
[22] = Object number in p0101[21]
[23] = Object number in p0101[22]
[24] = Object number in p0101[23]

Dependency: Refer to: p0101, r7867, r7872

| | | | |
|--|--|----------------------|--------------------------|
| r7870[0...7] | Configuration changes global / Config_chng global | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the configuration changes of all of the drive objects in the complete unit.

Index:
[0] = Sum of the following indices
[1] = r7871[0] of a drive object
[2] = p0101 or r0102
[3] = PROFIBUS configuration (p0978)
[4] = DRIVE-CLiQ actual topology (r9900 or r9901)
[5] = DRIVE-CLiQ target topology (r9902 or r9903)
[6] = DRIVE-CLiQ sockets (p0109)
[7] = OA applications

2 Parameters

2.2 List of parameters

Dependency: Refer to: r7867, r7871

Note: Re index 0:
When changing one of the following indices, then the value in this index is incremented.
Re index 1:
Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented.
Re index 2:
Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented.
Re index 3:
PROFIBUS configuration unit. When changing p0978, the value in this index is incremented.
Re index 4:
DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented.
Re index 5:
DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented.
Re index 6:
DRIVE-CLiQ sockets. When changing p0109, the value in this index is incremented.
Re index 7:
OA applications. When changing OA applications, the value in this index is incremented.

| r7871[0...15] | Configuration changes drive object / Config_chng DO | | |
|---|--|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the configuration changes on the drive object.

Index: [0] = Sum of the following indices
[1] = p0010, p0107, p0108
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/de-activate drive object
[6] = Data backup required
[7] = Reserved
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Reserved

Dependency: Refer to: r7868, r7870

Note: Re index 0:
When changing one of the following indices, then the value in this index is incremented.
Re index 1:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.
Re index 2:
Drive object name. When changing p0199, the value in this index is incremented.
Re index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.
Re index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.
Re index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

Re index 12:

Drive object configuration. When activating/deactivating write protection or know-how protection, the value in this index is incremented.

r7871[0...15]

Configuration changes drive object / Config_chng DO

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 4

Data type: Unsigned32

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the configuration changes on the drive object.

Index:

[0] = Sum of the following indices
 [1] = p0010, p0107, p0108, p0171, p0172 or p0173
 [2] = Drive object name (p0199)
 [3] = Structure-relevant parameters (e.g. p0180)
 [4] = BICO interconnections
 [5] = Activate/de-activate drive object
 [6] = Data backup required
 [7] = Activate/de-activate component
 [8] = Reference or changeover parameters (e.g. p2000)
 [9] = Parameter count through Drive Control Chart (DCC)
 [10] = p0107, p0108, p0171, p0172 or p0173
 [11] = Reserved
 [12] = Write protection and know-how protection status
 [13] = Reserved
 [14] = Reserved
 [15] = Enc type (p0400)

Dependency:

Refer to: r7868, r7870

Note:

Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 2:

Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

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Re index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

Re index 7:

Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

Re index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

Re index 15:

Encoder configuration. When changing p0400, the value in this index is incremented.

r7872[0...3]

Drive object status changes / DO stat_chng

All objects

Can be changed: -

Calculated: -

Access level: 4

Data type: Unsigned32

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the status changes on the drive object.

Index:

[0] = Sum of the following indices

[1] = Faults (r0944)

[2] = Alarms (r2121)

[3] = Safety messages (r9744)

Dependency:

Refer to: r7869

Note:

Re index 0:

When changing one of the following indices, then the value in this index is incremented.

Re index 1:

Drive object faults. When changing r0944, the value in this index is incremented.

Re index 2:

Drive object alarms. When changing r2121, the value in this index is incremented.

Re index 3:

Drive object safety messages. When changing r9744, the value in this index is incremented.

p7900[0...23]

Drive objects priority / DO priority

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: U, T

Calculated: -

Access level: 4

Data type: Unsigned16

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

65535

0

Description:

Sets the priority for processing the existing drive objects in the system.

The parameter enables a free sequence to be set for processing the drive objects. For this purpose all the drive object numbers existing in the system have to be written in the desired sequence into the corresponding indices of the parameter. After re-booting this sequence will be effective without a plausibility check.

With the factory setting the following priorities regarding processing are applicable:

- The drive objects are pre-sorted according to type as follows: CU_DC, DC_CTRL, TM

- If they are of the same type, they are sorted in ascending order according to their drive object number, i.e. the lower the number, the higher the priority for processing.

| | |
|---------------|--|
| Index: | [0] = Drive object number Control Unit |
| | [1] = Drive object number object 1 |
| | [2] = Drive object number object 2 |
| | [3] = Drive object number object 3 |
| | [4] = Drive object number object 4 |
| | [5] = Drive object number object 5 |
| | [6] = Drive object number object 6 |
| | [7] = Drive object number object 7 |
| | [8] = Drive object number object 8 |
| | [9] = Drive object number object 9 |
| | [10] = Drive object number object 10 |
| | [11] = Drive object number object 11 |
| | [12] = Drive object number object 12 |
| | [13] = Drive object number object 13 |
| | [14] = Drive object number object 14 |
| | [15] = Drive object number object 15 |
| | [16] = Drive object number object 16 |
| | [17] = Drive object number object 17 |
| | [18] = Drive object number object 18 |
| | [19] = Drive object number object 19 |
| | [20] = Drive object number object 20 |
| | [21] = Drive object number object 21 |
| | [22] = Drive object number object 22 |
| | [23] = Drive object number object 23 |

Notice: This parameter may only be used by qualified service personnel.

Note: If the same drive object numbers are used and if the existing drive object numbers in the system are entered incompletely, the content of this parameter is ignored entirely. The behavior as with factory setting will then become effective.

r7901[0...81] Sampling times / t_{sample}

| | | | |
|--|-----------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [µs] | - [µs] | - [µs] |

Description: Displays the sampling times currently present on the drive unit.
r7901[0...63]: sampling times of hardware time slices.
r7901[64...82]: sampling times of software time slices.
r7901[x] = 0 means that in the associated time slice, no methods have been registered.

Note: The basis for the software time slices is T_{NRK} = p7901[15].

r7903 Hardware sampling times still assignable / HW t_{samp} free

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of hardware sampling times that can still be assigned.
These free sampling times can be used by OA applications such as DCC or FBLOCKS.

Note: OA: Open Architecture

| | | | |
|--|--|----------------------|--------------------------|
| p8550 | AOP LOCAL/REMOTE / AOP LOCAL/REMOTE | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 1001 bin |

Description: Setting for saving the actual configuration of the Advanced Operator Panel (AOP).

| | | | | | |
|-------------------|------------|--------------------------|-----------------|-----------------|-----------|
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | LOCAL save | Yes | No | - |
| | 01 | Start in LOCAL | Yes | No | - |
| | 02 | Change in oper | Yes | No | - |
| | 03 | OFF acts like OFF1 | Yes | No | - |
| | 04 | OFF acts like OFF2 | Yes | No | - |
| | 05 | OFF acts like OFF3 | Yes | No | - |
| | 06 | Reserved | Yes | No | - |
| | 07 | CW/CCW active | Yes | No | - |
| | 08 | Jog active | Yes | No | - |
| | 09 | Save speed setpoint | Yes | No | - |
| | 14 | Inhibit operation | Yes | No | - |
| | 15 | Inhibit parameterization | Yes | No | - |

| | | | |
|----------------------|--------------------------------------|----------------------|--------------------------|
| r8570[0...39] | Macro drive object / Macro DO | | |
| All objects | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the macro file saved in the appropriate directory on the memory card/device memory.

Dependency: Refer to: p0015

Note: For a value = 9999999, the following applies: The read operation is still running.

| | | | |
|---|---|----------------------|--------------------------|
| r8571[0...39] | Macro Binector Input (BI) / Macro BI | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: Refer to: p0700

Note: For a value = 9999999, the following applies: The read operation is still running.

| | | | |
|---|---|----------------------|--------------------------|
| r8572[0...39] | Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: Refer to: p1000

Note: For a value = 9999999, the following applies: The read operation is still running.

| | | | |
|---|---|--|---|
| r8573[0...39] | Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the ACX file saved in the appropriate directory in the non-volatile memory. | | |
| Dependency: | Refer to: p1500 | | |
| Note: | For a value = 9999999, the following applies: The read operation is still running. | | |
| r8585 | Macro execution actual / Macro executed | | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the macro currently being executed on the drive object. | | |
| Dependency: | Refer to: p0015, p0700, p1000, p1500, r8570, r8571, r8572, r8573 | | |
| p8805 | Identification and maintenance 4 configuration / I&M 4 config | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the configuration for the content of identification and maintenance 4 (I&M 4, p8809). | | |
| Value: | 0: Standard value for I&M 4 (p8809) 1: User value for I&M 4 (p8809) | | |
| Dependency: | For p8805 = 0, if the user writes at least one value in p8809[0...53], then p8805 is automatically set to = 1. When p8805 is reset = 0, then the content of the factory setting is set in p8809. | | |
| Note: | Re p8805 = 0: PROFINET I&M 4 (p8809) contains the information for the SI change tracking. Re p8805 = 1: PROFINET I&M 4 (p8809) contains the values written by the user. | | |
| p8806[0...53] | Identification and Maintenance 1 / I&M 1 | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Parameters for the PROFINET data set "Identification and Maintenance 1" (I&M 1). This information is known as "System identifier" and "Location identifier". | | |
| Dependency: | Refer to: p8807, p8808 | | |
| Notice: | Only characters belonging to the standard ASCII character set may be used (32 dec to 126 dec). | | |

2 Parameters

2.2 List of parameters

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Re p8806[0...31]:
System identifier.
Re p8806[32...53]:
Location identifier.

p8807[0...15] Identification and Maintenance 2 / I&M 2

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | |

Description: Parameters for the PROFINET data set "Identification and Maintenance 2" (I&M 2).
This information is known as "Installation date".

Dependency: Refer to: p8806, p8808

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Re p8807[0...15]:
Dates of installation or first commissioning of the (ASCII) device with the following format options.
YYYY-MM-DD
or
YYYY-MM-DD hh:mm
- YYYY: year
- MM: month 01 ... 12
- DD: day 01 ... 31
- hh: hours 00 ... 23
- mm: minutes 00 ... 59
Separators must be placed between the individual data, i.e. a hyphen '-', space ' ' and colon ':'.

p8808[0...53] Identification and Maintenance 3 / I&M 3

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | |

Description: Parameters for the PROFINET data set "Identification and Maintenance 3" (I&M 3).
This information is known as "Supplementary information".

Dependency: Refer to: p8806, p8807

Notice: Only characters belonging to the standard ASCII character set may be used (32 dec to 126 dec).

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Re p8808[0...53]:
Any supplementary information and comments (ASCII).

p8809[0...53] Identification and Maintenance 4 / I&M 4

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 bin | 1111 1111 bin | 0000 bin |

Description: Parameters for the PROFINET data set "Identification and Maintenance 4" (I&M 4).
This information is known as "Signature".

Dependency: This parameter is preassigned as standard (see note).
After writing information to p8809, p8805 is automatically set to = 1.
Refer to: p8805

Note: For p8805 = 0 (factory setting) the following applies:
Parameter p8809 contains the information described below.
Re p8809[0...3]:
Contains the value from r9781[0] "SI change tracking checksum functional".
Re p8809[4...7]:
Contains the value from r9782[0] "SI change tracking time stamp checksum functional".
Re p8809[8...53]:
Reserved.

| | | | |
|--|---|---|---|
| p8811 | SINAMICS Link project selection / SINAMICS Link proj | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: C1(1) Data type: Integer16 P-Group: Communications Not for motor type: - Min 16 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 64 | Access level: 3 Func. diagram: 2198 Unit selection: - Expert list: 1 Factory setting 64 |
| Description: | Project selection for SINAMICS Link. | | |
| Value: | 16: SINAMICS Link project 16 participants 64: SINAMICS Link project 64 participants | | |
| Note: | SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3). The parameter must be set the same for all participants. A change only becomes effective after a POWER ON. The parameter is not influenced by setting the factory setting. | | |

| | | | |
|--|---|---|--|
| p8812[0...1] | SINAMICS Link settings / SINAMICS Link cl c | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: C1(1) Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2000 | Access level: 3 Func. diagram: 2198 Unit selection: - Expert list: 1 Factory setting [0] 0 [1] 2000 |
| Description: | Sets the clock cycle for SINAMICS Link. Re index 0: 0 = clock synchronous mode not activated, 1 = clock synchronous mode activated Re index 1: Possible values: 500, 1000, 2000 µs | | |
| Index: | [0] = Activate isochronous mode [1] = Bus CC [µs] | | |
| Dependency: | Refer to: p8811 | | |
| Note: | SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3). A change only becomes effective after a POWER ON. The parameter is not influenced by setting the factory setting. Re index 0: Is applicable for the synchronization of the application. The SINAMICS Link itself is always synchronous. Re index 1: The value must be set the same for all participants. When newly selecting the project p8811, p8812[1] is set to the factory setting. | | |

2 Parameters

2.2 List of parameters

For p8811 = 16, the following applies:

Min/max/factory setting: 500/500/500 µs

For p8811 = 64, the following applies:

Min/max/factory setting: 1000/2000/2000 µs

| | | | |
|--|---|---|--|
| p8829 | CBE2x remote controller number / CBE2x rem ctrl num | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: C1(1) Data type: Integer16 P-Group: Communications Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the number of remote controllers expected for PROFINET CBE20/CBE25. The "Shared Device" functionality is activated with a value = 2. The drive is being accessed by two PROFINET controllers simultaneously: - automation controller (SIMOTION or SIMATIC A-CPU). - safety controller (SIMATIC F-CPU). | | |
| Value: | 1: Automation or Safety 2: Automation and Safety | | |
| Notice: | The F CPU may only use PROFIsafe telegrams. The A CPU must be connected to enable the F CPU to gain access. Set the value = 1 to commission the F CPU individually. | | |
| Note: | A change only becomes effective after a POWER ON. | | |
| <hr/> | | | |
| p8835 | CBE20 firmware selection / CBE20 FW sel | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: C1(1) Data type: Integer16 P-Group: Communications Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 99 | Access level: 3 Func. diagram: 2198 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Selects the firmware version for the CBE20. | | |
| Value: | 1: PROFINET Device 3: SINAMICS Link 4: EtherNet/IP 99: Customer-specific from the OEM directory | | |
| Note: | A change only becomes effective after a POWER ON. The parameter is not influenced by setting the factory setting. CBE20: Communication Board Ethernet 20 | | |
| <hr/> | | | |
| p8836 | SINAMICS Link address / SINAMICS Link add | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: C1(1) Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 64 | Access level: 3 Func. diagram: 2198 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects the node address for the SINAMICS Link on the Communication Board Ethernet 20 (CBE20). p8836 = 0: SINAMICS Link de-activated p8836 = 1 ... 64: SINAMICS Link node address | | |
| Dependency: | Refer to: p8835 | | |
| Note: | SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3). A change only becomes effective after a POWER ON. The parameter is not influenced by setting the factory setting. | | |

| p8837 | | IF2 STW1.10 = 0 mode / IF2 STW1.10=0 | |
|---|--|---|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 2 |
| Description: | Sets the processing mode for PROFIdrive STW1.10 "master control by PLC". Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter. | | |
| Value: | 0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Do not freeze setpoints | | |
| Recommendation: | Do not change the setting p2037 = 0. | | |
| Note: | If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2. | | |

| p8839[0...1] | | PZD interface hardware assignment / PZD IF HW assign | |
|--|--|---|----------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2198 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 99 | 99 |
| Description: | Assignment of the hardware for cyclic communications via PZD interface 1 (IF1) and interface 2 (IF2). | | |
| Value: | 0: Inactive 1: Control Unit onboard 2: COMM BOARD 99: Automatic | | |
| Index: | [0] = Interface 1 [1] = Interface 2 | | |
| Dependency: | Refer to: p2030 | | |
| Note: | For value = 99 (automatic) the following applies: - if a COMM BOARD is not inserted, then the integrated communication interface (PROFIBUS/USS) communicates via IF1. - if a CBE20 is inserted, then PROFINET CBE20 communicates via IF1 and PROFIBUS/USS via IF2. For a value not equal to 99 (automatic) the following applies: - both indices must be set to a number not equal to 99 (automatic). A new setting only becomes effective after POWER ON, reset or download. | | |

| p8840 | | COMM BOARD monitoring time / CB t_monit | |
|--|---|--|--------------------------|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 65535000 [ms] | 20 [ms] |
| Description: | Sets the monitoring time to monitor the process data received via COMM BOARD. If, during this time, the Control Unit does not receive any process data from the COMM BOARD, then an appropriate message is output. | | |
| Note: | This monitoring function only monitors the connection between the Control Unit and COMM BOARD and not the data traffic on the fieldbus. Value = 0: Monitoring is de-activated. | | |

2 Parameters

2.2 List of parameters

| | | | | |
|--|--|--|--|-----------------|
| p8841[0...239] | COMM BOARD send configuration data / CB s config_dat | | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65535 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the send configuration data for the COMM BOARD. The setting is activated with p8842. | | | |
| Dependency: | Refer to: p8842 | | | |
| Note: | The configuration data are specific to the inserted COMM BOARD. For CBE20, the configuration data are not relevant. | | | |
| p8842 | Activate COMM BOARD send configuration / CB s config act | | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Activate a modified send configuration for COMM BOARD. With p8842 = 1, the values in p8841 are transferred to the COMM BOARD and activated. After this, p8842 is automatically set to zero. | | | |
| Dependency: | Refer to: p8841 | | | |
| Note: | For CBE20, certain SINAMICS parameters are newly evaluated and activated. An existing, cyclic bus connection is interrupted. | | | |
| r8843.0...2 | BO: IF2 PZD state / IF2 PZD state | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned8 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the PROFIdrive PZD state. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Setpoint failure | Yes | No |
| | 02 | Fieldbus oper | Yes | No |
| Dependency: | Refer to: p2044 | | | |
| Note: | When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails. | | | |
| p8844 | IF2 fault delay / IF2 F delay | | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: Communications Not for motor type: - Min 0 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 100 [s] | Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting 0 [s] | |
| Description: | Sets the delay time to initiate fault F01910 after a setpoint failure. The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction). | | | |
| Dependency: | Refer to: r2043 | | | |

| | | | |
|--|--|-----------------------|---|
| p8848 | IF2 PZD sampling time / IF2 PZD t_sample | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(3) | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1.00 [ms] | 16.00 [ms] | 4.00 [ms] |
| Description: | Sets the sampling time for the cyclic interface 2 (IF2). | | |
| Note: | The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set. For clock cycle synchronous operation, the specified bus cycle time applies (Tdp). | | |
| r8849[0...139] | COMM BOARD receive configuration data / CB r config_dat | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the receive configuration data for the COMM BOARD. | | |
| r8850[0...63] | CO: IF2 PZD receive word / IF2 PZD recv word | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2485, 9204, 9206 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 [25] = PZD 26 [26] = PZD 27 | | |

2.2 List of parameters

- [27] = PZD 28
- [28] = PZD 29
- [29] = PZD 30
- [30] = PZD 31
- [31] = PZD 32
- [32] = PZD 33
- [33] = PZD 34
- [34] = PZD 35
- [35] = PZD 36
- [36] = PZD 37
- [37] = PZD 38
- [38] = PZD 39
- [39] = PZD 40
- [40] = PZD 41
- [41] = PZD 42
- [42] = PZD 43
- [43] = PZD 44
- [44] = PZD 45
- [45] = PZD 46
- [46] = PZD 47
- [47] = PZD 48
- [48] = PZD 49
- [49] = PZD 50
- [50] = PZD 51
- [51] = PZD 52
- [52] = PZD 53
- [53] = PZD 54
- [54] = PZD 55
- [55] = PZD 56
- [56] = PZD 57
- [57] = PZD 58
- [58] = PZD 59
- [59] = PZD 60
- [60] = PZD 61
- [61] = PZD 62
- [62] = PZD 63
- [63] = PZD 64

Dependency: Refer to: r8860, r8890, r8891, r8892, r8893

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r8850 or r8860.

Note: IF2: Interface 2
PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

| | | | |
|---------------------------|---|-----------------------|----------------------------|
| r8850[0...4] | CO: IF2 PZD receive word / IF2 PZD recv word | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2491 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 | | |
| Note: | IF2: Interface 2 PZD1 to PZD2 are displayed bit-serially in r8890 to r8891. | | |

| p8851[0...63] | CI: IF2 PZD send word / IF2 PZD send word | | |
|---|---|--|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications | Calculated: - Dyn. index: - Unit group: - | Access level: 3 Func. diagram: 2487, 9208 Unit selection: - |
| | Not for motor type: - Min - | Scaling: 4000H Max - | Expert list: 1 Factory setting 0 |
| Description: | Selects the PZD (actual values) to be sent via interface 2 in the word format. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 [25] = PZD 26 [26] = PZD 27 [27] = PZD 28 [28] = PZD 29 [29] = PZD 30 [30] = PZD 31 [31] = PZD 32 [32] = PZD 33 [33] = PZD 34 [34] = PZD 35 [35] = PZD 36 [36] = PZD 37 [37] = PZD 38 [38] = PZD 39 [39] = PZD 40 [40] = PZD 41 [41] = PZD 42 [42] = PZD 43 [43] = PZD 44 [44] = PZD 45 [45] = PZD 46 [46] = PZD 47 [47] = PZD 48 [48] = PZD 49 [49] = PZD 50 [50] = PZD 51 [51] = PZD 52 [52] = PZD 53 [53] = PZD 54 | | |

2 Parameters

2.2 List of parameters

[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Dependency: Refer to: p8861

Note: IF2: Interface 2

p8851[0...4] CI: IF2 PZD send word / IF2 PZD send word

TM150, TM15DI_DO,
TM31

Can be changed: U, T

Calculated: -

Access level: 3

Data type: Unsigned32 / Integer16

Dyn. index: -

Func. diagram: 2493, 9210

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: 4000H

Expert list: 1

Min

Max

Factory setting

-

-

0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF2: Interface 2

r8853[0...63] IF2 diagnostics PZD send / IF2 diag PZD send

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned16

Dyn. index: -

Func. diagram: 2487, 9208,
9210

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23

[23] = PZD 24
 [24] = PZD 25
 [25] = PZD 26
 [26] = PZD 27
 [27] = PZD 28
 [28] = PZD 29
 [29] = PZD 30
 [30] = PZD 31
 [31] = PZD 32
 [32] = PZD 33
 [33] = PZD 34
 [34] = PZD 35
 [35] = PZD 36
 [36] = PZD 37
 [37] = PZD 38
 [38] = PZD 39
 [39] = PZD 40
 [40] = PZD 41
 [41] = PZD 42
 [42] = PZD 43
 [43] = PZD 44
 [44] = PZD 45
 [45] = PZD 46
 [46] = PZD 47
 [47] = PZD 48
 [48] = PZD 49
 [49] = PZD 50
 [50] = PZD 51
 [51] = PZD 52
 [52] = PZD 53
 [53] = PZD 54
 [54] = PZD 55
 [55] = PZD 56
 [56] = PZD 57
 [57] = PZD 58
 [58] = PZD 59
 [59] = PZD 60
 [60] = PZD 61
 [61] = PZD 62
 [62] = PZD 63
 [63] = PZD 64

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p8851, p8861

Note: IF2: Interface 2

2 Parameters

2.2 List of parameters

| r8853[0...4] | | IF2 diagnostics PZD send / IF2 diag PZD send | | | |
|---------------------------|---|--|--|-----------------|-----------|
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2493 Unit selection: - Expert list: 1 Factory setting - | | |
| Description: | Displays the sent PZD (actual values) sent via interface 2. | | | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |
| Note: | IF2: Interface 2 | | | | |

| r8854 | | COMM BOARD state / CB state | | | |
|--|---|--|---|--|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | | |
| Description: | Status display for COMM BOARD. | | | | |
| Value: | 0: No initialization 1: Fatal fault 2: Initialization 3: Send configuration 4: Receive configuration 5: Non-cyclic communication 6: Cyclic communications but no setpoints (stop/no clock cycle) 255: Cyclic communication | | | | |

| r8858[0...39] | | COMM BOARD read diagnostics channel / CB diag_chan read | | | |
|--|---|--|---|--|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | | |
| Description: | Displays the COMM BOARD diagnostics data. | | | | |

Note: The display depends on the COMM BOARD being used.
 Example for CBE20:
 r8858[0] = 4201 --> Siemens CBE20
 r8858[1] = 1 --> firmware type = PROFINET device (see p8835)
 r8858[2] = x --> state of cyclic communication
 r8858[3] = y --> state of the IP configuration
 r8858[4] = 1281 --> device ID 0501 hex = SINAMICS S120/S150
 r8858[5 ... 39] --> only for internal Siemens diagnostics.

| | | | |
|--|---|----------------------|--------------------------|
| r8859[0...7] | COMM BOARD identification data / CB ident data | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the COMM BOARD identification data

Index:
 [0] = Version interface structure
 [1] = Version interface driver
 [2] = Company (Siemens = 42)
 [3] = CB type
 [4] = Firmware version
 [5] = Firmware date (year)
 [6] = Firmware date (day/month)
 [7] = Firmware patch/hot fix

Note:
 Example for CBE20:
 r8859[0] = 100 --> version of the interface structure V1.00
 r8859[1] = 111 --> version of the interface driver V1.11
 r8859[2] = 42 --> SIEMENS
 r8859[3] = 0 --> CBE20
 r8859[4] = 1200 --> first part, firmware version V12.00 (second part, see index 7)
 r8859[5] = 2010 --> year 2010
 r8859[6] = 2306 --> 23rd June
 r8859[7] = 1300 --> second part, firmware version (complete version: V12.00.13.00)

| | | | |
|--|---|-----------------------|--|
| r8860[0...62] | CO: IF2 PZD receive double word / IF2 PZD rcv DW | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: 2485, 9204, 9206 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

Index:
 [0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14

[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Dependency:

Refer to: r8850

Notice:

Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.

A BICO interconnection for a single PZD can only take place either on r8850 or r8860.

A maximum of 4 indices of the "trace" function can be used.

Note:

IF2: Interface 2

| p8861[0...62] CI: IF2 PZD send double word / IF2 PZD send DW | | | |
|---|---|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Integer32 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: 4000H Max - | Access level: 3 Func. diagram: 2487, 9208, 9210 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects the PZD (actual values) to be sent via interface 2 in the double word format. | | |
| Index: | [0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16 [15] = PZD 16 + 17 [16] = PZD 17 + 18 [17] = PZD 18 + 19 [18] = PZD 19 + 20 [19] = PZD 20 + 21 [20] = PZD 21 + 22 [21] = PZD 22 + 23 [22] = PZD 23 + 24 [23] = PZD 24 + 25 [24] = PZD 25 + 26 [25] = PZD 26 + 27 [26] = PZD 27 + 28 [27] = PZD 28 + 29 [28] = PZD 29 + 30 [29] = PZD 30 + 31 [30] = PZD 31 + 32 [31] = PZD 32 + 33 [32] = PZD 33 + 34 [33] = PZD 34 + 35 [34] = PZD 35 + 36 [35] = PZD 36 + 37 [36] = PZD 37 + 38 [37] = PZD 38 + 39 [38] = PZD 39 + 40 [39] = PZD 40 + 41 [40] = PZD 41 + 42 [41] = PZD 42 + 43 [42] = PZD 43 + 44 [43] = PZD 44 + 45 [44] = PZD 45 + 46 [45] = PZD 46 + 47 [46] = PZD 47 + 48 [47] = PZD 48 + 49 [48] = PZD 49 + 50 [49] = PZD 50 + 51 [50] = PZD 51 + 52 [51] = PZD 52 + 53 [52] = PZD 53 + 54 | | |

2 Parameters

2.2 List of parameters

[53] = PZD 54 + 55
 [54] = PZD 55 + 56
 [55] = PZD 56 + 57
 [56] = PZD 57 + 58
 [57] = PZD 58 + 59
 [58] = PZD 59 + 60
 [59] = PZD 60 + 61
 [60] = PZD 61 + 62
 [61] = PZD 62 + 63
 [62] = PZD 63 + 64

Dependency:

Refer to: p8851

Notice:

A BICO interconnection for a single PZD can only take place either on p8851 or p8861.

Note:

IF2: Interface 2

r8863[0...62]

IF2 diagnostics PZD send double word / IF2 diag send DW

DC_CTRL,
 DC_CTRL_R,
 DC_CTRL_R_S,
 DC_CTRL_S

Can be changed: -

Calculated: -

Access level: 3

Data type: Unsigned32

Dyn. index: -

Func. diagram: 2487

P-Group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the PZD sent via interface 2 (actual values) with double word format.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16
 [15] = PZD 16 + 17
 [16] = PZD 17 + 18
 [17] = PZD 18 + 19
 [18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27
 [26] = PZD 27 + 28
 [27] = PZD 28 + 29
 [28] = PZD 29 + 30
 [29] = PZD 30 + 31
 [30] = PZD 31 + 32
 [31] = PZD 32 + 33
 [32] = PZD 33 + 34
 [33] = PZD 34 + 35
 [34] = PZD 35 + 36
 [35] = PZD 36 + 37
 [36] = PZD 37 + 38
 [37] = PZD 38 + 39
 [38] = PZD 39 + 40
 [39] = PZD 40 + 41
 [40] = PZD 41 + 42

[41] = PZD 42 + 43
 [42] = PZD 43 + 44
 [43] = PZD 44 + 45
 [44] = PZD 45 + 46
 [45] = PZD 46 + 47
 [46] = PZD 47 + 48
 [47] = PZD 48 + 49
 [48] = PZD 49 + 50
 [49] = PZD 50 + 51
 [50] = PZD 51 + 52
 [51] = PZD 52 + 53
 [52] = PZD 53 + 54
 [53] = PZD 54 + 55
 [54] = PZD 55 + 56
 [55] = PZD 56 + 57
 [56] = PZD 57 + 58
 [57] = PZD 58 + 59
 [58] = PZD 59 + 60
 [59] = PZD 60 + 61
 [60] = PZD 61 + 62
 [61] = PZD 62 + 63
 [62] = PZD 63 + 64

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |
| | 16 | Bit 16 | ON | OFF | - |
| | 17 | Bit 17 | ON | OFF | - |
| | 18 | Bit 18 | ON | OFF | - |
| | 19 | Bit 19 | ON | OFF | - |
| | 20 | Bit 20 | ON | OFF | - |
| | 21 | Bit 21 | ON | OFF | - |
| | 22 | Bit 22 | ON | OFF | - |
| | 23 | Bit 23 | ON | OFF | - |
| | 24 | Bit 24 | ON | OFF | - |
| | 25 | Bit 25 | ON | OFF | - |
| | 26 | Bit 26 | ON | OFF | - |
| | 27 | Bit 27 | ON | OFF | - |
| | 28 | Bit 28 | ON | OFF | - |
| | 29 | Bit 29 | ON | OFF | - |
| | 30 | Bit 30 | ON | OFF | - |
| | 31 | Bit 31 | ON | OFF | - |

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF2: Interface 2

2 Parameters

2.2 List of parameters

| r8867[0...1] | IF2 PZD maximum interconnected / IF2 PZDmaxIntercon | | |
|--|---|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Display for the maximum interconnected PZD in the receive/send direction Index 0: receive (r8850, r8860) Index 1: send (p8851, p8861) | | |

| p8870[0...15] | SINAMICS Link receive telegram word PZD / Recv link word | | |
|---|---|---|---|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20), DC_CTRL (PROFINET CBE20), DC_CTRL_R (PROFINET CBE20), DC_CTRL_R_S (PROFINET CBE20), DC_CTRL_S (PROFINET CBE20), TM150 (PROFINET CBE20), TM15DI_DO (PROFINET CBE20), TM31 (PROFINET CBE20) | Can be changed: T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 16 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Assignment of a PZD to a telegram word from a SINAMICS Link receive telegram. For p8839[0] = 2 (COMM BOARD via interface 1), the following applies: - PZD p2050[index] is assigned by means of p8870[index], p8872[index]. For p8839[1] = 2 (COMM BOARD via interface 2), the following applies: - PZD p8850[index] is assigned by means of p8870[index], p8872[index]. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 | | |
| Dependency: | Refer to: p8872 | | |
| Note: | Value range: 0: Not used 1 ... 16: Telegram word A pair of values p8870[index], p8872[index] may only be used once in single a device. A change only becomes effective after POWER ON, reset, project download or p8842 = 1. | | |

| p8871[0...15] | SINAMICS Link send telegram word PZD / Send link word | | |
|---|--|---|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20), DC_CTRL (PROFINET CBE20), DC_CTRL_R (PROFINET CBE20), DC_CTRL_R_S (PROFINET CBE20), DC_CTRL_S (PROFINET CBE20), TM150 (PROFINET CBE20), TM15DI_DO (PROFINET CBE20), TM31 (PROFINET CBE20) | Can be changed: T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting |
| Description: | Assigns a PZD to a telegram word in the SINAMICS Link send telegram. For p8839[0] = 2 (COMM BOARD via interface 1), the following applies: - p8871[index] assigns PZD p2051[index]. For p8839[1] = 2 (COMM BOARD via interface 2), the following applies: - p8871[index] assigns PZD p8851[index]. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 | | |
| Dependency: | Refer to: p2051, p8851 | | |
| Note: | Value range: 0: Not used 1 ... 16: Send telegram word A specific telegram word send may only be used once within a single device. A change only becomes effective after POWER ON, reset, project download or p8842 = 1. | | |

| p8872[0...15] | SINAMICS Link address receive PZD / Link addr recv | | |
|---|---|---|---|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20), DC_CTRL (PROFINET CBE20), DC_CTRL_R (PROFINET CBE20), DC_CTRL_R_S (PROFINET CBE20), DC_CTRL_S (PROFINET CBE20), TM150 (PROFINET CBE20), TM15DI_DO (PROFINET CBE20), TM31 (PROFINET CBE20) | Can be changed: T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 64 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects the address of the SINAMICS Link sender from which the process data (PZD) is received. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 | | |
| Dependency: | Refer to: p8870 | | |
| Note: | Value range: 0: Not used 1 ... 64: Address A change only becomes effective after POWER ON, reset, project download or p8842 = 1. | | |

| r8874[0...63] | IF2 diagnostics bus address PZD receive / IF2 diag addr recv | | |
|--|---|--|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the bus address of sender from which the PZD is received. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 | | |

[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note:

IF2: Interface 2

Value range:

0 - 125: Bus address of the sender

255: Not assigned

| | | | |
|---|---|----------------------|--------------------------|
| r8874[0...4] | IF2 diagnostics bus address PZD receive / IF2 diag addr recv | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the bus address of sender from which the PZD is received. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 | | |
| r8875[0...63] | IF2 diagnostics telegram offset PZD receive / IF diag offs recv | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the byte offset of the PZD in the receive telegram. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 [25] = PZD 26 [26] = PZD 27 [27] = PZD 28 [28] = PZD 29 [29] = PZD 30 [30] = PZD 31 [31] = PZD 32 [32] = PZD 33 [33] = PZD 34 [34] = PZD 35 [35] = PZD 36 [36] = PZD 37 [37] = PZD 38 | | |

[38] = PZD 39
 [39] = PZD 40
 [40] = PZD 41
 [41] = PZD 42
 [42] = PZD 43
 [43] = PZD 44
 [44] = PZD 45
 [45] = PZD 46
 [46] = PZD 47
 [47] = PZD 48
 [48] = PZD 49
 [49] = PZD 50
 [50] = PZD 51
 [51] = PZD 52
 [52] = PZD 53
 [53] = PZD 54
 [54] = PZD 55
 [55] = PZD 56
 [56] = PZD 57
 [57] = PZD 58
 [58] = PZD 59
 [59] = PZD 60
 [60] = PZD 61
 [61] = PZD 62
 [62] = PZD 63
 [63] = PZD 64

Note:

IF2: Interface 2
 Value range:
 0 - 242: Byte offset
 255: Not assigned

r8875[0...4] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

| | | | |
|---------------------------|--------------------------------|----------------------|--------------------------|
| TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the byte offset of the PZD in the receive telegram.

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

r8876[0...63] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

| | | | |
|---|--------------------------------|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the byte offset of the PZD in the send telegram.

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7

[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note:

IF2: Interface 2
Value range:
0 - 242: Byte offset
255: Not assigned

| | | | |
|---|--|--|--|
| r8876[0...4] | IF2 diagnostics telegram offset PZD send / IF2 diag offs send | | |
| TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the byte offset of the PZD in the send telegram. | | |
| Index: | [0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 | | |
| p8880[0...15] | BI: IF2 binector-connector converter status word 1 / Bin/con ZSW1 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2489 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects bits to be sent via interface 2. The individual bits are combined to form status word 1. | | |
| Index: | [0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15 | | |
| Dependency: | Refer to: p8888, r8889 | | |
| p8881[0...15] | BI: IF2 binector-connector converter status word 2 / Bin/con ZSW2 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2489 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Selects bits to be sent via interface 2. The individual bits are combined to form status word 2. | | |
| Index: | [0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 | | |

2 Parameters

2.2 List of parameters

[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

| | | | |
|---|---|--|--|
| p8882[0...15] | BI: IF2 binector-connector converter status word 3 / Bin/con ZSW3 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2489 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form free status word 3.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: Refer to: p8888, r8889

| | | | |
|---|---|--|--|
| p8883[0...15] | BI: IF2 binector-connector converter status word 4 / Bin/con ZSW4 | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2489 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form free status word 4.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12

[13] = Bit 13
 [14] = Bit 14
 [15] = Bit 15
Dependency: Refer to: p8888, r8889

| p8884[0...15] | BI: IF2 binector-connector converter status word 5 / Bin/con ZSW5 | | |
|---|---|----------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2489 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Selects bits to be sent via interface 2.
 The individual bits are combined to form free status word 5.

Index: [0] = Bit 0
 [1] = Bit 1
 [2] = Bit 2
 [3] = Bit 3
 [4] = Bit 4
 [5] = Bit 5
 [6] = Bit 6
 [7] = Bit 7
 [8] = Bit 8
 [9] = Bit 9
 [10] = Bit 10
 [11] = Bit 11
 [12] = Bit 12
 [13] = Bit 13
 [14] = Bit 14
 [15] = Bit 15

Dependency: Refer to: p8888, r8889

| p8888[0...4] | IF2 invert binector-connector converter status word / Bin/con ZSW inv | | |
|---|---|----------------------|----------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2489 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 0000 0000 bin |

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index: [0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4
 [4] = Free status word 5

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|--------------|----|
| | 00 | Bit 0 | Inverted | Not inverted | - |
| | 01 | Bit 1 | Inverted | Not inverted | - |
| | 02 | Bit 2 | Inverted | Not inverted | - |
| | 03 | Bit 3 | Inverted | Not inverted | - |
| | 04 | Bit 4 | Inverted | Not inverted | - |
| | 05 | Bit 5 | Inverted | Not inverted | - |
| | 06 | Bit 6 | Inverted | Not inverted | - |
| | 07 | Bit 7 | Inverted | Not inverted | - |
| | 08 | Bit 8 | Inverted | Not inverted | - |
| | 09 | Bit 9 | Inverted | Not inverted | - |
| | 10 | Bit 10 | Inverted | Not inverted | - |
| | 11 | Bit 11 | Inverted | Not inverted | - |
| | 12 | Bit 12 | Inverted | Not inverted | - |
| | 13 | Bit 13 | Inverted | Not inverted | - |

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2.2 List of parameters

| | | | | |
|----|--------|----------|--------------|---|
| 14 | Bit 14 | Inverted | Not inverted | - |
| 15 | Bit 15 | Inverted | Not inverted | - |

Dependency: Refer to: p8880, p8881, p8882, p8883, p8884, r8889

r8889[0...4] CO: IF2 send binector-connector converter status word / Bin/con ZSW send

| | | | |
|---|--------------------------------|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Connector output to interconnect the status words to a PZD send word.

Index:
 [0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4
 [4] = Free status word 5

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p8851, p8880, p8881, p8882, p8883, p8884, p8888

Note: r8889 together with p8880 to p8884 forms five binector-connector converters.

r8890.0...15 BO: IF2 PZD1 receive bit-serial / IF2 PZD1 rcv bitw

| | | | |
|--|--------------------------------|----------------------|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2485, 2491, 9204, 9206 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received via interface 2.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |

| | | | | |
|----|--------|----|-----|---|
| 12 | Bit 12 | ON | OFF | - |
| 13 | Bit 13 | ON | OFF | - |
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8891.0...15 **BO: IF2 PZD2 receive bit-serial / IF2 PZD2 rcv bitw**

| | | | |
|--|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2485, 2491, 9204, 9206 Unit selection: - Expert list: 1 Factory setting |
| - | - | - | - |

Description: Binector output for bit-serial interconnection of PZD2 received via interface 2.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8892.0...15 **BO: IF2 PZD3 receive bit-serial / IF2 PZD3 rcv bitw**

| | | | |
|---|--|---|--|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min | Calculated: - Dyn. index: - Unit group: - Scaling: - Max | Access level: 3 Func. diagram: 2485, 9204, 9206 Unit selection: - Expert list: 1 Factory setting |
| - | - | - | - |

Description: Binector output for bit-serial interconnection of PZD3 received via interface 2.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |

2 Parameters

2.2 List of parameters

| | | | | |
|----|--------|----|-----|---|
| 13 | Bit 13 | ON | OFF | - |
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8893.0...15 **BO: IF2 PZD4 receive bit-serial / IF2 PZD4 rcv bitw**

| | | | |
|---|--------------------------------|----------------------|---|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2485, 9204, 9206 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received via interface 2.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |
| | 14 | Bit 14 | ON | OFF | - |
| | 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8894.0...15 **BO: IF2 connector-binector converter binector output / Con/bin outp**

| | | | |
|---|--------------------------------|----------------------|----------------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2485, 2491 |
| | P-Group: Communications | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2.

The PZD is selected via p8899[0].

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Bit 0 | ON | OFF | - |
| | 01 | Bit 1 | ON | OFF | - |
| | 02 | Bit 2 | ON | OFF | - |
| | 03 | Bit 3 | ON | OFF | - |
| | 04 | Bit 4 | ON | OFF | - |
| | 05 | Bit 5 | ON | OFF | - |
| | 06 | Bit 6 | ON | OFF | - |
| | 07 | Bit 7 | ON | OFF | - |
| | 08 | Bit 8 | ON | OFF | - |
| | 09 | Bit 9 | ON | OFF | - |
| | 10 | Bit 10 | ON | OFF | - |
| | 11 | Bit 11 | ON | OFF | - |
| | 12 | Bit 12 | ON | OFF | - |
| | 13 | Bit 13 | ON | OFF | - |

| | | | | |
|----|--------|----|-----|---|
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Dependency: Refer to: p8899

r8895.0...15**BO: IF2 connector-binector converter binector output / Con/bin outp**

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

| | | |
|--------------------------------|----------------------|----------------------------------|
| Can be changed: - | Calculated: - | Access level: 3 |
| Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2485, 2491 |
| P-Group: Communications | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| - | - | - |

Description:

Binector output for bit-serial interconnection of a PZD word received via interface 2.
The PZD is selected via p8899[1].

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------|----------|----------|----|
| 00 | Bit 0 | ON | OFF | - |
| 01 | Bit 1 | ON | OFF | - |
| 02 | Bit 2 | ON | OFF | - |
| 03 | Bit 3 | ON | OFF | - |
| 04 | Bit 4 | ON | OFF | - |
| 05 | Bit 5 | ON | OFF | - |
| 06 | Bit 6 | ON | OFF | - |
| 07 | Bit 7 | ON | OFF | - |
| 08 | Bit 8 | ON | OFF | - |
| 09 | Bit 9 | ON | OFF | - |
| 10 | Bit 10 | ON | OFF | - |
| 11 | Bit 11 | ON | OFF | - |
| 12 | Bit 12 | ON | OFF | - |
| 13 | Bit 13 | ON | OFF | - |
| 14 | Bit 14 | ON | OFF | - |
| 15 | Bit 15 | ON | OFF | - |

Dependency:

Refer to: p8898, p8899

p8898[0...1]**IF2 invert connector-binector converter binector output / Con/bin outp inv**

DC_CTRL,
DC_CTRL_R,
DC_CTRL_R_S,
DC_CTRL_S

| | | |
|--------------------------------|----------------------|----------------------------------|
| Can be changed: U, T | Calculated: - | Access level: 3 |
| Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2485, 2491 |
| P-Group: Communications | Unit group: - | Unit selection: - |
| Not for motor type: - | Scaling: - | Expert list: 1 |
| Min | Max | Factory setting |
| - | - | 0000 0000 0000 0000 bin |

Description:

Setting to invert the individual binector outputs of the connector-binector converter.
Using p8898[0], the signals of C!: p8899[0] are influenced.
Using p8898[1], the signals of C!: p8899[1] are influenced.

Bit field:

| Bit | Signal name | 1 signal | 0 signal | FP |
|-----|-------------|----------|--------------|----|
| 00 | Bit 0 | Inverted | Not inverted | - |
| 01 | Bit 1 | Inverted | Not inverted | - |
| 02 | Bit 2 | Inverted | Not inverted | - |
| 03 | Bit 3 | Inverted | Not inverted | - |
| 04 | Bit 4 | Inverted | Not inverted | - |
| 05 | Bit 5 | Inverted | Not inverted | - |
| 06 | Bit 6 | Inverted | Not inverted | - |
| 07 | Bit 7 | Inverted | Not inverted | - |
| 08 | Bit 8 | Inverted | Not inverted | - |
| 09 | Bit 9 | Inverted | Not inverted | - |
| 10 | Bit 10 | Inverted | Not inverted | - |
| 11 | Bit 11 | Inverted | Not inverted | - |
| 12 | Bit 12 | Inverted | Not inverted | - |
| 13 | Bit 13 | Inverted | Not inverted | - |
| 14 | Bit 14 | Inverted | Not inverted | - |
| 15 | Bit 15 | Inverted | Not inverted | - |

2 Parameters

2.2 List of parameters

Dependency: Refer to: r8894, r8895, p8899

| | | | |
|---|--|--|--|
| p8899[0...1] | CI: IF2 connector-binector converter signal source / Con/bin S_src | | |
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2485, 2491 Unit selection: - Expert list: 1 Factory setting 0 |

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r8850, r8894, r8895, p8898

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted. p8899[0...1] together with r8894.0...15 and r8895.0...15 forms two connector-binector converters: Connector input p8899[0] to binector output in r8894.0...15
Connector input p8899[1] to binector output in r8895.0...15

| | | | |
|--|--|--|---|
| r8909 | PN device ID / PN device ID | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |

Description: Displays the PROFINET Device ID.
Every SINAMICS device type has its own PROFINET Device ID and its own PROFINET GSD.

Note: List of the SINAMICS Device IDs:
0501 hex: S120/S150
0504 hex: G130/G150
050A hex: DC MASTER
050C hex: MV
050F hex: G120P
0510 hex: G120C
0511 hex: G120 CU240E-2
0512 hex: G120D
0513 hex: G120 CU250S-2 Vector
0514 hex: G110M

| | | | |
|--|--|--|---|
| p8940[0...239] | CBE2x Name of Station / CBE2x Name Stat | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |

Description: Sets the station name for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: Refer to: p8941, p8942, p8943, p8944, p8945

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

| | | | |
|--|--|--|---|
| p8941[0...3] | CBE2x IP Address of Station / CBE2x IP of Stat | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the IP address for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| Dependency: | Refer to: p8940, p8942, p8943, p8944, p8945 | | |
| Note: | The interface configuration (p8940 and following) is activated with p8945. The parameter is not influenced by setting the factory setting. | | |
| p8942[0...3] | CBE2x Default Gateway of Station / CBE2x Def Gateway | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the standard gateway for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| Dependency: | Refer to: p8940, p8941, p8943, p8944, p8945 | | |
| Note: | The interface configuration (p8940 and following) is activated with p8945. The parameter is not influenced by setting the factory setting. | | |
| p8943[0...3] | CBE2x Subnet Mask of Station / CBE2x Subnet Mask | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the subnet mask for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| Dependency: | Refer to: p8940, p8941, p8942, p8944, p8945 | | |
| Note: | The interface configuration (p8940 and following) is activated with p8945. The parameter is not influenced by setting the factory setting. | | |
| p8944 | CBE2x DHCP Mode / CBE2x DHCP Mode | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the DHCP mode for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| Dependency: | Refer to: p8940, p8941, p8942, p8943, p8945 | | |
| Notice: | When the DHCP mode is active (p8944 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool. | | |
| Note: | The active DHCP mode is displayed in parameter r8954. The interface configuration (p8940 and following) is activated with p8945. The parameter is not influenced by setting the factory setting. | | |

2 Parameters

2.2 List of parameters

If value = 0:
DHCP deactivated.

If value = 1:
Reserved.

If value = 2:
DHCP activated. The MAC address of this interface is used for client identification.

If value = 3:
DHCP activated. The station name of this interface is used for client identification.

| p8945 | | CBE2x interface configuration / CBE2x int config | | |
|--|---|--|---|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the activation of the interface configuration for the Communication Board Ethernet 20/25 (CBE20/CBE25). p8945 is automatically set to 0 at the end of an operation. | | | |
| Value: | 0: No function 2: Save and activate configuration 3: Delete configuration | | | |
| Dependency: | Refer to: p8940, p8941, p8942, p8943, p8944 | | | |
| Notice: | When the DHCP mode is active (p8944 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool. | | | |
| Note: | For CBE20, the parameter is only valid for firmware version "PROFINET Device" (p8835 = 1) or "Ethernet/IP" (p8835 = 4). Otherwise, it is locked. This restriction is not applicable for the CBE25. Re p8945 = 2: The interface configuration (p8940 and following) is saved and activated after the next POWER ON. Re p8945 = 3: The factory setting of the interface configuration is loaded after the next POWER ON. | | | |

| r8950[0...239] | | CBE2x Name of Station active / CBE2x Name act | | |
|--|---|--|---|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the active station name for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | | |

| r8951[0...3] | | CBE2x IP Address of Station active / CBE2x IP act | | |
|--|---|--|---|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Displays the active IP address for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | | |

| | | | |
|--|---|--|---|
| r8952[0...3] | CBE2x Default Gateway of Station active / CBE2x def GW act | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the active standard gateway for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| r8953[0...3] | CBE2x Subnet Mask of Station active / CBE2x Sub Mask act | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the active subnet mask for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| r8954 | CBE2x DHCP Mode active / CBE2x DHCP act | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the active DHCP mode for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| Notice: | When the DHCP mode is active (parameter value greater than 0), PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool. | | |
| Note: | If value = 0: DHCP deactivated. If value = 2: DHCP activated. The MAC address of this interface is used for client identification. If value = 3: DHCP activated. The station name of this interface is used for client identification. | | |
| r8955[0...5] | CBE2x MAC Address of Station / CBE2x MAC Addr | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min 0000 hex | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 00FF hex | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the MAC address for the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |
| r8959 | CBE2x DAP ID / CBE2x DAP ID | | |
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min 0000 hex | Calculated: - Dyn. index: - Unit group: - Scaling: - Max FFFF FFFF hex | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the DAP ID for PROFINET via the Communication Board Ethernet 20/25 (CBE20/CBE25). | | |

2 Parameters

2.2 List of parameters

The combination of device ID (r8909) and DAP ID (r8959) uniquely identifies a PROFINET access point.

Note:
 DAP ID: Device Access Point ID
 DAP ID = 20007 hex: SINAMICS CBE20 V4.5
 DAP ID = 20008 hex: SINAMICS CBE20 V4.6
 DAP ID = 20009 hex: SINAMICS CBE20 V4.7
 DAP ID = 20209 hex: SINAMICS CBE25 V4.7

r8960[0...2] PN subplot controller assignment / PN subplot assign

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 8 | - |

Description: Displays the controller assignment of a PROFINET subplot on the actual drive object.

Index:
 [0] = Subslot 2 PROFIsafe
 [1] = Subslot 3 PZD telegram
 [2] = Subslot 4 PZD supplementary data

Note:
 Example:
 If the parameter contains the value 2 in index [1], then this means that subplot 3 is assigned to controller 2.

r8970[0...2] CBE2x subplot controller assignment / CBE2x subplot

| | | | |
|---|------------------------------|----------------------|--------------------------|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20), DC_CTRL (PROFINET CBE20), DC_CTRL_R (PROFINET CBE20), DC_CTRL_R_S (PROFINET CBE20), DC_CTRL_S (PROFINET CBE20), TM150 (PROFINET CBE20), TM15DI_DO (PROFINET CBE20), TM31 (PROFINET CBE20) | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 8 | - |

Description: Displays the controller assignment of a PROFINET subplot on the actual drive object.

Index:
 [0] = Subslot 2 PROFIsafe
 [1] = Subslot 3 PZD telegram
 [2] = Subslot 4 PZD supplementary data

Dependency: Refer to: r8971, r8972

Note:
 Example:
 If the parameter contains the value 2 in index [1], then this means that subplot 3 is assigned to controller 2.

r8971[0...3] CBE2x IP Address Remote Controller 1 / CBE2x IP Rem Ctrl1

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 255 | - |

Description: Displays the IP address of the first PROFINET controller connected with the device via CBE20/CBE25.

| r8972[0...3] | CBE2x IP Address Remote Controller 2 / CBE2x IP Rem Ctrl2 | | |
|--|---|--|---|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the IP address of the second PROFINET controller connected with the device via CBE20/CBE25. | | |

| p9206[0...2] | Topology direct access / Topo access | | |
|------------------------------------|---|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T Data type: Unsigned32 P-Group: Topology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4294967295 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | <p>Data setting to read topology properties.</p> <p>The result is displayed depending on the property in r9207 or r9208.</p> <p>Re index 0: 0: actual topology, 1: target topology</p> <p>Re index 1: Sets the component number of the component involved.</p> <p>Re index 2: 7: Name (r9208) 8: Component type (r9207) 9: Number of DRIVE-CLiQ connections (r9207) 11: Manufacturer (upper byte) and version (lower byte) (r9207) 12: Serial number (r9208) 13: Index (r9207) 15: Comparison level (r9207) 23: Order number (r9207) 24: Hardware serial number (r9208) 25: Collective order number (r9207) 28: Firmware version (r9207) 29: EEPROM version (r9207) 30: Hardware version (r9207) 1000: Name of DRIVE-CLiQ connection 0 (r9208) 1001: Name of DRIVE-CLiQ connection 1 (r9208) ... 1015: Name of DRIVE-CLiQ connection 15 (r9208)</p> | | |
| Index: | <p>[0] = Actual topology/target topology [1] = Component number [2] = Identifier/property</p> | | |
| Dependency: | Refer to: r9207, r9208 | | |

| | | | |
|--|---|----------------------|--------------------------|
| r9207 | Topology direct access integer value / Topo access int | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the value for the property set in p9206. A value is only displayed for integer type properties. | | |
| Dependency: | Refer to: p9206, r9208 | | |

| | | | |
|--|--|----------------------|--------------------------|
| r9208[0...50] | Topology direct access string / Topo access string | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the value for the property set in p9206. A value is only displayed for string type properties. | | |
| Dependency: | Refer to: p9206, r9207 | | |
| Note: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |

| | | | |
|--|---|----------------------|--------------------------|
| p9210 | Flashing component number / Flash comp_no | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 499 | 0 |
| Description: | Sets the component number for a component to get its status LED to flash. | | |
| Dependency: | Refer to: p9211 | | |

| | | | |
|--|---|----------------------|--------------------------|
| p9211 | Flash function / Flash fct. | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1 | 1 | -1 |
| Description: | Sets the function for the component selected in p9210. After initiating a function, the parameter is automatically reset again. Example: - Set the component number (p9210). - Select the "flashing on" function (set p9211 = 1). | | |
| Value: | -1: Select function 0: Flashing off 1: Flashing on | | |
| Dependency: | Refer to: p9210 | | |
| Notice: | If a task cannot be executed (e.g. the component number in p9210 does not exist), the following applies: - There is no negative feedback signal. - The value is reset anyway. | | |

| r9220 | | Statistic number of entries / Statistic size | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Supplies the number of entries in p9222. | | |
| Dependency: | In p9221, the component Id is set whose statistic entries are to be displayed. Refer to: p9221 | | |

| p9221 | | Statistic components Id / Statistic compld | |
|--|--|---|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0000 hex | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 00FF hex | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0002 hex |
| Description: | Selects the component Id whose statistics are to be displayed in p9222. | | |

| r9222[0...n] | | Statistic Drive-CLiQ acyclic communication / Statistic | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: r9220 Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |

| | |
|---------------------|---|
| Description: | Represents the statistic of acyclic Drive-CLiQ communication. The component is preset in p9221. The entry comprises the following elements: Index 0: Parameter Id Index 1: Number of messages sent. Index 2: Minimum time of all acyclic requests referred to the parameter Id (index 0). Index 3: Maximum time of all acyclic requests referred to the parameter Id (index 0). Index 4: Average of all acyclic requests referred to the parameter Id (index 0). The time unit is 10us. |
| Dependency: | The number of statistic entries is displayed in p9220. In p9221, the component Id can be set whose statistic is to be displayed. Refer to: r9220, p9221 |
| Note: | As a statistic entry comprises 5 data, when calling the entries via the terminal, a size that represents a multiple of 5 must be specified. Example: the 2nd entry must be called: rdp 1 9222 5 5 or rdpa 1 9222 5 5. |

| | | | |
|--|--|----------------------|--------------------------|
| p9400 | Safely remove memory card / Mem_card rem | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 100 | 0 |
| Description: | Setting and display when memory card is "removed safely". Procedure: Setting p9400 = 2 results in a value of 3 --> The memory card can be removed safely. After removal the value sets itself to 0 automatically. Setting p9400 = 2 results in a value of 100 --> The memory card cannot be removed safely. Removal may destroy the file system on the memory card. It may be necessary to set p9400 = 2 again. | | |
| Value: | 0: No memory card inserted 1: Memory card inserted 2: Request "safe removal" of the memory card 3: "Safe removal" possible 100: "Safe removal" not possible due to access | | |
| Dependency: | Refer to: r9401 | | |
| Notice: | Removing the memory card without a request (p9400 = 2) and confirmation (p9400 = 3) may destroy the file system on the memory card. The memory card will then no longer work properly and must be replaced. | | |
| Note: | The status when the memory card is being "removed safely" is shown in r9401. Re value = 0, 1, 3, 100: These values can only be displayed, not set. | | |

| | | | | | |
|--|---|---|--------------------------|-----------------|-----------|
| r9401 | Safely remove memory card status / Mem_card rem stat | | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the status of the memory card. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Memory card inserted | Yes | No | - |
| | 01 | Memory card activated | Yes | No | - |
| | 02 | SIEMENS memory card | Yes | No | - |
| | 03 | Memory card as USB data storage medium from the PC used | Yes | No | - |
| Dependency: | Refer to: p9400 | | | | |
| Note: | Re bit 01, 00: Bit 1/0 = 0/0: No memory card inserted (corresponds to p9400 = 0). Bit 1/0 = 0/1: "Safe removal" possible (corresponds to p9400 = 3). Bit 1/0 = 1/0: Status not possible. Bit 1/0 = 1/1: Memory card inserted (corresponds to p9400 = 1, 2, 100). Re bit 02, 00: Bit 2/0 = 0/0: No memory card inserted. Bit 2/0 = 0/1: Memory card inserted, but not a SIEMENS memory card. Bit 2/0 = 1/0: Status not possible. Bit 2/0 = 1/1: SIEMENS memory card inserted. | | | | |

| r9406[0...19] | | PS file parameter number parameter not transferred / PS par_no n transf | |
|----------------------|--|--|---|
| All objects | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | <p>Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the non-volatile memory (e.g. memory card).</p> <p>r9406[0] = 0 --> All of the parameter values were able to be transferred error-free.</p> <p>r9406[0...x] > 0 --> indicates the parameter number in the following cases: - parameter, whose value was not able to be completely accepted. - indexed parameter, where at least 1 index was not able to be accepted. The first index that is not transferred is displayed in r9407.</p> | | |
| Dependency: | Refer to: r9407, r9408 | | |
| Note: | <p>All indices from r9406 to r9408 designate the same parameter.</p> <p>r9406[x] parameter number, parameter not accepted r9407[x] parameter index, parameter not accepted r9408[x] fault code, parameter not accepted</p> | | |
| r9407[0...19] | | PS file parameter index parameter not transferred / PS parameter index | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | <p>Displays the first index of the parameters that could not be transferred when the parameter backup files (PS files) were read from the non-volatile memory (e.g. memory card).</p> <p>If, from an indexed parameter, at least one index was not able to be transferred, then the parameter number is displayed in r9406[n] and the first index that was not transferred is displayed in r9407[n].</p> <p>r9406[0] = 0 --> All of the parameter values were able to be transferred error-free.</p> <p>r9406[n] > 0 --> Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.</p> | | |
| Dependency: | Refer to: r9406, r9408 | | |
| Note: | <p>All indices from r9406 to r9408 designate the same parameter.</p> <p>r9406[x] parameter number, parameter not accepted r9407[x] parameter index, parameter not accepted r9408[x] fault code, parameter not accepted</p> | | |
| r9408[0...19] | | PS file fault code parameter not transferred / PS fault code | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Only for internal Siemens service purposes. | | |
| Dependency: | Refer to: r9406, r9407 | | |

2 Parameters

2.2 List of parameters

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9409 Number of parameters to be saved / Qty par to save

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of modified parameters and those that have still not be saved for this drive object.

Dependency: Refer to: p0971, p0977

Notice: Inherent to the system, the list of the parameters to be backed up is empty after the following actions:

- Download
- Warm restart
- Factory setting

In these cases, a new parameter backup must be initiated, which is then the starting point for the list of modified parameters.

Note: The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

r9450[0...29] Reference value change parameter with unsuccessful calculation / Ref_chg par n poss

| | | | |
|---|------------------------------|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the parameters for which the re-calculation was unsuccessful after an internal system reference value change.

r9451[0...29] Units changeover adapted parameters / Unit_chngov par

| | | | |
|---|------------------------------|----------------------|--------------------------|
| DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the parameters whose parameter would have to be changed during a units changeover.

r9481 Number of BICO interconnections / BICO count

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of BICO interconnections (signal sinks).

Dependency: Refer to: r9482, r9483

Note: The selected BICO interconnections should be entered into r9482 and r9483.

| | | | |
|---------------------|---|---|---|
| r9482[0...n] | BICO interconnections BI/CI parameters / BICO BI/CI par | | |
| All objects | Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: - Min - | Calculated: - Dyn. index: r9481 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the signal sinks (binector/connector inputs, BI/CI parameters). The number of BICO interconnections is displayed in r9481. | | |
| Dependency: | Refer to: r9481, r9483 | | |
| Note: | The list is sorted according to signal sources and is structured as follows: r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded) r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded) ... | | |
| r9483[0...n] | BICO interconnections BO/CO parameters / BICO BO/CO par | | |
| All objects | Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: - Min - | Calculated: - Dyn. index: r9481 Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the signal sources (binector/connector outputs, BO/CO parameters). The number of BICO interconnections is displayed in r9481. | | |
| Dependency: | Refer to: r9481, r9482 | | |
| Note: | The list is sorted according to signal sources and is structured as follows: r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded) r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded) ... | | |
| p9484 | BICO interconnections search signal source / BICO S_src srch | | |
| All objects | Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 4294967295 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks. The question is answered: How often is a connection made to a signal source in the drive object and from which index are these interconnections saved (r9482 and r9483)? | | |
| Dependency: | Refer to: r9481, r9482, r9483, r9485, r9486 | | |
| r9485 | BICO interconnections signal source search count / BICO S_src srchQty | | |
| All objects | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting - |
| Description: | Displays the number of BICO interconnections to the signal sink being searched for. | | |
| Dependency: | Refer to: r9481, r9482, r9483, p9484, r9486 | | |

2 Parameters

2.2 List of parameters

Note: The signal source to be searched is set in p9484 (BICO-coded).
The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9486 BICO interconnections signal source search first index / BICO S_src srchldx

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the first index of the signal source being searched for.

Dependency: Refer to: r9481, r9482, r9483, p9484, r9485

Note: The signal source to be searched is set in p9484 (BICO-coded).
The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9490 Number of BICO interconnections to other drives / Qty BICO to drive

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of signal sources from this drive to other drives/drive objects (Binector Output/Connector Output, BO/CO).

Dependency: Refer to: r9491, r9492, p9493

r9491[0...9] BI/CI of BICO interconnections to other drives / BI/CI to drive

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the signal receiver list (Binector Input/Connector Input, BI/CI) for the first interconnections between this drive and other drives/drive objects.

Dependency: Refer to: r9490, r9492, p9493

Notice: A drive cannot be deleted if this list is not empty!

Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note: All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

r9492[0...9] BO/CO of BICO interconnections to other drives / BO/CO to drive

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the signal source list (Binector Output/Connector Output, BO/CO) for the first interconnections between this drive and other drives/drive objects.

Dependency: Refer to: r9490, r9491, p9493

Notice: A drive cannot be deleted if this list is not empty!

Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note: All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

| p9493[0...9] | | Reset BICO interconnections to other drives / Reset BICO to drv | | |
|---------------------|--|--|--------------------------|--|
| All objects | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 15 | 15 | |
| Description: | Setting to reset the BICO interconnections to other drives. Each interconnection can be individually reset. | | | |
| Value: | 0: Set connection to 0 1: Set connection to 1 (100 %) 2: Set connection to factory setting 15: Finished | | | |
| Dependency: | Refer to: r9490, r9491, r9492 | | | |
| Note: | All indices of r9491 to p9493 designate the same interconnection. r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection. | | | |

| p9495 | | BICO behavior for de-activated drive objects / Behav for deact DO | | |
|---------------------|--|--|--------------------------|--|
| All objects | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | 0 | |
| Description: | Sets the behavior for BICO interconnections to drive objects that are either not capable of operation or have been deactivated. BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source). | | | |
| Value: | 0: Inactive 1: Save interconnections 2: Save interconnections and establish the factory setting | | | |
| Dependency: | Refer to: p9496, p9497, p9498, p9499 | | | |
| Note: | For p9495 = 0, the following applies: - the number of interconnections is zero (p9497 = 0). For p9495 not equal to 0, the following applies: - the BI/CI parameters involved are listed in p9498[0...29] (signal sink). - the associated BO/CO parameters are listed in p9499[0...29] (signal source). | | | |

| p9496 | | BICO behavior when activating drive objects / Behav when act DO | | |
|---------------------|---|--|--------------------------|--|
| All objects | Can be changed: T | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | 0 | |
| Description: | Sets the behavior when activating BICO interconnections to drive objects that are either not capable of operation or have been deactivated. | | | |
| Value: | 0: Inactive 1: Restore the interconnections from the list 2: Delete the interconnections from the list | | | |

2 Parameters

2.2 List of parameters

Dependency: Refer to: p9495, p9497, p9498, p9499
Note: The BI/CI parameters involved are listed in p9498[0...29] (signal sink).
The associated BO/CO parameters are listed in p9499[0...29] (signal source).
After p9496 = 1, 2 the following applies:
- p9497 = 0
- p9496 = 0

p9497 BICO interconnections to de-activated drive objects number / Interconn obj qty

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |

Description: Displays the number of saved BICO interconnections to drive objects that are either not capable of operation or have been deactivated.
BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).

Dependency: Refer to: p9495, p9496, p9498, p9499

p9498[0...29] BICO BI/CI parameters to de-activated drive objects / BI/CI to deact obj

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Displays the saved BI/CI parameters (signal sink), whose source is located on drive objects that are either not capable of operation or have been deactivated.

Dependency: Refer to: p9495, p9496, p9497, p9499

Note: A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

p9499[0...29] BICO BO/CO parameters to de-activated drive objects / BO/CO to deact obj

| | | | |
|-------------|------------------------------|----------------------|--------------------------|
| All objects | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Commands | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Displays the saved BO/CO parameters (signal source), which are located on drive objects that are either not capable of operation or have been deactivated.

Dependency: Refer to: p9495, p9496, p9497, p9498

Note: A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

r9900 Actual topology number of indices / Act topo indices

| | | | |
|--|------------------------------|----------------------|--------------------------|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the number of indices of the actual topology.

Dependency: Refer to: r9901

Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

| | | | |
|--|-----------------------------------|--------------------------|--------------------------|
| r9901[0...n] | Actual topology / Act topo | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: r9900 | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the actual topology of the drive unit.
The actual topology is sub-divided into several sections. Each of the following data is saved under an index.
General data on the topology:

- version
- attribute to compare the actual topology and target topology
- number of components

Data on a component:

- type component of the node ID of the component
- number of DRIVE-CLiQ sockets in the Node Identifier
- manufacturer and version of the Node Identifier
- serial number of the Node Identifier (4 indices)
- index of the component
- order number (8 indices)
- attribute to compare the actual topology and target topology of the component
- communications address
- number of port types
- port type
- number of ports of the port type
- communications address of the associated/linked component
- number of the associated/linked port
- communications address of the associated/linked component
- number of the associated port, etc.

Data on the next component:

- etc.

Dependency: Refer to: r9900

Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

| | | | |
|--|---|----------------------|--------------------------|
| p9902 | Target topology number of indices / TargetTopo indices | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 1 | 65535 | 1 |

Description: Sets the number of target topology indices.

Dependency: Refer to: p9903

Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

| | | | |
|--|--|--------------------------|--------------------------|
| p9903[0...n] | Target topology / Target topo | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: p9902 | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 0 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF hex | 0000 hex |
| Description: | <p>Sets the target topology of the drive unit.</p> <p>The target topology is sub-divided into several sections. Each of the following data is saved under an index.</p> <p>General data on the topology:</p> <ul style="list-style-type: none"> - version - attribute to compare the actual topology and target topology - number of components <p>Data on a component:</p> <ul style="list-style-type: none"> - type component of the Node Identifier of the component - number of DRIVE-CLiQ sockets in the Node Identifier - manufacturer and version of the Node Identifier - serial number of the Node Identifier (4 indices) - index of the component - order number (8 indices) - attribute to compare the actual topology and target topology of the component - component number - number of port types - port type - number of ports of the port type - component number of the associated/linked component - number of the associated/linked port - component number of the associated/linked component - number of the associated port, etc. <p>Data on the next component:</p> <ul style="list-style-type: none"> - etc. | | |
| Dependency: | Refer to: p9902 | | |
| Note: | <p>The target topology can only be modified using the commissioning software.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p> <p>Changes only become effective when the state of p0009 = 101 changes to 0 or 111.</p> | | |

| | | | |
|--|---|----------------------|--------------------------|
| p9904 | Topology comparison acknowledge differences / Topo_compare ackn | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: Topology | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0000 hex | FFFF FFFF hex | 0000 hex |
| Description: | <p>If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.</p> <p>Differences that can be acknowledged:</p> <ul style="list-style-type: none"> - topology comparison, component shifted - topology comparison, serial number of a component has been detected to be different (byte 3 = 1) - topology comparison shows one component that is connected differently | | |

The following parameter values are available:

p9904 = 1 --> the procedure is started.

p9904 = 0 after starting --> the procedure has been successfully completed.

p9904 = 1 after starting --> the procedure has not been successfully completed.

The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.

Byte 2:

Number of structural differences.

Byte 3:

Number of differences that can be acknowledged (p9904).

Byte 4:

Number of differences. These differences can be resolved as follows:

- sets the topology comparison (p9906 or p9907/p9908).

- change over the actual topology.

The appropriate action should be selected corresponding to the message that is displayed/output.

Note: In order to permanently accept the acknowledgement of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).

| p9905 | | Device specialization / Specialization | | |
|--|---|---|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) | Calculated: - | Access level: 3 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Topology | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 2 | 0 | |
| Description: | With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started. For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers. With p9905 = 2, the serial numbers, the hardware versions and the order numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started. For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and order numbers. | | | |
| Note: | p9905 is automatically set to 0 at the end of the operation. In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977). | | | |

| p9906 | | Topology comparison comparison stage of all components / Topo_cmpr tot comp | | |
|--|---|--|--------------------------|--|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) | Calculated: - | Access level: 3 | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: Topology | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 0 | 99 | 0 | |
| Description: | Sets the type of comparison between the actual topology and target topology. The comparison is started by setting the required value. | | | |
| Value: | 0: High: Compares the complete electronic rating plate 1: Average: Compares the component type and the Order number 2: Low: Compares the component type 3: Minimum: Compares the component class 99: Topology has different comparison stages | | | |
| Note: | The electronic rating plate comprises the following data: - component type (e.g. "SMC20") - Order No. (e.g. "6SL3055-0AA0-5BA0") - manufacturer (e.g. SIEMENS) - hardware version (e.g. "A") - Serial No. (e.g. "T-P30050495") | | | |

2 Parameters

2.2 List of parameters

When comparing the topology, the following data is compared in the target and actual topologies:

p9906 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.

p9906 = 1: Component type, Order No.

p9906 = 2: Component type

p9906 = 3: Component class (e.g. Sensor Module or Motor Module)

| p9907 Topology comparison comparison stage of the component number / Topo_cmpr comp_no | | | |
|---|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) Data type: Unsigned8 P-Group: Topology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 199 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed. | | |
| Dependency: | Refer to: p9908 | | |

| p9908 Topology comparison comparison stage of a component / Topo_cmpr 1 comp | | | |
|---|---|---|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) Data type: Integer16 P-Group: Topology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 99 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the type of comparison of a component in the target topology with the actual topology. The comparison is started by setting the required value. | | |
| Value: | 0: High: Compares the complete electronic rating plate 1: Average: Compares the component type and the Order number 2: Low: Compares the component type 3: Minimum: Compares the component class 99: Topology has different comparison stages | | |
| Dependency: | Refer to: p9907 | | |
| Note: | The electronic rating plate comprises the following data: - component type (e.g. "SMC20") - Order No. (e.g. "6SL3055-0AAA0-5BA0") - manufacturer (e.g. SIEMENS) - hardware version (e.g. "A") - Serial No. (e.g. "T-P30050495") | | |

When comparing the topology, the following data is compared in the target and actual topologies:

p9908 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.

p9908 = 1: Component type, Order No.

p9908 = 2: Component type

p9908 = 3: Component class (e.g. Sensor Module or Motor Module)

| p9909 Topology comparison component replacement / Topo_cmpr replace | | | |
|--|--|--|---|
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) Data type: Unsigned8 P-Group: Topology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion. | | |

For the components that have been replaced, the electronic rating plate must match as far as the following data is concerned:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

Dependency:

Refer to: p9904, p9905

Note:

The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).

Special case for Control Unit and option slot modules:

When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

p9910**Target topology accept additional components / Add comp accept**

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: C1(1)

Calculated: -

Access level: 1

Data type: Integer16

Dyn. index: -

Func. diagram: -

P-Group: Topology

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

1

0

Description:

Accept additional inserted DRIVE-CLiQ components into the target topology.

The corresponding drive objects are added to the project.

Value:

0: No selection

1: Transfer components

p9915**DRIVE-CLiQ data transfer error shutdown threshold master / DQ fault master**

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: C1(1)

Calculated: -

Access level: 4

Data type: Unsigned32

Dyn. index: -

Func. diagram: -

P-Group: Topology

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0000 hex

0007 07FF hex

0007 02FF hex

Description:

Only for internal Siemens service purposes.

p9916**DRIVE-CLiQ data transfer error shutdown threshold slave / DQ fault slave**

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: C1(1)

Calculated: -

Access level: 4

Data type: Unsigned32

Dyn. index: -

Func. diagram: -

P-Group: Topology

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0000 hex

0007 07FF hex

0007 02FF hex

Description:

Only for internal Siemens service purposes.

p9920[0...99]**Licensing enter license key / Enter license key**

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: U, T

Calculated: -

Access level: 2

Data type: Unsigned8

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Enters the license key for this drive unit.

Example of the license key:

EACZ-QBCA = 69 65 67 90 45 81 66 67 65 dec (ASCII characters)

2 Parameters

2.2 List of parameters

Index 0 = license key character 1 (e.g. 69 dec)

Index 1 = license key character 2 (e.g. 65 dec)

...

Index 8 = license key character 9 (e.g. 65 dec)

Index 9 = license key character 10 (e.g. 0 dec)

...

Dependency: Refer to: r7843, p9921

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

With the STARTER commissioning software, ASCII characters are not entered coded, i.e. the characters of the license key can be entered as printed in the Certificate of License. In this case, STARTER codes the characters.

Note: For an invalid license key, all the indices have the value 0 dec.

Only the ASCII characters contained in a license key can be entered ("1" to "9", "A" to "H", "K" to "N", "P" to "Z" as well as "-").

When manually changing p9920[x] to the value 0 dec, all the values of all the following indices are also set to 0 dec. After entering the license key, the license key must be activated (p9921).

If the licensing is not adequate, then the following alarm is displayed together with LED:

- A13000 --> licensing not sufficient

- LED READY --> flashes green/red with 0.5 Hz

p9921

Licensing activate license key / Act license key

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: U, T

Calculated: -

Access level: 2

Data type: Integer16

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

0

1

0

Description: Activates the entered license key.

The following is executed when activating the license key.

- the checksum of the entered license key is checked.

- the entered license key is saved in a non-volatile fashion on the memory card.

- re-enter the license key.

Value: 0: Inactive

1: Activate start license key

Dependency: Refer to: p9920

Note: Before activation, the license key entered using parameter p9920 is checked. If this check identifies an error, activation is rejected. In this case, writing a 1 to p9921 is rejected.

When the license key has been activated, p9921 is automatically set to 0.

r9925[0...99]

Firmware file incorrect / FW file incorr

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -

Calculated: -

Access level: 2

Data type: Unsigned8

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.

Dependency: Refer to: r9926

Note: The directory and name of the file is displayed in the ASCII code.

| | | | |
|--|--|--|--|
| r9926 | Firmware check status / FW check status | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the status when the firmware is checked when the system is booted. 0: Firmware not yet checked. 1: Check running. 2: Check successfully completed. 3: Check indicates an error. | | |
| Dependency: | Refer to: r9925 | | |
| p9930[0...8] | System logbook activation / SYSLOG activation | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Only for service purposes. | | |
| Index: | [0] = System logbook stage (0: Not active) [1] = COM2/COM1 (0: COM2, 1: COM1) [2] = Activate file write (0: Not active) [3] = Display time stamp (0: Not displayed) [4...7] = Reserved [8] = System logbook file size (stages, each 10 kB) | | |
| Notice: | Before powering down the Control Unit, ensure that the system logbook is switched out (p9930[0] = 0). If writing to the file is activated (p9930[2] = 1), writing to the file must be de-activated again before switching off the Control Unit (p9930[2] = 0) in order to ensure that the system logbook has been completely written to the file. | | |
| p9931[0...179] | System logbook module selection / SYSLOG mod select. | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: - Min 0000 hex | Calculated: - Dyn. index: - Unit group: - Scaling: - Max FFFF FFFF hex | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0000 hex |
| Description: | Only for service purposes. | | |
| p9932 | Save system logbook EEPROM / SYSLOG EEPROM save | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 255 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Only for service purposes. | | |

| | | | | |
|--|--|-----------------------|--------------------------|-----------------|
| r9935.0 | BO: POWER ON delay signal / POWER ON t_delay | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and binector output for a delay after POWER ON. After power-on, binector output r9935.0 is set with the start of the first sampling time and is again reset after approx. 100 ms. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | POWER ON delay signal | High | Low |
| | | | | FP |
| | | | | - |

| | | | | |
|--|--|----------------------|--------------------------|--|
| r9936[0...199] | DRIVE-CLiQ diagnostic error counter connection / DQdiag err counter | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 | |
| | Data type: Integer32 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the error counter for the individual DRIVE-CLiQ connections/cables. r9936[0]: sum of the error counter for all connections r9936[1]: not used r9936[2]: error counter for the feeder cable to DRIVE-CLiQ components with component number 2 ... r9936[199]: error counter for the feeder cable to DRIVE-CLiQ components with component number 199 The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit. | | | |
| Dependency: | Refer to: p9937, p9938 | | | |

| | | | | |
|--|--|----------------------------|--------------------------|-----------------|
| p9937 | DRIVE-CLiQ diagnostic configuration / DQ diag config | | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 0000 0000 0000 0000 bin | |
| Description: | Sets the configuration for the DRIVE-CLiQ diagnostics (error counter r9936). Using this function, connections and cables of DRIVE-CLiQ connections can be checked for transfer errors. The error counter is evaluated in the PHY blocks involved. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Alarm for connection error | Yes | No |
| | 08 | Reset error counter | Yes | No |
| | | | | FP |
| | | | | - |
| Dependency: | Refer to: r9936, p9938 | | | |
| Note: | Re bit 00: To activate this function, p9938 must be set to 0 (inactive). After changing the error counter (r9936), an appropriate alarm is output. The alarm automatically disappears after 5 seconds. Re bit 08: With p9937.8 = 1, the error counters are reset (r9936[0...199]). After the reset, p9937.8 is automatically set to 0. | | | |

| | | | |
|--|--|---|---|
| p9938 | DRIVE-CLiQ detailed diagnostics configuration / DQ diag config | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 6 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the configuration for the DRIVE-CLiQ detailed diagnostics (r9943). Using the detailed diagnostics, it is possible to investigate data transfer errors on an individual connection, selected using p9942. | | |
| Value: | 0: Inactive 1: Sum send and receive errors 2: Only send errors 3: Only receive errors 4: Siemens internal 5: Siemens internal 6: Siemens internal | | |
| Dependency: | The functions in p9938 can only be set for p9937.0 = 0. Refer to: r9936, p9937, p9939, p9942 | | |
| Notice: | If value = 0: - detailed diagnostics is inactive. - the error counter is active (r9936). If value > 0: - the error counter is inactive (r9936). - the detailed diagnostics as configured is active (r9943). | | |
| p9939 | DRIVE-CLiQ detailed diagnostics time interval / DQ detail t_interv | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 1 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 3600 [s] | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 1 [s] |
| Description: | Sets the time interval for recording the error counter in r9943. | | |
| Dependency: | Refer to: r9936, p9938, p9942, r9943 | | |
| p9941 | Target topology feature delete all components / Feature delete | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 3 Func. diagram: - Unit selection: - Expert list: 0 Factory setting 0 |
| Description: | For p9941 =1, the serial numbers of all components in the target topology are deleted (zero is written). Through activation and de-activation this enables the actual topology components to be newly assigned to the target topology components. | | |
| Note: | p9941 is automatically set to 0 at the end of the operation. A warm restart is triggered automatically after p0009 = 0. | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|--|--|---|
| p9942 | DRIVE-CLiQ detailed diagnostics select individual connection / DQ detail conn | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 199 | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the component, whose feeder cable is monitored for data transfer errors. The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit. Errors that have occurred in the selected time interval (p9939) can be read-out from r9943. | | |
| Dependency: | Refer to: r9936, p9938, p9939, r9943 | | |
| <hr/> | | | |
| r9943 | DRIVE-CLiQ detailed diagn. individual connection error counter / DQ det err counter | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Integer32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the connection errors of the individual connection that have occurred within the time interval (p9939). The detailed diagnostics for the individual connection is activated via p9938 > 0 and is selected via p9942. | | |
| Dependency: | Refer to: r9936, p9938, p9939, p9942 | | |
| <hr/> | | | |
| r9975[0...7] | System utilization measured / Sys util meas | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [%] | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Displays the measured system utilization. The higher the value displayed, the higher the system utilization. | | |
| Index: | [0] = Computing time utilization (min) [1] = Computing time utilization (averaged) [2] = Computing time utilization (max) [3] = Largest total utilization (min) [4] = Largest total utilization (averaged) [5] = Largest total utilization (max) [6] = Reserved [7] = Reserved | | |
| Dependency: | Refer to: r9976, r9979, r9980, r9981 | | |
| Note: | Re index 3 ... 5: The total utilizations are determined using all sampling times used. The largest total utilizations are mapped here. The sampling time with the largest total utilization is displayed in r9979. Total utilization: Computing time load of sampling time involved including load from higher-priority sampling times (interrupts). | | |

| | | | |
|--|--|----------------------|--------------------------|
| r9976[0...7] | System utilization / Sys util | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the system utilization. If the utilization is greater than 100%, fault F01054 is output. | | |
| Index: | [0] = Reserved [1] = Computing time utilization [2] = Reserved [3] = Reserved [4] = Reserved [5] = Largest total utilization [6] = Reserved [7] = Reserved | | |
| Dependency: | Refer to: r9979, r9980 | | |
| Note: | Re index 1: The value shows the total computing time load of the system. Re index 5: The total utilization is determined using all sampling times used. The largest total utilization is mapped here. The sampling time with the largest total utilization is displayed in r9979. Total utilization: Computing time load of sampling time involved including load from higher-priority sampling times (interrupts). | | |
| r9979 | Sampling time with largest total utilization / t_sampl lg total | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [µs] | - [µs] | - [µs] |
| Description: | Displays the sampling time with the largest total utilization. | | |
| Dependency: | Refer to: r7901, r9976 | | |
| Note: | The largest total utilization is displayed in r9976[5]. Total utilization: Computing time load of sampling time involved including load from higher-priority sampling times (interrupts). | | |
| r9980[0...165] | Sampling times utilization calculated / t_sampl util calc | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the calculated utilizations for the active sampling times based on the existing target topology. | | |
| Index: | [0] = Net utilization 0 [1] = Total utilization 0 [2] = Net utilization 1 [3] = Total utilization 1 [4] = Net utilization 2 [5] = Total utilization 2 [6] = Net utilization 3 [7] = Total utilization 3 | | |

[8] = Net utilization 4
[9] = Total utilization 4
[10] = Net utilization 5
[11] = Total utilization 5
[12] = Net utilization 6
[13] = Total utilization 6
[14] = Net utilization 7
[15] = Total utilization 7
[16] = Net utilization 8
[17] = Total utilization 8
[18] = Net utilization 9
[19] = Total utilization 9
[20] = Net utilization 10
[21] = Total utilization 10
[22] = Net utilization 11
[23] = Total utilization 11
[24] = Net utilization 12
[25] = Total utilization 12
[26] = Net utilization 13
[27] = Total utilization 13
[28] = Net utilization 14
[29] = Total utilization 14
[30] = Net utilization 15
[31] = Total utilization 15
[32] = Net utilization 16
[33] = Total utilization 16
[34] = Net utilization 17
[35] = Total utilization 17
[36] = Net utilization 18
[37] = Total utilization 18
[38] = Net utilization 19
[39] = Total utilization 19
[40] = Net utilization 20
[41] = Total utilization 20
[42] = Net utilization 21
[43] = Total utilization 21
[44] = Net utilization 22
[45] = Total utilization 22
[46] = Net utilization 23
[47] = Total utilization 23
[48] = Net utilization 24
[49] = Total utilization 24
[50] = Net utilization 25
[51] = Total utilization 25
[52] = Net utilization 26
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[55] = Total utilization 27
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[58] = Net utilization 29
[59] = Total utilization 29
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[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32
[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36

[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47
[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51
[104] = Net utilization 52
[105] = Total utilization 52
[106] = Net utilization 53
[107] = Total utilization 53
[108] = Net utilization 54
[109] = Total utilization 54
[110] = Net utilization 55
[111] = Total utilization 55
[112] = Net utilization 56
[113] = Total utilization 56
[114] = Net utilization 57
[115] = Total utilization 57
[116] = Net utilization 58
[117] = Total utilization 58
[118] = Net utilization 59
[119] = Total utilization 59
[120] = Net utilization 60
[121] = Total utilization 60
[122] = Net utilization 61
[123] = Total utilization 61
[124] = Net utilization 62
[125] = Total utilization 62
[126] = Net utilization 63
[127] = Total utilization 63
[128] = Net utilization 64
[129] = Total utilization 64
[130] = Net utilization 65
[131] = Total utilization 65
[132] = Net utilization 66
[133] = Total utilization 66
[134] = Net utilization 67
[135] = Total utilization 67
[136] = Net utilization 68
[137] = Total utilization 68
[138] = Net utilization 69
[139] = Total utilization 69

- [140] = Net utilization 70
- [141] = Total utilization 70
- [142] = Net utilization 71
- [143] = Total utilization 71
- [144] = Net utilization 72
- [145] = Total utilization 72
- [146] = Net utilization 73
- [147] = Total utilization 73
- [148] = Net utilization 74
- [149] = Total utilization 74
- [150] = Net utilization 75
- [151] = Total utilization 75
- [152] = Net utilization 76
- [153] = Total utilization 76
- [154] = Net utilization 77
- [155] = Total utilization 77
- [156] = Net utilization 78
- [157] = Total utilization 78
- [158] = Net utilization 79
- [159] = Total utilization 79
- [160] = Net utilization 80
- [161] = Total utilization 80
- [162] = Net utilization 81
- [163] = Total utilization 81
- [164] = Net utilization 82
- [165] = Total utilization 82

Dependency:

Refer to: r7901, r9976, r9979

Note:

The corresponding sampling times can be read out in parameter r7901.

Net utilization:

Computing time load that is only called by the sampling time involved.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9981[0...165]

Sampling times utilization measured / t_sampl util meas

CU_DC, CU_DC_R,
CU_DC_R_S,
CU_DC_S

Can be changed: -

Calculated: -

Access level: 4

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: -

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

- [%]

- [%]

- [%]

Description:

Displays the utilizations measured for the active sampling times.

Index:

- [0] = Net utilization 0
- [1] = Total utilization 0
- [2] = Net utilization 1
- [3] = Total utilization 1
- [4] = Net utilization 2
- [5] = Total utilization 2
- [6] = Net utilization 3
- [7] = Total utilization 3
- [8] = Net utilization 4
- [9] = Total utilization 4
- [10] = Net utilization 5
- [11] = Total utilization 5
- [12] = Net utilization 6
- [13] = Total utilization 6
- [14] = Net utilization 7
- [15] = Total utilization 7
- [16] = Net utilization 8
- [17] = Total utilization 8
- [18] = Net utilization 9
- [19] = Total utilization 9
- [20] = Net utilization 10

[21] = Total utilization 10
[22] = Net utilization 11
[23] = Total utilization 11
[24] = Net utilization 12
[25] = Total utilization 12
[26] = Net utilization 13
[27] = Total utilization 13
[28] = Net utilization 14
[29] = Total utilization 14
[30] = Net utilization 15
[31] = Total utilization 15
[32] = Net utilization 16
[33] = Total utilization 16
[34] = Net utilization 17
[35] = Total utilization 17
[36] = Net utilization 18
[37] = Total utilization 18
[38] = Net utilization 19
[39] = Total utilization 19
[40] = Net utilization 20
[41] = Total utilization 20
[42] = Net utilization 21
[43] = Total utilization 21
[44] = Net utilization 22
[45] = Total utilization 22
[46] = Net utilization 23
[47] = Total utilization 23
[48] = Net utilization 24
[49] = Total utilization 24
[50] = Net utilization 25
[51] = Total utilization 25
[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
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[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
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[62] = Net utilization 31
[63] = Total utilization 31
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[65] = Total utilization 32
[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43

- [87] = Total utilization 43
- [88] = Net utilization 44
- [89] = Total utilization 44
- [90] = Net utilization 45
- [91] = Total utilization 45
- [92] = Net utilization 46
- [93] = Total utilization 46
- [94] = Net utilization 47
- [95] = Total utilization 47
- [96] = Net utilization 48
- [97] = Total utilization 48
- [98] = Net utilization 49
- [99] = Total utilization 49
- [100] = Net utilization 50
- [101] = Total utilization 50
- [102] = Net utilization 51
- [103] = Total utilization 51
- [104] = Net utilization 52
- [105] = Total utilization 52
- [106] = Net utilization 53
- [107] = Total utilization 53
- [108] = Net utilization 54
- [109] = Total utilization 54
- [110] = Net utilization 55
- [111] = Total utilization 55
- [112] = Net utilization 56
- [113] = Total utilization 56
- [114] = Net utilization 57
- [115] = Total utilization 57
- [116] = Net utilization 58
- [117] = Total utilization 58
- [118] = Net utilization 59
- [119] = Total utilization 59
- [120] = Net utilization 60
- [121] = Total utilization 60
- [122] = Net utilization 61
- [123] = Total utilization 61
- [124] = Net utilization 62
- [125] = Total utilization 62
- [126] = Net utilization 63
- [127] = Total utilization 63
- [128] = Net utilization 64
- [129] = Total utilization 64
- [130] = Net utilization 65
- [131] = Total utilization 65
- [132] = Net utilization 66
- [133] = Total utilization 66
- [134] = Net utilization 67
- [135] = Total utilization 67
- [136] = Net utilization 68
- [137] = Total utilization 68
- [138] = Net utilization 69
- [139] = Total utilization 69
- [140] = Net utilization 70
- [141] = Total utilization 70
- [142] = Net utilization 71
- [143] = Total utilization 71
- [144] = Net utilization 72
- [145] = Total utilization 72
- [146] = Net utilization 73
- [147] = Total utilization 73
- [148] = Net utilization 74
- [149] = Total utilization 74
- [150] = Net utilization 75
- [151] = Total utilization 75
- [152] = Net utilization 76

[153] = Total utilization 76
 [154] = Net utilization 77
 [155] = Total utilization 77
 [156] = Net utilization 78
 [157] = Total utilization 78
 [158] = Net utilization 79
 [159] = Total utilization 79
 [160] = Net utilization 80
 [161] = Total utilization 80
 [162] = Net utilization 81
 [163] = Total utilization 81
 [164] = Net utilization 82
 [165] = Total utilization 82

Dependency:

Refer to: r7901, r9975, r9980

Note:

The corresponding sampling times can be read out in parameter r7901.

Net utilization:

Computing time load that is only called by the sampling time involved.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9982[0...4]**Data memory utilization / Mem_util dat_mem**

CU_DC, CU_DC_R,
 CU_DC_R_S,
 CU_DC_S

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** -**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

- [%]

- [%]

- [%]

Description:

Displays the calculated data memory utilization rates based on the existing target topology.

Index:

[0] = Fast data memory 1
 [1] = Fast data memory 2
 [2] = Fast data memory 3
 [3] = Fast data memory 4
 [4] = Reserved

r9983[0...4]**Measured data memory utilization (actual load) / Mem_ut dat_mem ms**

CU_DC, CU_DC_R,
 CU_DC_R_S,
 CU_DC_S

Can be changed: -**Calculated:** -**Access level:** 4**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** -**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

- [%]

- [%]

- [%]

Description:

Displays the measured data memory utilization rates based on the existing target topology.

Index:

[0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

r9984[0...4]**Data memory utilization OA / Mem_ut dat_mem OA**

CU_DC, CU_DC_R,
 CU_DC_R_S,
 CU_DC_S

Can be changed: -**Calculated:** -**Access level:** 3**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** -**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

- [%]

- [%]

- [%]

Description:

Displays the utilization of the data memory by OA applications.

2 Parameters

2.2 List of parameters

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Reserved

| | | | |
|--|---|----------------------|--------------------------|
| r9986[0...7] | DRIVE-CLiQ system load / DQ system load | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the calculated DRIVE-CLiQ system load based on the existing target topology. The values are not made available until the RUNUP READY (800) state is adopted (see p3988). Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107. | | |

| | | | |
|--|--|----------------------|--------------------------|
| r9987[0...7] | DRIVE-CLiQ bandwidth load / DQ bandw load | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the calculated DRIVE-CLiQ bandwidth load based on the existing target topology. The values are not made available until the RUNUP READY (800) state is adopted (see p3988). Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107. | | |

| | | | |
|--|--|----------------------|--------------------------|
| r9988[0...7] | DRIVE-CLiQ DPRAM load / DQ DPRAM load | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the calculated DRIVE-CLiQ DPRAM load based on the existing target topology. The values are not made available until the RUNUP READY (800) state is adopted (see p3988). Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107. | | |

| | | | |
|--|--|----------------------|--------------------------|
| p9990 | DO memory usage actual value determination selection / Mem_use ActVal sel | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 65535 | 0 |
| Description: | The meaning of the parameter differs for reading and writing. Read: - Returns the number of memory areas monitored. Write: - Memory usage of a drive object: Enter drive object number - Memory usage of the complete system: Enter value 65535 | | |

| | | | |
|--|--|--|---|
| r9991[0...4] | Memory usage drive object actual value / Mem_use DO ActVal | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the memory usage for each drive object as actual value. | | |
| Index: | [0] = Fast Memory 1 [1] = Fast Memory 2 [2] = Fast Memory 3 [3] = Fast Memory 4 [4] = Heap | | |
| r9992[0...4] | Memory usage drive object reference value / Mem_use DO ref val | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the memory usage for each drive object as reference value. | | |
| Index: | [0] = Fast Memory 1 [1] = Fast Memory 2 [2] = Fast Memory 3 [3] = Fast Memory 4 [4] = Heap | | |
| r9993[0...4] | Memory usage OA application / Mem_use OA | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the memory usage of an OA application. | | |
| Index: | [0] = Fast Memory 1 [1] = Fast Memory 2 [2] = Fast Memory 3 [3] = Fast Memory 4 [4] = Heap | | |
| r9999[0...99] | Software error internal supplementary diagnostics / SW_err int diag | | |
| CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S | Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - |
| Description: | Diagnostics parameter to display additional information for internal software errors. | | |
| Note: | Only for internal Siemens troubleshooting. | | |

| r50000 | Operating display / Op_display | | |
|---------------------|--|--|--|
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: 2651, 6905 Unit selection: - Expert list: 1 Factory setting - |
| Description: | o0.0 No torque direction switched on o0.1 Torque direction I switched on o0.2 Torque direction II switched on o0.9 Wait for enable from master o1.0 Wait time for brake opening time running o1.1 Wait for operating enable at terminal 13 o1.2 Wait for operating enable (signal source acc. to p0852) o1.3 Wait time after withdrawing a jog command running o1.4 Wait for field reversal to be implemented or for "Braking by field reversal" to be withdrawn o1.5 Wait for operating enable from the optimization run o1.6 Wait for withdrawal of the immediate pulse inhibit (signal source acc. to p50177) o1.7 Wait until SINAMICS DCMs connected in parallel are in status o0 o1.8 Wait until the power unit topology has been switched over o2.0 Wait for setpoint r52193 > p50091[1] o3.0 Wait for the thyristor check to be completed o3.1 Wait for the line symmetry check to be completed o3.2 Wait for a DC contactor to pick up o3.3 Wait for the feedback signal, "line contactor" (signal source acc. to p50691) o4.0 Wait for voltage at power connections 1U1, 1V1, 1W1 o4.1 Wait for fuse monitoring to signal OK o4.5 Wait for pre-charging of the CCP's chopper capacitors to be completed o5.0 Wait until the field current actual value r52265 is > p50396 and until "I_field ext > If_min" (see p50265) o5.1 Wait for voltage at power connections 3U1, 3W1 Note: A specific time, which can be set in p50089, represents the maximum wait time in states o4 and o5 combined. If, after this time, the relevant conditions have still not been met, the corresponding error message will be triggered. o6.0 Wait for the auxiliaries to power up (wait time p50093) o6.1 Wait for a setpoint <= p50091[0] at the RFG input (p520193) o7.0 Wait for power-on via terminal 12 o7.1 Wait for power-on (signal source according to p0840) o7.2 Wait for the "Braking by field reversal" command to be withdrawn o7.3 Wait for parallel master to power up o7.4 Optimization run executes pre-work/post-work o7.5 Wait until the SINAMICS DCM devices connected in parallel are ready to be switched on o7.6 Wait for "Load MLFB" to be completed (carried out by manufacturer prior to delivery) o8.0 Wait for closing lockout to be acknowledged o8.1 Simulation mode active (see p51840) o9.1 Quick stop (OFF3) (signal source acc. to p0848) present o9.2 Quick stop (OFF3) (signal source acc. to p0849) present o10.1 Voltage disconnect (OFF2) (signal source acc. to p0844) pending o10.2 Voltage disconnect (OFF2) (signal source acc. to p0845) pending o10.3 E stop (safety shutdown) (terminal 105/106) pending o10.6 CUD right o11.0 Fault o12.0 Initializ. of line voltage sensing for field in progress o12.1 Initializ. of line voltage sensing for armature in progr. o12.3 Read out data from gating modules (armature and field) | | |

- o12.4 Offset calibr. of curr. act. val. sensing being performed
- o12.5 Read out data from the power unit
- o12.6 Wait for second processor (TMS320) to go into normal operation

| | | | |
|----------------------|---|-------------------------|----------------------------------|
| r50012 | Motor temperature / Mot temp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8030 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |
| Description: | Displays the motor temperature. The temperature sensor is connected via terminal X177.53/54/55 of the CUD. | | |
| Dependency: | The temperature value is only displayed when using one of the following temperature sensors: - KTY84 (p50490 = 1): measuring range = -40 °C to +300 °C - PT100 (p50490 = 6): measuring range = -200 °C to +300 °C - NTC thermistor K227 (p50490 = 7): measuring range = +85 °C to +200 °C - PT1000 (p50490 = 8): measuring range = -200 °C to +300 °C Refer to: p50490, r52051 | | |
| Note: | If p50490 = 0, 2 to 5, a value of 0 is displayed. | | |
| r50013[0...4] | Temperature sensor/Module / Temp sensor/Mod | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8048 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°C] | - [°C] | - [°C] |
| Description: | Displays the temperature of the various temperature sensors for device and modules. | | |
| Index: | [0] = Temperature sensor 1 [1] = Temperature sensor 2 [2] = Temperature sensor 3 [3] = Gating module temperature [4] = CUD Control Unit temperature | | |
| Note: | Temperature sensors which are not in use return a high negative value (approx. -200 °C). | | |
| r50014[0...1] | Temperature rises calculated / Temp rise calc | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8038, 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the values calculated for the temperature rise of the motors and the thyristors. | | |
| Index: | [0] = Motor temperature rise [1] = Thyristor temperature rise | | |
| Dependency: | Refer to: p50075, r52310 | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|-------------------------|--|
| r50015 | Armature circuit rms value of phase-to-phase line voltage / Arm cct V_line rms | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [Vrms] | - [Vrms] | - [Vrms] |
| Description: | Displays the phase-to-phase line voltage in the armature circuit (rms value). | | |
| r50016 | Field circuit line voltage rms value / F cct V_line rms | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [Vrms] | - [Vrms] | - [Vrms] |
| Description: | Displays the line voltage in the field circuit (rms value). | | |
| r50017[0...1] | Line frequency / f_line | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6854, 6950, 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [Hz] | - [Hz] | - [Hz] |
| Description: | Displays the line frequency in the armature circuit/field circuit. | | |
| Index: | [0] = Armature circuit [1] = Field circuit | | |
| r50018 | Armature firing angle / Arm fir angle | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°] | - [°] | - [°] |
| Description: | Displays the firing angle on the armature circuit. | | |
| r50019 | Armature current actual value / Arm I_act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the internal signed current actual value in the armature circuit. The value is averaged over 6 cycles. | | |
| Note: | This parameter is referred to the rated motor current. The following applies: 100% corresponds to p50100[ij], whereby ij = active DDS | | |

r50020 Closed-loop armature current control motor current set abs value / Ia ctr I_set abs

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Displays the absolute value of the motor current setpoint.

Note: This parameter is referred to the rated motor current.

The following applies: 100% corresponds to p50100[ii], whereby ii = active DDS

r50021 Torque limiting torque setpoint after limiting / Tqe set after lim

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Displays the torque setpoint after limiting.

Note: 1 corresponds to 0.1% of the rated torque of the motor.

r50022 Torque limiting torque setpoint before limiting / Tqe set bef lim

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Displays the torque setpoint before limiting.

Note: 1 corresponds to 0.1% of the rated torque of the motor.

r50025 Speed controller actual value selection / Act sel

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output of the selected speed actual value on the speed controller.

r50028 Speed setpoint before the ramp-function generator display / n_set bef RFG disp

| | | | |
|---------|-----------------------------------|-----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [1 rpm] | - [1 rpm] | - [1 rpm] |

Description: Displays the speed setpoint before the ramp-function generator.

Dependency: Refer to: r52193

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|-----------------------|----------------------------|
| r50029 | Speed setpoint AOP30 display / n_set AOP30 disp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3113 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2000 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [1 rpm] | - [1 rpm] | - [1 rpm] |
| Description: | Displays the speed setpoint from the Advanced Operator Panel 30 (AOP30). | | |

| | | | |
|----------------------|--|----------------------|----------------------------|
| r50030[0...3] | Device fan speed / Dev fan n | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8047 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [1 rpm] | - [1 rpm] | - [1 rpm] |
| Description: | Displays the speed of the device fan. | | |
| Index: | [0] = Fan 1 speed [1] = Fan 2 speed [2] = Fan 3 speed [3] = Fan 4 speed | | |
| Dependency: | Refer to: p50082, p50096 Refer to: F60167 | | |
| Note: | The following options are available, dependent upon the power unit used: - No fans - 2 DC fans - 1 AC fan - 2 AC fan - 2 AC fans + 1 DC fan | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| r50033 | Field voltage actual value / Uf act val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |
| Description: | Displays the actual value of the field voltage. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| r50034 | Field firing angle / Field fir angle | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [°] | - [°] | - [°] |
| Description: | Displays the firing angle on the field circuit. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r50035 | Field current controller actual value / I_{field} ctr act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the actual value on the field current controller. | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| r50036 | Field current controller setpoint / I_{field} ctr set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the setpoint value on the field current controller. | | |

| | | | |
|---------------------|-----------------------------------|----------------------|----------------------------|
| r50037 | EMF actual value / EMF act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |
| Description: | Displays the EMF actual value. | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| r50038 | Armature voltage actual value / U_a act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |
| Description: | Displays the actual value of the armature voltage. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| r50039 | Motor EMF setpoint / Mot EMF set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |
| Description: | Displays the EMF setpoint calculated from the motor data. | | |

| | | | |
|-----------------------|---|----------------------|----------------------------|
| r50047[0...31] | Faults additional information / Fault add info | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays more detailed information about faults which have occurred with numbers 60000 and higher. [0] = Fault value [1] = Additional information about the most recent fault which occurred (see corresponding fault) ... [30] = Additional information about the most recent fault which occurred (see corresponding fault) [31] = Fault number | | |
| p50051 | Optimization run selection / Opt run sel | | |
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 30 | 0 |
| Description: | Setting to select the optimization run for the next ON command. | | |
| Value: | 0: No optimization run 23: Armature current control (for inductive loads) 24: Closed-loop field current control 25: Closed-loop armature current control 26: Closed-loop speed control and moment of inertia 27: Field weakening control 28: Friction compensation 29: Torsion optimization 30: CCP (Converter Commutation Protector) | | |
| Notice: | If value = 30: The CCP optimization run does not require a switch-on command and is directly started when selecting the value. | | |
| Note: | Only a value of 0 can be set at the right-hand CUD. A value not equal to 0 can only be set in the operating states o7.0 and o7.1 if an optimization run is presently not active. If value = 0: No optimization run has been selected. If value = 23: Optimization run for pre-control and the current controller for the armature converter (for inductive loads). If value = 24: Optimization run for pre-control and the current controller for the field converter. If value = 25: Optimization run for pre-control and the current controller for the armature converter. If value = 26: Optimization run for the speed controller and moment of inertia. If value = 27: Optimization run for field weakening. If value = 28: Optimization run for friction compensation. If value = 29: Optimization run for speed controllers and moment of inertia for drives that are capable of oscillation. If value = 30: Optimization run for CCP (Converter Commutation Protector). | | |

| r50052 Optimization run status / Opt run status | | | |
|--|---|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 701 | - |
| Description: | Displays the status during the optimization run. | | |
| Value: | <ul style="list-style-type: none"> 0: No optimization run 1: Wait for operating state 7.4 2: Check prerequisites 3: Save original interconnection 4: Interconnect optimization parameters 5: Wait for operating state 0.x or 1.5 6: Set optimized parameter values 7: Wait for operating state 8.0 8: Troubleshooting 9: Exit optimization run 101: Set field current to 100% 102: Measure field circuit resistance 103: Measure field circuit inductance 201: Wait for field decay 202: Set armature current to 100% 203: Measure armature circuit resistance 204: Measure armature circuit inductance 301: Record speed characteristic 302: Stop motor 401: Calculate nominal EMF 402: Calculate nominal speed 403: Record field characteristic 91 % field current 404: Record field characteristic 83 % field current 405: Record field characteristic 76 % field current 406: Record field characteristic 70 % field current 407: Record field characteristic 65 % field current 408: Record field characteristic 60.5 % field current 409: Record field characteristic 56.5 % field current 410: Record field characteristic 53 % field current 411: Record field characteristic 50 % field current 412: Record field characteristic 47 % field current 413: Record field characteristic 44 % field current 414: Record field characteristic 41 % field current 415: Record field characteristic 38 % field current 416: Record field characteristic 35 % field current 417: Record field characteristic 32 % field current 418: Record field characteristic 29 % field current 419: Record field characteristic 26 % field current 420: Record field characteristic 23 % field current 421: Record field characteristic 20 % field current 422: Record field characteristic 17 % field current 423: Record field characteristic 14 % field current 424: Record field characteristic 11 % field current 425: Record field characteristic 8% field current 426: Recording of field characteristic is complete 501: Wait for field to build up 502: Recording the friction characteristic - 10% rated speed 503: Recording the friction characteristic - 20% rated speed 504: Recording the friction characteristic - 30% rated speed 505: Recording the friction characteristic - 40% rated speed 506: Recording the friction characteristic - 50% rated speed 507: Recording the friction characteristic - 60% rated speed 508: Recording the friction characteristic - 70% rated speed 509: Recording the friction characteristic - 80% rated speed | | |

2 Parameters

2.2 List of parameters

510: Recording the friction characteristic - 90% rated speed
 511: Recording the friction characteristic - 100% rated speed
 701: Calculation is carried out

r50060[0...14]

Software version / SW version

| | | | |
|---------|------------------------------|----------------------|--------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the existing software versions.

Index:
 [0] = Complete device version external
 [1] = Complete device version internal
 [2] = DSAC Bootloader Version
 [3] = BIOS version
 [4] = Configuration EEPROM version
 [5] = Base system version
 [6] = DC MASTER version
 [7] = TMS version
 [8] = TMS image version
 [9] = TMS bootloader version
 [10] = TMS bootloader image version
 [11] = Powerstack properties version
 [12] = In-plant information
 [13] = DCC version
 [14] = FBLOCKS version

Note: Some of these software versions are also displayed at other parameters.
 Index 0 <--> r7844[1]
 Index 1 <--> r7844[0]
 Index 2 <--> r0197
 Index 5 <--> r0018
 Index 6, 13, 14 <--> r4957[x]

r50063[0...1]

CUD information / CUD info

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays information about the Control Unit DC MASTER (CUD).

Index:
 [0] = CUD position
 [1] = CUD variant

Note:
 Re index 0:
 Indicates the position of the Control Unit DC MASTER (CUD) in the device.
 - Value = 0: CUD is installed on the left.
 - Value = 1: CUD is installed on the right.
 Re index 1:
 Indicates the variant of the Control Unit DC MASTER (CUD).
 - Value = 0: CUD is the standard version.
 - Value = 1: CUD is the advanced version.

| | | | |
|-----------------------|--|----------------------|----------------------------|
| p50066 | Power unit I2t monitoring derating factor K1 limit value / PU fact K1 lim val | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.50 | 1.00 | 0.50 |
| Description: | Sets the limit value for derating factor K1 (thermal power reduction factor). This limit value is necessary for devices with option L99. If this limit value is fallen below, then an appropriate alarm is output. | | |
| Dependency: | Refer to: A60082 | | |
| Note: | The derating factor K1 should be taken from the following reference: SINAMICS DCM Operating Instructions - Chapter "Sensor for ambient or air intake temperature" | | |
| p50067 | Load class / Load class | | |
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 5 | 1 |
| Description: | Load class setting. Dependent upon the selected load class, the device's rated direct current is reduced to a value which will vary according to power unit and load class. The current value of the device's rated direct current is displayed via r50072[1]. | | |
| Value: | 1: DC I 2: DC II 3: DC III 4: DC IV 5: US rating | | |
| Note: | If the device's rated direct current is also reduced via p50076[0], the smaller of the two values will be applied. If p50067 is set to a value > 1, you must ensure that the "dynamic overload capability of the power unit" is enabled (in other words, a value > 0 must be set in p50075). The device does not check for compliance with the load class set in p50067. If the power unit is able to tolerate it, the device can run at overload for longer than is permitted by the load class. The actual permissible overload duration for each power unit is always longer than the overload duration permitted by the load class. The device checks for compliance with the overload duration actually permitted by the power unit. | | |
| r50068[0...95] | Power unit nameplate options / PU options | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the options according to the power unit's nameplate. | | |
| Note: | The individual digits of the number are displayed in ASCII code in the indices. An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |

| | | | |
|-----------------------|--|----------------------|--|
| r50069[0...31] | Power unit serial number / PU ser no. | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the serial number of the power unit. | | |
| Note: | The individual digits of the number are displayed in ASCII code in the indices. An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |
| r50070[0...31] | Power unit order number / PU Order No. | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the order number (MLFB) of the power unit. | | |
| Note: | The individual digits of the number are displayed in ASCII code in the indices. An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |
| r50071 | Device rated line-side voltage armature / Device Ua_{rated} | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [Vrms] | - [Vrms] | - [Vrms] |
| Description: | Displays the device rated line-side voltage for the armature as indicated on the device's nameplate. | | |
| r50072[0...1] | Device rated direct current armature / Device Ia_{rated} | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6800, 6825, 6830, 6840, 6850, 6851, 6855, 6910, 6960, 6965, 8038, 8040, 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [A] | - [A] | - [A] |
| Description: | Displays the device rated direct current (armature). | | |
| Index: | [0] = Device rated direct current armature [1] = Reduced rated direct current armature | | |
| Note: | Re index 0: Device rated direct current (armature) as indicated on the device's nameplate. Re index 1: Actual device rated direct current (armature) according to the setting in parameter p50076[0] or p50067. Also see the note for parameter p50076[0]. | | |


| r50073[0...1] | | Device rated direct current field / Device If_{rated} | | |
|----------------------|---|--|--|--|
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [A] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [A] | Access level: 1 Func. diagram: 6900, 6905, 6910, 6912, 6960, 8044 Unit selection: - Expert list: 1 Factory setting - [A] | |
| Description: | Displays the device rated direct current (field). | | | |
| Index: | [0] = Device rated direct current field [1] = Reduced rated direct current field | | | |
| Note: | When using an external field device (p50084 > 20) the rated device DC field current is taken from the value set in p51838. Re index 0: Device rated direct current (field) as indicated on the device's nameplate (output direct current at power connections 3C and 3D). Re index 1: Actual device rated direct current (field) according to the setting in parameter p50076[1]. | | | |
| r50074 | | Device rated line-side voltage field / V_{rated} field | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [Vrms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [Vrms] | Access level: 1 Func. diagram: 6960 Unit selection: - Expert list: 1 Factory setting - [Vrms] | |
| Description: | Displays the device rated line-side voltage for the field as indicated on the device's nameplate. | | | |
| p50075 | | Power unit I2t monitoring response / PU I2t mon resp | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2 | Access level: 2 Func. diagram: 8042 Unit selection: - Expert list: 1 Factory setting 0 | |
| Description: | Sets the response for I2t monitoring of the power unit. | | | |
| Value: | 0: Dynamic overload not permitted 1: Dynamic overload possible, A60039 2: Dynamic overload possible, F60139 | | | |
| Note: | If value = 0: Dynamic overload capability is not permissible. The armature current setpoint (r52133) is limited to $p50077 * r50072[1]$. A value of 0 can only be set, if $p50067 = 1$. If value = 1: Dynamic overload capability is permissible. As long as the calculated temperature rise of the thyristors does not exceed the permissible value, the armature current setpoint is limited to the value $p50077 * r50072[1] * 180\%$. If the permissible value is exceeded, the device will protect itself by reducing the current limit to $p50077 * r50072[1]$. Alarm A60039 is triggered at the same time. The armature current setpoint limit will only be increased back to the value $p50077 * r50072[1] * 180\%$ and alarm A60039 will only disappear once the calculated temperature rise of the thyristors falls back below the permissible value and the armature current setpoint is less than the device rated current $r50072[1]$. If value = 2: Dynamic overload capability is permissible. If the calculated temperature rise of the thyristors exceeds the permissible value, the drive will be shut down with fault F60139. | | | |

| | | | |
|----------------------|---|--|---|
| p50076[0...1] | Device rated direct current reduction / Device I_r rated red | | |
| DC_CTRL | Can be changed: C2(1), T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 1.0 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 100.0 [%] | Access level: 1 Func. diagram: 6850, 6960 Unit selection: - Expert list: 1 Factory setting 100.0 [%] |
| Description: | Sets the reduction of the device rated direct current for armature and field. The device rated direct current is reduced to the value set here to better adapt the device to the motor. | | |
| Index: | [0] = Armature [1] = Field | | |
| Note: | - If a load class has been set in parameter p50067 which reduces the device rated direct current, the smaller of the two values will be applied. - The value set in index 0 (armature) results in a hardware-based adaption of the current actual value sensing gain. This can only be adapted in a discrete stages. As a consequence, the value set here is not precisely effective, but the next possible value. The actually effective rated device current can be seen in parameter r50072[1]. The following applies: $r50072[1] = K * r50072[0]$ $K = A/255$ $A = p50076[0] * 255/100$ (rounded to the next lower integer number) | | |
| p50077 | Power unit I_{2t} monitoring derating factor / PU I_{2t} mon derat | | |
| DC_CTRL | Can be changed: T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.50 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1.00 | Access level: 2 Func. diagram: 6840, 8042 Unit selection: - Expert list: 1 Factory setting 1.00 |
| Description: | Sets the derating factor for I _{2t} monitoring of the power unit. | | |
| Note: | Derating is required in the following cases: - Operation at increased ambient temperature - Installation altitude more than 1000 m above sea level The derating factor should be taken from the following reference: SINAMICS DCM Operating Instructions - Chapter "Derating" and "Sensor for ambient or air intake temperature" | | |
| p50078[0...1] | Supply voltage rated value / V_{supp} rated val | | |
| DC_CTRL | Can be changed: C2(1), T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 10 [Vrms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 2000 [Vrms] | Access level: 1 Func. diagram: 6855, 6900, 6902, 6950, 6952, 6960 Unit selection: - Expert list: 1 Factory setting 400 [Vrms] |
| Description: | Sets the rated value of the supply voltage for armature and field. This parameter should be used to set the rated voltage value of the actual line used to supply power to the power unit. | | |
| Index: | [0] = Armature [1] = Field | | |
| Note: | This value is the reference value for the following parameters: p50351, p50352, p50353 r52285 to r52289, r52291, r52292, r52301, r52302, r52303, r52305 | | |

Re index 0:
Only values less than r50071 can be set.
Re index 1:
Only values less than r50074 can be set.

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50079 | Armature gating unit short pulses/long pulses / Arm sh/lg pulse | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the short pulses/long pulses on the armature gating unit. Value = 0: The gating unit emits short pulses (0.89 ms = approx. 16 degrees at 50 Hz). Value = 1: The gating unit emits long pulses (pulse duration up to approx. 0.1 ms before the next pulse) (e.g. required in the case of field infeed from the armature terminals). | | |
| Value: | 0: Short pulses 1: Long pulses | | |
| p50080 | Brake control braking mode / Brake ctr mode | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2750 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Sets the braking mode for brake control. | | |
| Value: | 0: No brake 1: Holding brake 2: Operational brake | | |
| Dependency: | Refer to: p50370, p50371 | | |
| Note: | If p50080 = 1 (holding brake): If the "Enable operation" command is withdrawn or the "Disconnect voltage" or "E-stop" command is set, the "Close brake" command will not be set until "n < n_min" is reached. If p50080 = 2 (operational brake): If the "Enable operation" command is withdrawn or the "Disconnect voltage" or "E-stop" command is set, the "Close brake" command will be set immediately (in other words, even if the motor is still running). | | |
| p50081 | Field weakening activation / Field weak act | | |
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the activation/de-activation of EMF-dependent field weakening. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Notice: | When field weakening is active (p50081 = 1), a valid field characteristic must be available (p50117 = 1); if not, the optimization run for field weakening (p50051 = 27) must be performed. | | |

| p50082 | | Field power unit operating mode / Field PU op mode | |
|---------------------|---|---|--|
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6910, 8044, 8047 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 24 | 2 |
| Description: | Sets the operating mode for the field power unit. If p50082 = 1, 2, 3, 4, the motor flux is calculated according to the field characteristic (p50120 to p50139) as a function of the field current actual value (r52265). | | |
| Value: | 0: No field 1: Field switched with line contactor 2: Standstill field for ≥ 07.0 3: Field continuously active 4: Field switched with Auxiliaries ON signal 21: External field power unit, otherwise as setting 1 22: External field power unit, otherwise as setting 2 23: External field power unit, otherwise as setting 3 24: External field power unit, otherwise as setting 4 | | |
| Dependency: | Refer to: r50073, p50076, p50258, p50265, p50612, p51838, r52265, r52268, r52290 | | |
| Notice: | Although it is permissible for the parameter to be changed to values not equal to 0 in operating states o1.0, such changes will not be applied until operating states greater than or equal to o7.0. | | |
| Note: | If an external field device is used, the setpoint comes from r52268 (e.g. via an analog output or over the peer-to-peer interface). The rated direct current of the external field device should be set in p51838. This value is also displayed in r50073[1]. p50076[2] is redundant. If the external field device sends a field current actual value signal, this should be fed in via p50612. If the external field device is not able to send a field current actual value signal, p50263 should be set to a value of 1 or 2. If the external field device sends an $I_{\text{field}} < I_{\text{field_min}}$ signal, this can be fed in at injection point p50265. If p50082 = 0: - No field is used (e.g. in the case of permanent-magnet motors). The field firing pulses are disabled. The motor flux is set to the value for 100% rated flux. If p50082 = 1: - Internal field power unit. The line supplies for the field and armature sections are connected or disconnected simultaneously. The field firing pulses are enabled/disabled at the same time as the line contactor closes/opens; the field current decays with the field time constant during freewheeling. If p50082 = 2: - Internal field power unit. Automatic injection of standstill field set in p50257 after expiry of a period of time set in p50258 once operating state o7 or higher has been reached. If p50082 = 3: - Internal field power unit. The field is active continuously. If p50082 = 4: - Internal field power unit. The field is switched together with the Auxiliaries ON signal (p53210.2). If p50082 = 21: - External field device. The field is controlled in the same way as with p50082 = 1. If p50082 = 22: - External field device. The field is controlled in the same way as with p50082 = 2. If p50082 = 23: - External field device. The field is controlled in the same way as with p50082 = 3. If p50082 = 24: - External field device. The field is controlled in the same way as with p50082 = 4. | | |

| | | | |
|---|---|-------------------------------|----------------------------------|
| p50083[0...n] | Speed controller actual value selection / n_ctr act sel | | |
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 5 | 0 |
| Description: | Selection of the speed actual value. | | |
| Value: | 0: Selection de-activated 1: Analog tachometer 2: Incr encoder 3: EMF actual value internal 4: Free interconnection using p50609 5: DRIVE-CLiQ encoder | | |
| Dependency: | Refer to: p50115, p50609 | | |
| Warning: | If value = 3: Monitoring for overspeed is only active subject to restrictions since if the EMF is used as the speed actual value with a field current actual value which is too low, very high motor speeds will be reached. | | |
|  | | | |
| Note: | If value = 3: The EMF actual value is evaluated with p50115. | | |
| p50084 | Closed-loop speed control/Closed-loop current/torque control sel / n//tqe ctr sel | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6810, 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 2 | 1 |
| Description: | Sets closed-loop speed control or closed-loop current/torque control. | | |
| Value: | 1: Closed-loop speed control 2: Closed-loop current/torque control | | |
| Note: | If value = 2: The setpoint provided by the RFG output is set as the current/torque setpoint and the speed controller is bypassed. | | |
| p50085 | Sequence control withdraw jog wait time / S ctr jog t | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 60.0 [s] | 10.0 [s] |
| Description: | Sets the wait time for sequence control once the jog command has been withdrawn. Once the jog command has been withdrawn, the wait time does not start until n < n_min (p50370, p50371) is reached. | | |
| Note: | Once a jog command has been withdrawn, the drive will remain in operating state o1.3 for the set wait time, with the controllers inhibited and the line contactor picked up. If a second jog command is sent during this time, the drive will switch to the next operating state (o1.2 or lower). However, if the time elapses without a second jog command being sent, the line contactor will drop out and the drive will switch to operating state o7. | | |

| | | | |
|---------------|--|----------------------|----------------------------|
| p50086 | Sequence control line voltage failure duration permissible / V_line_fail t perm | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 10.00 [s] | 0.00 [s] |

Description: Sets the permissible duration of a line voltage failure.
If a line voltage failure lasts longer than this time, the corresponding fault will be triggered.
If the line voltage failure is shorter than the set time, a restart will follow automatically.

Dependency: Refer to: F60004, F60005, F60006, F60007, F60008, F60009

Caution: The value in p50090 must be smaller than that in p50086 (unless for a value = 0.0) and in p50089!



| | | | |
|---------------|---|----------------------|----------------------------|
| p50087 | Brake control brake opening time / Br ctr t open | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2750 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -10.00 [s] | 10.00 [s] | 0.00 [s] |

Description: Sets the brake closing time.
When "Open brake" is sent, the firing pulse enable is delayed by this time.

Note: For a negative time setting:

With "Open brake", a delay corresponding to the set time is applied in relation to the enable for the firing pulses for the thyristors. During this time, the motor works in opposition to the brake, which is still closed. This is useful, for example, in the cases of suspended loads.

For a positive time setting:

When the "Switch on", "Jog" or "Creep" command is sent with operation enabled, the firing pulses for the thyristors are not enabled until the set time has elapsed. During this time, the drive is in operating state o1.0 to give a holding brake the opportunity to open in advance.

| | | | |
|---------------|--|----------------------|----------------------------|
| p50088 | Brake control brake closing time / Br ctr t close | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2750 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 10.00 [s] | 0.00 [s] |

Description: Sets the brake closing time.
When "Close brake" is sent, the firing pulse inhibit is delayed by this time.

Note: During this time, the drive is in operating state o1.1, o1.2, or o1.0 and is still applying torque.

| | | | |
|---------------|---|----------------------|----------------------------|
| p50089 | Sequence control voltage at power unit wait time / S ctr V at PU t | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 [s] | 60.00 [s] | 2.00 [s] |

Description: Sets the wait time for voltage and field current at the power unit.

Once the line contactor has dropped out and the "Switch on", "Jog" or "Creep" commands have been sent, in operating states o4 and o5, the drive waits for voltage at the power unit and for a field current actual value (r52265) > 50% of the field current setpoint (r52268).

If, during this time, no voltage is detected at the power unit and the field current is missing, a message is output accordingly.

Dependency:

Refer to: p50353

Caution:

The value in p50090 must be smaller than that in p50086 (unless p50086 = 0.0) and p50089!

**Note:**

This parameter indicates the total wait times during which the drive must pass through operating states o4 and o5 (response threshold for monitoring for the presence of voltage at the power unit, see p50353).

p50090**Line voltage stabilization time / V_line t_stabil**

DC_CTRL

Can be changed: U, T**Calculated:** -**Access level:** 3**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** 6950, 6952**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0.01 [s]

1.00 [s]

0.05 [s]

Description:

Sets the line voltage stabilization time.

Caution:

The value in p50090 must be smaller than that in p50086 (unless p50086 = 0.0) and p50089!

**Note:**

When the "Switch on", "Jog" or "Creep" command is sent and also after a phase failure affecting the line infeed has been detected with the "Automatic restart" function parameterized (p50086 > 0), the drive waits in operating state o4 for voltage at the power unit.

If amplitude, frequency and phase symmetry remain within the permissible tolerance for longer than this set stabilization time, line voltage is assumed to be present at the power connections.

p50091[0...1]**Sequence control setpoint threshold / S_ctr set thresh**

DC_CTRL

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** FloatingPoint32**Dyn. index:** -**Func. diagram:** 2650, 2651**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** PERCENT**Expert list:** 1**Min****Max****Factory setting**

0.00 [%]

200.00 [%]

[0] 200.00 [%]

[1] 0.00 [%]

Description:

Sets the thresholds for "Switch on only with low setpoint" and "Automatic pulse inhibit with low setpoint".

Index:

[0] = Switch on only with low setpoint

[1] = Automatic pulse inhibit with low setpoint

Dependency:

Refer to: r52166, r52193

Note:

If p50091[0]:

Switching on is possible only if a setpoint |r52193| < p50091[0] is present at the RFG input.

If a higher setpoint is present, following activation, state o6 will remain set until |r52193| < p50091[0].

If p50091[1]:

If |r52193| and r52166 are smaller than p50091[1], the firing pulses will be inhibited and the motor will switch to state o2.0.

| | | | |
|----------------------|--|----------------------|--|
| p50092[0...3] | Field reversal wait times / Field rev t_wait | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6920 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 10.0 [s] | [0] 3.0 [s] [1] 0.2 [s] [2] 0.1 [s] [3] 3.0 [s] |
| Description: | Sets the times to control the reversing contactor to reverse the field for a 2-quadrant device with field reversal. | | |
| Index: | [0] = Field decay [1] = Control new field contactor [2] = Enable field firing pulses [3] = After field build up before armature enable | | |
| Dependency: | Refer to: p50580, p50581, p50583, r53195 | | |
| Note: | <p>Re index 0: Wait time for the field to decay before opening the actual field contactor. When initiating an operation to reverse the field, after reaching I_Field (r52265) < I_Field_min (p50394), this wait time expires before the actual field contactor is opened.</p> <p>Re index 1: Wait time before controlling the new field contactor. After the actual field contactor has opened, this wait time expires before the field contactor is controlled for the "new" field direction (the dropout delay time of the contactor used is generally higher than the closing delay time).</p> <p>Re index 2: Wait time before enabling the field firing pulses. After controlling the field contactor for the "new" field direction, this wait time expires before the field firing pulses are enabled. This time must be greater than the closing delay time of the contactor being used.</p> <p>Re index 3: Wait time after the field has been re-established before the armature is enabled. After the field firing pulses have been enabled, the field current actual value I_field in the "new" field direction reaches the value I_field (r52265) > I_field_set (r52268) * p50398/100%. This wait time then starts to run. After this expires, the internal (armature) "operating enable for field reversal" is issued, and the drive is no longer held in operating state o1.4. After the field current has been re-established, this wait time allows the system to wait for the overshoot of the field current actual value to end and therefore the overshoot of the EMF of the DC motor before armature operation is enabled. This is intended to avoid armature overcurrents due to an excessively high EMF during an overshoot.</p> | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50093 | Sequence control line contactor ON delay / Line cont t_ON | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 120.0 [s] | 0.0 [s] |
| Description: | <p>Sets the ON delay for the line contactor. The switching on of the line contactor in relation to that of the auxiliaries is delayed by the time set here.</p> | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50094 | Sequence control auxiliaries OFF delay / Aux t_OFF | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 6500.0 [s] | 0.0 [s] |
| Description: | Sets the OFF delay for the auxiliaries. The switching off of the auxiliaries in relation to that of the line contactor is delayed by the time set here. | | |
| p50095 | Sequence control DC circuit contactor wait time / DC cont t_wait | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 1.00 [s] | 0.00 [s] |
| Description: | Sets the wait time for a contactor in the DC circuit. The time set in p50095 starts to elapse during a switch-on operation when operating state o5 is reached. If this time is still running when operating state o4 is exited, then the system stays in state o3.2 until this time lapses. | | |
| Dependency: | Refer to: p50691 | | |
| Notice: | If the motor is connected to the DC current output (terminal 1C1, 1D1) via a contactor, then generally, this contactor is also controlled from the relay for the line contactor (terminals 109, 110). In this case, it must be ensured that the firing pulses are only enabled after it is completely certain that the contactor has closed. To realize this, this additional wait time is required when switching on. | | |
| Note: | If the function "Feedback line contactor" is used, a change to 1 signal must be detected via p50691 within the time set in p50095. Otherwise, state o3.3 is adopted until it elapses and afterwards fault F60104 is triggered with fault value 6. | | |
| p50096 | Device fan run-on time / Dev fan t_run-on | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8047 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 3600.0 [s] | 240.0 [s] |
| Description: | Sets the run-on time for the device fan(s). After a pulse inhibit (reaching an operating state ≥ 0.9), the device fan(s) run-on until the power unit has cooled down and until the run-time has expired. The power unit is considered to have been cooled down if all of the following conditions apply: - All temperature sensors of the power unit indicate values less than 35 °C. - The thermal model for the thyristors supplies a value of less than 5 %. - The field current is less than 10 A. | | |
| Dependency: | Refer to: r53135 Refer to: F60167 | | |
| p50097 | Field current response to faults / I_field resp to F | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets the response of the field current to faults. | | |

2 Parameters

2.2 List of parameters

Value: 0: Inhibit field pulses
1: Enable field pulses

Note: If value = 0:
The field pulses are inhibited when a fault occurs.
If value = 1:
The field pulses are not inhibited when a fault occurs. However, it will not be possible to increase the field current setpoint any further.

p50098 Sequence control contactor in DC circuit / Cont in DC cct

| | | | |
|---------|------------------------------|----------------------|----------------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2651, 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Setting indicating whether a contactor is used in the DC circuit.
The values for the armature voltage U_a and for the EMF (r52123, r52286, r52287, r52291, r52292, r50037, r50038) are then always set to 0% when the line contactor drops out (r53081.0 = 0). This is because in this case the motor terminals are isolated from the output terminals 1C and 1D on the SINAMICS DC MASTER, thereby preventing the sensing of the armature voltage U_a (and thus the EMF).

Value: 0: No contactor in DC circuit
1: Contactor in DC circuit

Dependency: Refer to: r50037, r50038, r52123, r52286, r52287, r52291, r52292

p50099 Communication monitoring delay time / Com mon t_del

| | | | |
|---------|-----------------------------------|----------------------|----------------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300, 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [s] | 1000.000 [s] | 10.000 [s] |

Description: Sets the delay time for monitoring the communication interfaces.
Following the switching on of the electronic supply, the monitoring mechanisms for the communication interfaces in the proximity of the drive (parallel interface and peer-to-peer interface) do not become active until the delay time set here has elapsed.

Dependency: Refer to: r53300, r53310
Refer to: F60012, F60014

Note: This will prevent the interface monitoring mechanisms responding in the event of the electronic power supply to the components being switched on at different times.

p50100[0...n] Motor rated armature current / Mot rated I_ armat

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------------|
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6851, 8038 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [A] | 20000.0 [A] | 0.0 [A] |

Description: Sets the rated armature current as indicated on the motor's nameplate.

Note: If p50100 = 0.0 A, the drive cannot be switched on and put into operation.

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50101[0...n] | Motor rated armature voltage / Mot rated V_armat | | |
| DC_CTRL | Can be changed: C2(1), T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 [V] | 2800 [V] | 400 [V] |
| Description: | Sets the rated armature voltage as indicated on the motor's nameplate. This parameter is used, for example, to specify the trigger point in field weakening operation. | | |
| Note: | If a significant voltage drop is to be expected at the motor's supply line when the motor is at rated current (e.g. very long motor cable), a value increased by this voltage drop should be set at p50101. | | |
| p50102[0...n] | Motor rated excitation current / Mot rated I_exc | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [A] | 600.00 [A] | 0.00 [A] |
| Description: | Sets the rated excitation current as indicated on the motor's nameplate. | | |
| Note: | If p50102 = 0.00 A, the drive cannot be switched on and put into operation. | | |
| p50103[0...n] | Minimum motor excitation current / Mot I_exc min | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [A] | 600.00 [A] | 0.00 [A] |
| Description: | Sets the minimum excitation current for the motor. | | |
| p50104[0...n] | Speed-dependent current limitation speed n1 / I_lim n_dep n1 | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 [1 rpm] | 10000 [1 rpm] | 5000 [1 rpm] |
| Description: | Sets speed n1 according to the motor's nameplate for "speed-dependent current limitation". The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107). This parameter sets speed n1 for the first pair of values (p50104/p50105). | | |
| Dependency: | Refer to: p50105, p50106, p50107, p50108, p50109 | | |
| Note: | The following condition applies: p50104 <= p50106 (n1 <= n2) | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50105[0...n] | Speed-dependent current limitation armature current I1 / I_lim n_dep I1 | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.1 [A] | 20000.0 [A] | 0.1 [A] |
| Description: | Sets armature current I1 according to the motor's nameplate for "speed-dependent current limitation". The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107). This parameter sets armature current I1 for the first pair of values (p50104/p50105). | | |
| Dependency: | Refer to: p50104, p50106, p50107, p50108, p50109 | | |
| Note: | The following condition applies: p50105 >= p50107 (I1 >= I2) | | |
| p50106[0...n] | Speed-dependent current limitation speed n2 / I_lim n_dep n2 | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 [1 rpm] | 10000 [1 rpm] | 5000 [1 rpm] |
| Description: | Sets speed n2 according to the motor's nameplate for "speed-dependent current limitation". The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107). This parameter sets speed n2 for the second pair of values (p50106/p50107). | | |
| Dependency: | Refer to: p50104, p50105, p50107, p50108, p50109 | | |
| Note: | The following condition applies: p50104 <= p50106 (n1 <= n2) | | |
| p50107[0...n] | Speed-dependent current limitation armature current I2 / I_lim n_dep I2 | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.1 [A] | 20000.0 [A] | 0.1 [A] |
| Description: | Sets armature current I2 according to the motor's nameplate for "speed-dependent current limitation". The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107). This parameter sets armature current I2 for the second pair of values (p50106/p50107). | | |
| Dependency: | Refer to: p50104, p50105, p50106, p50108, p50109 | | |
| Note: | The following condition applies: p50105 >= p50107 (I1 >= I2) | | |

| | | | |
|----------------------|---|-------------------------------|--|
| p50108[0...n] | Speed-dependent current limitation maximum operating speed n3 / I_lim n_dep n3 | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 [1 rpm] | 10000 [1 rpm] | 5000 [1 rpm] |
| Description: | Sets the maximum operating speed n3 for "speed-dependent current limitation". | | |
| Dependency: | Refer to: p50104, p50105, p50106, p50107, p50109 | | |
| Note: | In this parameter, the following maximum speed must be set dependent upon the setting of the signal source for the speed actual value (p50083): | | |
| | - p50083 = 1 (analog tachometer): Speed prevailing at a tachometer voltage according to p50741 | | |
| | - p50083 = 2 (incremental encoder TTL/HTL): Same value as maximum speed according to p50143 | | |
| | - p50083 = 3 (operation without tachometer): Speed prevailing at an EMF according to p50115. | | |
| p50109[0...n] | Speed-dependent current limitation activation / I_lim n_dep act | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets activation/de-activation of the "speed-dependent current limitation" function. | | |
| Value: | 0: Deactivated 1: Activated | | |
| p50110[0...n] | Armature circuit resistance / Ra | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6852, 6855, 6900, 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [ohm] | 4000.000 [ohm] | 0.000 [ohm] |
| Description: | Sets the armature circuit resistance. | | |
| Note: | The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25). | | |
| p50111[0...n] | Armature circuit inductance / La | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6852, 6854, 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [mH] | 1000000.000 [mH] | 0.000 [mH] |
| Description: | Sets the armature circuit inductance. | | |
| Note: | The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25). | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|---|-------------------------------|----------------------------|
| p50112[0...n] Field circuit resistance / R_field circuit | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [ohm] | 4000.000 [ohm] | 0.000 [ohm] |
| Description: | Sets the field circuit resistance. | | |
| Note: | The parameter is set automatically during the optimization run for closed-loop field current control (p50051 = 24). | | |
| p50113[0...n] Motor I2t monitoring continuous current factor / Mot I2t I_cont | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8038 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.50 | 2.00 | 1.00 |
| Description: | Sets the permissible continuous armature current for motor I2t monitoring. | | |
| Note: | At this permissible continuous current, fault F60037 is not output. The current is calculated as follows: p50113 * p50100. | | |
| p50114[0...n] Motor thermal time constant / Mot T therm | | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8038 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [s] | 10000 [s] | 600 [s] |
| Description: | Sets the thermal time constant of the motor. | | |
| Note: | Value = 0: The motor's I2t monitoring is de-activated. | | |
| p50115[0...n] Speed controller EMF at maximum speed / EMF at n_max | | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1.00 [%] | 140.00 [%] | 100.00 [%] |
| Description: | Setting of the percentage value in relation to p50078[0] for specifying the EMF at maximum speed. The speed is adjusted using the EMF as the speed actual value. | | |
| p50116[0...n] Field circuit inductance / L_field circuit | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [mH] | 1000000.0 [mH] | 0.0 [mH] |
| Description: | Sets the field circuit inductance. | | |
| Dependency: | Refer to: p51597 | | |

Note: The parameter is set automatically during the optimization run for pre-control and the current controller for the field converter (p50051 = 24).

| | | | |
|----------------------|---|-------------------------------|--------------------------|
| p50117[0...n] | Field characteristic status / Field char stat | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Status of the field characteristic. | | |
| Value: | 0: Field characteristic not recorded 1: Field characteristic recorded | | |
| Note: | The parameter is set automatically during the optimization run for field weakening (p50051 = 27). If p50117 = 1, the field characteristic is valid (p50118 to p50139). | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50118[0...n] | EMF rated value / EMF rated | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [%] | 200 [%] | 63 [%] |
| Description: | Sets the EMF generated at full field (corresponding to p50102) and a speed according to p50119. | | |
| Dependency: | Refer to: p50119 | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only the ratio of p50118 to p50119 is decisive for field weakening control. If p50102 is modified subsequently or the maximum speed is altered downstream, the optimization run for field weakening has to be repeated. If p50100, p50101 or p50110 is modified subsequently, the optimization run for field weakening does not have to be repeated. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50119[0...n] | Rated speed / n_{rated} | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 200.0 [%] | 100.0 [%] |
| Description: | Sets the speed generated at full field (corresponding to p50102) and an EMF actual value according to p50118. | | |
| Dependency: | Refer to: p50118 | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only the ratio of p50118 to p50119 is decisive for field weakening control. If p50102 is modified subsequently or the maximum speed is altered downstream, the optimization run for field weakening has to be repeated. If p50100, p50101 or p50110 is modified subsequently, the optimization run for field weakening does not have to be repeated. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50120[0...n] | Field current for motor flux 0 % / I_{field} flux 0% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Setting of the field current for a motor flux of 0 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values less than p50121 can be set. | | |
| p50121[0...n] | Field current for motor flux 5 % / I_{field} flux 5% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 3.7 [%] |
| Description: | Setting of the field current for a motor flux of 5 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50120 and less than p50122 can be set. | | |
| p50122[0...n] | Field current for motor flux 10 % / I_{field} flux 10% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 7.3 [%] |
| Description: | Setting of the field current for a motor flux of 10 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50121 and less than p50123 can be set. | | |
| p50123[0...n] | Field current for motor flux 15 % / I_{field} flux 15% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 11.0 [%] |
| Description: | Setting of the field current for a motor flux of 15 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50122 and less than p50124 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50124[0...n] | Field current for motor flux 20 % / I_{field} flux 20% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 14.7 [%] |
| Description: | Setting of the field current for a motor flux of 20 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50123 and less than p50125 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50125[0...n] | Field current for motor flux 25 % / I_{field} flux 25% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 18.4 [%] |
| Description: | Setting of the field current for a motor flux of 25 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50124 and less than p50126 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50126[0...n] | Field current for motor flux 30 % / I_{field} flux 30% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 22.0 [%] |
| Description: | Setting of the field current for a motor flux of 30 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50125 and less than p50127 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50127[0...n] | Field current for motor flux 35 % / I_{field} flux 35% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 25.7 [%] |
| Description: | Setting of the field current for a motor flux of 35 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50126 and less than p50128 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50128[0...n] | Field current for motor flux 40 % / I_{field} flux 40% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 29.4 [%] |
| Description: | Setting of the field current for a motor flux of 40 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50127 and less than p50129 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50129[0...n] | Field current for motor flux 45 % / I_{field} flux 45% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 33.1 [%] |
| Description: | Setting of the field current for a motor flux of 45 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50128 and less than p50130 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50130[0...n] | Field current for motor flux 50 % / I_{field} flux 50% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 36.8 [%] |
| Description: | Setting of the field current for a motor flux of 50 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50129 and less than p50131 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50131[0...n] | Field current for motor flux 55 % / I_{field} flux 55% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 40.6 [%] |
| Description: | Setting of the field current for a motor flux of 55 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50130 and less than p50132 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50132[0...n] | Field current for motor flux 60 % / I_{field} flux 60% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 44.6 [%] |
| Description: | Setting of the field current for a motor flux of 60 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50131 and less than p50133 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50133[0...n] | Field current for motor flux 65 % / I_{field} flux 65% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 48.9 [%] |
| Description: | Setting of the field current for a motor flux of 65 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50132 and less than p50134 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50134[0...n] | Field current for motor flux 70 % / I_{field} flux 70% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 53.6 [%] |
| Description: | Setting of the field current for a motor flux of 70 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50133 and less than p50135 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50135[0...n] | Field current for motor flux 75 % / I_{field} flux 75% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 58.9 [%] |
| Description: | Setting of the field current for a motor flux of 75 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50134 and less than p50136 can be set. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------------|
| p50136[0...n] | Field current for motor flux 80 % / I_{field} flux 80% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 64.9 [%] |
| Description: | Setting of the field current for a motor flux of 80 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50135 and less than p50137 can be set. | | |
| p50137[0...n] | Field current for motor flux 85 % / I_{field} flux 85% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 71.8 [%] |
| Description: | Setting of the field current for a motor flux of 85 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50136 and less than p50138 can be set. | | |
| p50138[0...n] | Field current for motor flux 90 % / I_{field} flux 90% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 79.8 [%] |
| Description: | Setting of the field current for a motor flux of 90 %. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50137 and less than p50139 can be set. | | |
| p50139[0...n] | Field current for motor flux 95% / I_{field} flux 95% | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 89.1 [%] |
| Description: | Setting of the field current for a motor flux of 95%. | | |
| Note: | This parameter is set automatically during the optimization run for field weakening (p50051 = 27). Only values greater than p50138 can be set. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50140 | Motor I2t monitoring starting behavior / Mot I2t strt behav | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8038 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 2 | 12 | 12 |
| Description: | Sets the starting behavior for I2t monitoring of the motor. | | |
| Value: | 2: Start I2t with zero 12: Start I2t with saved value | | |
| Note: | If value = 12: For motor I2t monitoring, when switching off, the model temperature is saved in a non-volatile fashion. When switching on, the saved value is taken into account in the model calculation. As a consequence, the UL508C specification is fulfilled. | | |
| p50148[0...n] | Armature converter Alpha W limit (single-phase operation) / A Alpha W lim 1-ph | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 120.0 [°] | 180.0 [°] | 178.0 [°] |
| Description: | Sets the inverter stability limit for the firing angle of the armature converter in single-phase operation. | | |
| Dependency: | Refer to: r53190 | | |
| Note: | The status of the Alpha W limit is shown in r53190.8. | | |
| p50149[0...n] | Armature converter correction angle Alpha W limit / Arm corr Alpha W | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -60.0 [°] | 0.0 [°] | 0.0 [°] |
| Description: | Setting of the correction angle for current-dependent offset of the Alpha W limit. | | |
| p50150[0...n] | Armature converter Alpha G limit / Arm Alpha G lim | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [°] | 165.0 [°] | 30.0 [°] |
| Description: | Sets the rectifier stability limit for the firing angle of the armature converter. | | |
| Dependency: | Refer to: r53190 | | |
| Note: | The status of the Alpha G limit is shown in r53190.7. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50151[0...n] | Armature converter Alpha W limit / Arm Alpha W lim | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 120.0 [°] | 165.0 [°] | 150.0 [°] |
| Description: | Sets the inverter stability limit for the firing angle of the armature converter. | | |
| Dependency: | Refer to: r53190 | | |
| Note: | The status of the Alpha W limit is shown in r53190.8. | | |
| <hr/> | | | |
| p50152[0...n] | Armature average number of line periods / Arm line per no. | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: DDS, p0180 | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 20 | 20 |
| Description: | Setting of the number of line periods for line frequency correction in the armature circuit. | | |
| Note: | The internal line synchronization for the armature firing pulses derived from the power terminals (line infeed) is averaged over the number of line periods set in this parameter. In the case of operation on "weak" power supplies with unstable frequencies (on a diesel-driven generator, for example (isolated operation), this parameter must be set lower than for operation on "constant V/Hz" systems to achieve a higher frequency correction speed. | | |
| <hr/> | | | |
| p50153[0...n] | Control word for armature pre-control / A prec STW | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 1 |
| Description: | Sets the control word for armature pre-control. | | |
| Value: | 0: Armature pre-control disabled and pre-control = 165 ° 1: Armature pre-control active 2: Armature pre-control active EMF only with torque direction chge 3: Armature pre-control active EMF irrelevant | | |
| Note: | If value = 3: For pre-control, in this case the EMF is applied with a value of 0 (recommended setting in the case of supplying high inductances from armature terminals, e.g. solenoids, field supply). | | |
| <hr/> | | | |
| p50154[0...n] | Closed-loop armature current control integral comp activation / la ctr I comp act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation of the integral component on the armature current controller. | | |
| Value: | 0: Deactivated 1: Activated | | |

Note: If value = 0:
The integral component of the armature current controller is kept constantly at zero (i.e. the armature current controller functions solely as a proportional controller).

| p50155[0...n] Closed-loop armature current control P gain / la ctr Kp | | | |
|--|---|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 | 200.00 | 0.10 |
| Description: | Sets the P gain of the armature current controller. | | |
| Dependency: | Refer to: p50175 | | |
| Note: | The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25). The P gain (Kp) for the armature current controller is calculated as follows: $Kp = p50155 \times p50175 $ | | |

| p50156[0...n] Closed-loop armature current control integral time / la ctr Tn | | | |
|---|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.001 [s] | 10.000 [s] | 0.200 [s] |
| Description: | Sets the integral time of the armature current controller. | | |
| Dependency: | Refer to: p50176 | | |
| Note: | The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25). The integral time (Tn) for the armature current controller is calculated as follows: $Tn = p50156 \times p50176 $ | | |

| p50157[0...n] Current limitation setpoint integrator selection / I_set integ sel | | | |
|---|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6845 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Selection of the current setpoint integrator. | | |
| Value: | 0: Reduced gearbox stressing 1: Current setpoint integrator | | |
| Note: | If value = 0: The integrator is only effective after a change in torque direction (only functions as a ramp-function generator for the current setpoint until the first time the output reaches the setpoint at the integrator input after a change in torque direction). If value = 1: The integrator is always effective (functions as a ramp-function generator for the current setpoint). | | |

| | | | |
|------------------------|---|--|--|
| p50158[0...n] | Current limitation setpoint integrator ramp-up time / Set integ t_r-up | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1.000 [s] | Access level: 2 Func. diagram: 6845 Unit selection: - Expert list: 1 Factory setting 0.000 [s] |
| Description: | Sets the ramp-up time for the setpoint integrator during current limitation. Duration of a ramp-up in the event of a setpoint jump from 0 to 100% of parameter r50072[1]. | | |
| Notice: | When setting a ramp-up time > 0.000 s, it is not permissible to enter a supplementary current setpoint via p50601[5]. p50601[5] must be set = 0. Possible effect if this is not observed: Torque direction change will not be able to be completed. The drive remains in one torque direction. | | |
| p50159[0...n] | Auto-reversing stage changeover threshold / Auto-rev thresh | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 100.00 [%] | Access level: 2 Func. diagram: 6860 Unit selection: - Expert list: 1 Factory setting 0.01 [%] |
| Description: | Sets the changeover threshold for the torque direction in the auto-reversing stage. | | |
| p50160[0...n] | Auto-reversing stage additional torque-free interval / Auto-rev interval | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 2.000 [s] | Access level: 2 Func. diagram: 6860 Unit selection: - Expert list: 1 Factory setting 0.000 [s] |
| Description: | Sets the additional torque-free interval when switching over the torque direction in the auto-reversing stage. | | |
| p50161[0...n] | Auto-reversing stage Alpha W pulses second pulse inhibited / Auto-rev Alpha W1 | | |
| DC_CTRL | Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 50000 | Access level: 2 Func. diagram: 6860 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the additional Alpha W pulses with inhibited second pulse in the auto-reversing stage. | | |
| Recommendation: | This parameter should be set to values > 0 in particular when supplying high inductances (e.g. infeed of solenoids). | | |
| Dependency: | Refer to: p50179 | | |
| Note: | Number of additional Alpha W pulses with disabled second pulse following detection of I = 0 signal prior to a change in torque direction. These pulses cause the current to decay prior to a change in torque direction. When it drops below the thyristor holding current value, the current is suddenly chopped by the unfired second thyristor and the residual energy stored in the load inductance must be dissipated via a protective circuit (e.g. a varistor) to prevent the load inductance from producing an overvoltage. | | |

| p50162[0...n] | | EMF selection / EMF sel | |
|----------------------|---|--------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6852 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 4 | 1 |
| Description: | Sets the calculation method for the EMF in armature pre-control. | | |
| Value: | 1: Measured EMF 2: EMF with Ua from p50193 3: EMF with EMF from p50193 4: EMF with EMF from r52167 | | |
| Note: | If p50162 = 1: The EMF derived from the measured armature voltage (r52123) is used. If p50162 = 2: The EMF for armature current pre-control is calculated from the armature voltage selected with p50193 (the resistive + inductive armature voltage drop is subtracted internally). If p50162 = 3: The parameter selected with p50193 is used as the EMF for armature current pre-control. This setting also allows a closed-loop DC link voltage control to be implemented. If p50162 = 4: The EMF for the armature precontrol (12-pulse in parallel) is calculated as follows: $r52290 * (r52167/p50119) * p50118$ | | |

| p50163[0...n] | | EMF smoothing selection / EMF smoothing sel | |
|----------------------|--|--|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6852 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 160 | 6 |
| Description: | Sets the method for filtering the EMF for armature pre-control. | | |
| Value: | 0: No filtering 1: Averaging over last 1 EMF values 2: Averaging over last 2 EMF values 3: Averaging over last 3 EMF values 4: Averaging over last 4 EMF values 5: Averaging over last 5 EMF values 6: Averaging over last 6 EMF values 10: PT1 time constant = 10 ms 20: PT1 time constant = 20 ms 40: PT1 time constant = 40 ms 80: PT1 time constant = 80 ms 160: PT1 time constant = 160 ms | | |

| p50164[0...n] | | Closed-loop armature current ctr proportional comp activation / Ia ctr Kp act | |
|----------------------|---|--|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation of the proportional component for armature current control. | | |
| Value: | 0: Deactivated 1: Activated | | |

2 Parameters

2.2 List of parameters

Note: If value = 0:
The proportional component of the armature current controller is kept constantly at zero (i.e. the armature current controller functions solely as an integral controller).

| p50165[0...n] BI: Signal source for change in torque direction enable / Torq dir en sig s | | | |
|--|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 53190.0 |
| Description: | Sets the signal source to enable a torque direction in the event of a change in torque direction. 1 signal: Enable available for M0 or MI. 0 signal: Enable available for M0 or MII. | | |

| p50166 Thyristor blocking voltage calculation activation / Thy_block_calc act | | | |
|--|--|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate/de-activate the calculation of the thyristor blocking voltage. | | |
| Value: | 0: De-activating 1: Activating | | |
| Note: | The calculation of the thyristor blocking voltage can only be activated if the hardware (Power Interface Module) supports this function. This parameter is only evaluated once while powering up, i.e. a change only becomes effective after a new start or after powering up with saved parameters (p0976 = 11). | | |

| p50169[0...n] Torque limiting selection torque limiting/current limitation / T lim sel T/I_lim | | | |
|---|---|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Setting to select torque limiting or current limitation. | | |
| Value: | 0: Current lim 1: Torque limiting | | |
| Dependency: | If p50169 = 1 or p50170 = 1: A valid field characteristic (p50117 = 1) is required, otherwise fault F60055 will be output on power-up. If this setting is selected, the optimization run for field weakening must be performed in advance (p50051 = 27). Parameter p50263 defines the input variable for determining the motor flux. If p50169 = 1 and p50170 = 1: This is an invalid setting. If p50170 = 1, it will not be possible to set p50169 = 1. Refer to: p50051, p50117, p50263 | | |

Note: If p50169 = 0:
Current limitation.
If p50169 = 1:
Torque limiting; in other words, the pre-set torque limit is converted into a current limit:
current limit = torque limit/motor flux

p50170[0...n] Selection of control type for closed-loop current/torque control / Ctrl type I/tq sel

| | | | |
|---------|------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Sets the controller's control type (closed-loop current control or closed-loop torque control).
p50170 = 0:
The controller is current-controlled.
p50170 = 1:
The controller is torque-controlled; in other words, the torque setpoint is converted into a current setpoint (current setpoint = torque setpoint/motor flux).

Value: 0: CI-loop I_ctrl
1: Closed-loop torque control

Dependency: If p50169 or p50170 is set to a value of 1, there must be a valid characteristic (p50117 = 1); otherwise fault F60055 will be output on power-up. If this setting is selected, the optimization run for field weakening must be performed in advance (p50051 = 27).

Parameter p50263 defines the input variable for determining the motor flux.

If p50169 = 1 and p50170 = 1:

This is an invalid setting. If p50169 = 1, it will not be possible to set p50170 = 1.

Refer to: p50051, p50117, p50173, p50263

Note: The following parameters are used to change over between current control and torque control:
- Signal source via connector input p50173
or
- Fixed set value in p50170

p50171[0...n] Current limitation armature current limit torque dir I factor / la lim t d I fact

| | | | |
|---------|------------------------------------|-------------------------------|----------------------------------|
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825, 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 300.0 [%] | 100.0 [%] |

Description: Sets the factor for the armature current limit in torque direction I.

p50172[0...n] Current limitation armature current limit torque dir II factor / la lim t d II fact

| | | | |
|---------|------------------------------------|-------------------------------|----------------------------------|
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825, 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.0 [%] | 0.0 [%] | -100.0 [%] |

Description: Sets the factor for the armature current limit in torque direction II.

| | | | |
|---|---|-------------------------------|----------------------------|
| p50173[0...n] | | | |
| BI: Signal source for closed-loop current/torque control ctr type / Ctr I/tq ctr sig s | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changeover between closed-loop current control and closed-loop torque control. p50170 = 0 and p50173 = 0 signal: The controller is current-controlled. p50170 = 1 or p50173 = 1 signal: The controller is torque-controlled; in other words, the torque setpoint is converted into a current setpoint (current setpoint = torque setpoint/motor flux). | | |
| Dependency: | If p50169 or p50170 is set to a value of 1, there must be a valid field characteristic (p50117 = 1); otherwise fault F60055 will be output on power-up. If this setting is selected, the optimization run for field weakening must be performed in advance (p50051 = 27). Parameter p50263 defines the input variable for determining the motor flux. Refer to: p50170 | | |
| Note: | The following parameters are used to change over between current control and torque control: - Signal source via connector input p50173 or - Fixed set value in p50170 | | |
| <hr/> | | | |
| p50174 | | | |
| Torque limiting for OFF1 & OFF3 / T_lim OFF1 & OFF3 | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Value = 0 --> torque limiting is not bypassed for OFF1 & OFF3 Value = 1 --> torque limiting bypass active for OFF1 & OFF3 Factory setting = 1 (for compatibility reasons) | | |
| Value: | 0: Torque limiting for OFF1 & OFF3 active 1: Torque limiting for OFF1 & OFF3 not active | | |
| Dependency: | Refer to: r52133, r52147 | | |
| <hr/> | | | |
| p50175[0...n] | | | |
| CI: Signal source for closed-loop armature current control P gain / Ia ctr Kp sig s | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for variable control of the armature current controller's P gain. | | |
| Dependency: | Refer to: p50155 | | |
| Note: | The P gain (Kp) for the armature current controller is calculated as follows: $Kp = p50155 \times p50175 $ | | |

| | | | |
|------------------------|---|-------------------------------|----------------------------|
| p50176[0...n] | CI: Signal source for closed-loop armature current ctr integr time / Ia ctr Tn sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for variable control of the armature current controller's integral time. | | |
| Note: | The integral time (Tn) for the armature current controller is calculated as follows: Tn = p50156 x p50176 | | |
| p50177[0...n] | BI: Signal source for the "No immediate pulse inhibit" command / No pulse inh sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the "No immediate pulse inhibit" command. A low signal will cause the armature firing pulses to be inhibited immediately without waiting for the I = 0 signal or sending Alpha W pulses for current decay. The additional Alpha W pulses (as set in p50161 and p50179) are not output either. As long as this command is pending, it will not be possible to switch to an operating state lower than o1.6. | | |
| Note: | This command can be used, for example, if the drive is being used to supply a field rather than a motor and the current is to be reduced via an external built-on field discharge resistor connected in parallel. | | |
| p50178[0...n] | BI: Sig source for the "Fire all thyristors simultaneously" command / All thy fire sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the "Fire all thyristors simultaneously" command. The default setting of this command (high signal) causes all 6 thyristors on thyristor bridge I to be fired continuously and simultaneously. Changeover to long pulses is automatic. | | |
| Note: | However, this command is only active if no line voltage is applied to the armature power unit. | | |
| p50179[0...n] | Auto-reversing stage Alpha W pluses second pulse enabled / Auto-rev Alpha W2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: DDS, p0180 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 50000 | 0 |
| Description: | Sets the additional Alpha W pulses with enabled second pulse in the auto-reversing stage. | | |
| Recommendation: | This parameter should be set to values > 0 in particular when supplying high inductances (e.g. infeed of solenoids). | | |
| Note: | Number of additional Alpha W pulses with enabled second pulse following detection of I = 0 signal prior to a change in torque direction. These pulses cause the current to decay before a change in torque direction; the thyristors are fired in pairs to prevent sudden chopping and the generation of overvoltage by the load inductance when the current drops below the thyristor holding current. When a change in torque direction is required, the current in the existing direction must be reduced. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50180[0...n] | Torque limiting torque limit 1 positive / T lim 1 pos | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | 300.00 [%] |
| Description: | Sets positive torque limit 1. | | |
| Dependency: | Refer to: p50182 | | |
| Note: | If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50181[0...n] | Torque limiting torque limit 1 negative / T lim 1 neg | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | -300.00 [%] |
| Description: | Sets negative torque limit 1. | | |
| Dependency: | Refer to: p50183 | | |
| Note: | If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50182[0...n] | Torque limiting torque limit 2 positive / T lim 2 pos | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | 300.00 [%] |
| Description: | Sets positive torque limit 2. | | |
| Dependency: | Refer to: p50180 | | |
| Note: | If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50183[0...n] | Torque limiting torque limit 2 negative / T lim 2 neg | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | -300.00 [%] |
| Description: | Sets negative torque limit 2. | | |
| Dependency: | Refer to: p50181 | | |
| Note: | If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50184[0...n] | Torque limiting changeover speed / T lim n_chng | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 120.00 [%] | 0.00 [%] |
| Description: | Sets the changeover speed for torque limit selection. | | |
| Dependency: | Refer to: r52166 | | |
| Note: | If torque limit changeover is selected (p50694 = 1) and the speed (p52166) is higher than the changeover speed set in p50184, then torque limit 2 (p50182, p50183) is activated in place of torque limit 1 (p50180, p50181). | | |
| p50190[0...n] | CI-loop arm current ctr prectr setpoint smoothing time constant / la prec set T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the armature current setpoints at the armature current pre-control input for closed-loop armature current control. | | |
| Note: | The smoothing time constant is used to decouple armature current pre-control from the armature current controller. | | |
| p50191[0...n] | CI-loop arm current ctr curr controller setp sm time constant / la ctr set T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the armature setpoint for closed-loop armature current control. | | |
| Note: | The smoothing time constant is used to decouple armature current pre-control from the armature current controller. | | |
| p50192[0...n] | Armature Alpha W limit control word / A Alpha W lim STW | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the control word for the Alpha W limit on the armature. | | |
| Value: | 0: Alpha W limit = 165 ° with pulsating armature current 1: Alpha W limit = p50151 | | |
| Note: | If value = 0: Continuous current: Alpha W limit = parameter p50151 Pulsating current: Alpha W limit = 165 ° If value = 1: Alpha W limit = parameter p50151 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50193 | CI: EMF/Ua external signal source / EMF/Ua ext sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6852 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52287[0] |
| Description: | Sets the signal source for EMF actual value or armature voltage actual value for armature current pre-control. If p50162[D] = 2: Armature voltage actual value If p50162[D] = 3: EMF actual value | | |
| p50200[0...n] | Speed controller speed actual value smoothing time constant / n_ctr n_act T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for smoothing the speed actual value on the speed controller. | | |
| p50201[0...n] | Band-stop 1 resonant frequency / Band-st 1 f_n | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 [Hz] | 140 [Hz] | 1 [Hz] |
| Description: | Sets the resonant frequency for band-stop 1. | | |
| Dependency: | Refer to: p50202, p50628, r52177 | | |
| p50202[0...n] | Band-stop 1 quality / Band-st 1 quality | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the quality for band-stop 1. | | |
| Value: | 0: Quality = 0.5 1: Quality = 1 2: Quality = 2 3: Quality = 3 | | |
| Dependency: | Refer to: p50201, p50628, r52177 | | |
| p50203[0...n] | Band-stop 2 resonant frequency / Band-st 2 f_n | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 [Hz] | 140 [Hz] | 1 [Hz] |
| Description: | Sets the resonant frequency for band-stop 2. | | |

Dependency: Refer to: p50204, p50629, r52178

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50204[0...n] | Band-stop 2 quality / Band-st 2 quality | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |

Description: Sets the quality for band-stop 2.

Value:
 0: Quality = 0.5
 1: Quality = 1
 2: Quality = 2
 3: Quality = 3

Dependency: Refer to: p50203, p50629, r52178

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50205[0...n] | Derivative-action element derivative-action time / D-act el t_d-act | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 1000 [ms] | 0 [ms] |

Description: Sets the derivative-action time for the derivative-action element.

Dependency: Refer to: p50206, p50627, r52168, r52169

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50206[0...n] | Derivative-action element smoothing time / Der-act el t_DAE | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 100 [ms] | 0 [ms] |

Description: Sets the smoothing time for the derivative-action element.

Dependency: Refer to: p50205, p50627, r52168, r52169

| | | | |
|---------------|---|-------------------------|----------------------------|
| p50207 | Cl: Lead/lag element signal source / Lead/lag elem S_s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52179[0] |

Description: Sets the signal source for the lead/lag element.

Dependency: Refer to: p50208, p50209, r52156

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50208[0...n] | Lead/lag element rate time / Lead/lag t_rate | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 2 [ms] | 10000 [ms] | 2 [ms] |
| Description: | Sets the rate time for the lead/lag element. | | |
| Dependency: | Refer to: p50207, p50209, r52156 | | |
| p50209[0...n] | Lead/lag element filter time / Lead/lag t_filter | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 2 [ms] | 10000 [ms] | 2 [ms] |
| Description: | Sets the filter time for the lead/lag element. | | |
| Dependency: | Refer to: p50207, p50208, r52156 | | |
| r50217 | Speed controller droop effective / n_ctr droop eff | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the effective droop on the speed controller. | | |
| Notice: | The effective droop is displayed as absolute factor without any dimensions and it is especially important to note that it is not a percentage. Example: r50217 = 0.05 --> corresponds to an effective droop of 5 %. | | |
| r50218 | Speed controller integral time effective / n_ctr Tn eff | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [s] | - [s] | - [s] |
| Description: | Displays the effective integral time (Tn) on the speed controller. | | |
| r50219 | CO: Speed controller P-gain effective / n_ctr Kp eff | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the effective P gain (Kp) on the speed controller. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50220[0...n] | Speed controller changeover PI/P speed setpoint threshold / PI/P n_set thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 200.00 [%] |
| Description: | Sets the threshold for the speed setpoint to changeover between PI and P control, so that overshoot-free stopping of the drive with setpoint = 0 is possible with the controllers enabled. | | |
| Dependency: | Refer to: p50221, p50222, p50698, r52166 | | |
| p50221[0...n] | Speed controller changeover PI/P hysteresis / PI/P hyst | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 2.00 [%] |
| Description: | Sets the hysteresis to changeover over between PI and P control, so that overshoot-free stopping of the drive with setpoint = 0 is possible with the controllers enabled. | | |
| Dependency: | Refer to: p50222, p50698, r52166 | | |
| p50222[0...n] | Speed controller changeover PI/P speed actual value threshold / PI/P n_act thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 10.00 [%] | 0.00 [%] |
| Description: | Sets the threshold for the speed actual value to changeover between PI and P control, so that overshoot-free stopping of the drive with setpoint = 0 is possible with the controllers enabled. | | |
| Dependency: | Refer to: p50221, p50698, r52166 | | |
| p50223[0...n] | Speed controller pre-control enable / n_ctr prec ena | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the enable signal for pre-control of the speed controller. | | |
| Value: | 0: No enable 1: Enable | | |
| Note: | Dependent upon the setting, the following values are added to the output of the speed controller as a torque setpoint: Value = 0: No enable (0%) Value = 1: Enable (r52171) | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50224[0...n] | Speed controller integral component configuration / n_ctr I comp conf | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 1 |
| Description: | Sets the response of the integral component on the speed controller. | | |
| Value: | 0: Integral component off (absolute P controller) 1: Stop integral component from defined tqe/I limit 2: Stop integral component from defined tqe limit 3: Stop integral component at +/- 200% | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50225[0...n] | Speed controller adaptation Kp y coordinate 2 / Adapt Kp y2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.10 | 2000.00 | 3.00 |
| Description: | Sets the y coordinate for pair of values 2 for adaptation of the P gain (Kp). | | |
| Note: | The value is set automatically during the optimization run for the speed controller (p50051 = 26). The adaptation of the P gain (Kp) is defined using 2 pairs of values. Pair of values 1: p50556/p50550 (x/y coordinate) Pair of values 2: p50559/p50225 (x/y coordinate) | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50226[0...n] | Speed controller adaptation Tn y coordinate 2 / Adapt Tn y2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.010 [s] | 10.000 [s] | 0.650 [s] |
| Description: | Sets the y coordinate for pair of values 2 for adaptation of the integral time (Tn). | | |
| Note: | The value is set automatically during the optimization run for the speed controller (p50051 = 26). The adaptation of the integral time (Tn) is defined using 2 pairs of values. Pair of values 1: p50557/p50551 (x/y coordinate) Pair of values 2: p50560/p50226 (x/y coordinate) | | |

| | | | |
|----------------------|--|----------------------|----------------------------|
| p50227[0...3] | Speed controller adaptation droop y coordinate 2 / Adapt droop y2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 | 10.000 | 0.000 |
| Description: | Sets the y coordinate for pair of values 2 for adaptation of the droop. | | |

Notice: - For the droop, generally values up to 10 % are practical (p50227 = 0.000 ... 0.100). Under certain circumstances, higher values can result in an unstable response of the speed controller.
 - The droop is entered as absolute factor without any dimensions and it is especially important to note that it is not a percentage.

Example:

Set droop = 5 % --> p50227 = 0.05

Note: The adaptation of the droop is defined using 2 pairs of values.

Pair of values 1:

p50558/p50552 (x/y coordinate)

Pair of values 2:

p50561/p50227 (x/y coordinate)

p50228[0...n] Speed controller speed setpoint smoothing time constant / n_ctr n_set T

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |

Description: Sets the smoothing time constant for smoothing the speed setpoint on the speed controller.

Recommendation: If the ramp-function generator is being used, setting lower values may be sensible.

Note: The value is set automatically during the optimization run for the speed controller to the same value as the integral time (Tn) (p50051 = 26).

p50229[0...n] Mast/Sl drive ctr speed controller tracking I component / M/S drive ctr track

| | | | |
|---------|------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Setting for the control of the integral component tracking on the speed controller.

Value:
 0: Tracking ON
 1: Tracking OFF

Dependency: Refer to: p50084, p50687

Note: p50229 = 0:

Tracking of the integral component on the speed controller activated. The speed actual value is used as speed setpoint and the integral component of the speed controller is tracked so that r52148 = r52140 results.

p50229 = 1:

Tracking of the integral component on the speed controller de-activated.

p50230[0...n] Set speed controller integral component duration / Set I_comp dur

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |

Description: Sets the duration for setting the integral component on the speed controller.

Following a positive edge on binector input p50695, the integral component of the speed controller is set to the value of the signal source set at connector input p50631.

2 Parameters

2.2 List of parameters

If p50230 = 0:

The integral component of the speed controller is set to the instantaneous value of the signal present at connector input p50631.

If p50230 > 0:

The integral component of the speed controller is tracked continuously during the time set to the value of the signal present at connector input p50631.

| | | | |
|------------------------|---|-------------------------------|----------------------------|
| p50234[0...n] | Speed controller proportional component enable / n_ctr P_comp ena | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Setting for enabling the proportional component for the speed controller. | | |
| Value: | 0: Without proportional component 1: With proportional component | | |
| p50236 | Speed controller optimization speed controller dynamic response / n_ctr_opt dyn | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 [%] | 100 [%] | 75 [%] |
| Description: | Sets the dynamic response of the speed control circuit as the default for the speed controller optimization run. | | |
| Recommendation: | On drives with gear backlash, for example, optimization should be started commencing with low dynamic response values at and above 10%. On drives with maximum requirements in terms of synchronous operation and dynamic response, values of up to 100 % can be selected. | | |
| Note: | If this value is changed, the optimization run for the speed controller will have to be performed again before the new value is applied. | | |
| p50237[0...n] | Speed controller reference model natural frequency / n_ctrl ref_m fn | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6812 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [Hz] | 150.0 [Hz] | 0.0 [Hz] |
| Description: | Sets the natural frequency of a PT2 element for the reference model of the speed controller. | | |
| Recommendation: | The reference model is correctly set when the characteristics of r52154 (reference model output) and r52167 (actual speed value) are virtually identical when the I component of the speed controller is disabled. | | |
| Dependency: | In conjunction with p50238 and p50239, the characteristics (in time) of the P-controlled speed control loop can be emulated. Refer to: p50238, p50239 | | |

| | | | |
|------------------------|--|-------------------------------|----------------------------|
| p50238[0...n] | Speed controller reference model damping / n_ctrl ref_m d | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6812 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 | 5.000 | 1.000 |
| Description: | Sets the damping of a PT2 element for the reference model of the speed controller. | | |
| Recommendation: | The reference model is correctly set when the characteristics of r52154 (reference model output) and r52167 (actual speed value) are virtually identical when the I component of the speed controller is disabled. | | |
| Dependency: | In conjunction with p50237 and p50239, the characteristics (in time) of the P-controlled speed control loop can be emulated. Refer to: p50237, p50239 | | |
| p50239[0...n] | Speed controller reference model dead time / n_ctr ref_m t_dead | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6812 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 | 2.00 | 0.00 |
| Description: | Sets the "fractional" dead time for the reference model of the speed controller. This parameter emulates the computing dead time of the proportionally controlled speed control loop. The multiplier set refers to the speed controller clock cycle. | | |
| Recommendation: | The reference model is correctly set when the characteristics of r52154 (reference model output) and r52167 (actual speed value) are virtually identical when the I component of the speed controller is disabled. | | |
| Dependency: | In conjunction with p50237 and p50238, the characteristics (in time) of the P-controlled speed control loop can be emulated. Refer to: p50237, p50238 | | |
| p50240[0...n] | Speed controller reference model activation / n_ctrl ref_m act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate the influence of the reference model for the speed controller. | | |
| Value: | 0: Reference model not effective 1: Reference model effective | | |
| Dependency: | Refer to: p50241 | | |
| p50241 | CI: Speed controller reference model signal source / n_ctrl ref_m sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52155[0] |
| Description: | Sets the signal source for the input signal of the reference model for the speed controller. | | |
| Dependency: | Refer to: p50240 | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50250[0...n] | Field converter Alpha G limit / Field Alpha G lim | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [°] | 180 [°] | 0 [°] |
| Description: | Sets the rectifier stability limit for the firing angle of the field converter. | | |
| Dependency: | Refer to: r53191 | | |
| Note: | The status of the Alpha G limit is shown in r53191.1. | | |
| <hr/> | | | |
| p50251[0...n] | Field converter Alpha W limit / Field Alpha W lim | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [°] | 180 [°] | 180 [°] |
| Description: | Sets the inverter stability limit for the firing angle of the field converter. | | |
| Dependency: | Refer to: r53191 | | |
| Note: | The status of the Alpha W limit is shown in r53191.0. | | |
| <hr/> | | | |
| p50252[0...n] | Field average number of line periods / Field line per no. | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: DDS, p0180 | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 20 | 20 |
| Description: | Setting of the number of line periods for line frequency correction in the field circuit. | | |
| Note: | The internal line synchronization for the field firing pulses derived from the power terminals (line infeed) is averaged over the number of line periods set in this parameter. In the case of operation on "weak" power supplies with unstable frequencies (on a diesel-driven generator, for example (isolated operation), this parameter must be set lower than for operation on "constant V/Hz" systems to achieve a higher frequency correction speed. | | |
| <hr/> | | | |
| p50253[0...n] | Field pre-control activation / Field prec act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation for field pre-control. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Note: | If value = 0: The field pre-control output is -100% (corresponds to 180 °). | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50254[0...n] | Field current controller integral component activation / I_{field_ctr} I comp | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation of the integral component on the field current controller. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Dependency: | Refer to: p50255, p50256 | | |
| Note: | If value = 0: The integral component of the field current controller is kept constantly at zero (i.e. the field current controller functions solely as a proportional controller). | | |
| p50255[0...n] | Field current controller P gain / I_{field_ctr} Kp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 | 100.00 | 5.00 |
| Description: | Sets the P gain of the field current controller. | | |
| Dependency: | Refer to: p50256 | | |
| Note: | The parameter is set automatically during the optimization run for closed-loop field current control (p50051 = 24). | | |
| p50256[0...n] | Field current controller integral time / I_{field_ctr} Tn | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.001 [s] | 10.000 [s] | 0.200 [s] |
| Description: | Sets the integral time of the field current controller. | | |
| Dependency: | Refer to: p50255 | | |
| Note: | The parameter is set automatically during the optimization run for closed-loop field current control (p50051 = 24). | | |
| p50257[0...n] | Closed-loop field current control standstill field / I_{f_ctr} stst_{field} | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets the standstill field for closed-loop field current control. | | |
| Dependency: | Refer to: p50692 | | |
| Note: | The field current is reduced to this value when the "Automatic field current reduction" function is parameterized (p50082 = 2) or in the case of signal-driven selection of the ""Standstill excitation" function (p50692). | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50258[0...n] | CI-loop field current control field current reduction delay time / I_{f_ctr} I_{red} t_{del} | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 60.0 [s] | 10.0 [s] |
| Description: | Sets the delay time for automatic field current reduction. | | |
| p50260[0...n] | Field current pre-control setpoint smoothing time constant / Field_{prec} set T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for the setpoint for field current pre-control. | | |
| Dependency: | Refer to: p50261 | | |
| Note: | This smoothing enables field-current pre-control to be decoupled from the field current controller. | | |
| p50261[0...n] | Field current controller setpoint smoothing time constant / I_{field_ctr} set T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for the setpoint for the field current controller. | | |
| Dependency: | Refer to: p50260 | | |
| Note: | This smoothing enables field-current pre-control to be decoupled from the field current controller. | | |
| p50263[0...n] | Selection of motor flux input variable / Mot fl input sel | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 1 |
| Description: | Selection of the input variable for determining the motor flux. | | |
| Value: | 0: Field current controller actual value (r52265) 1: EMF pre-control output (r52293 or r52268) 2: Field current controller setpoint (r52268) | | |
| Note: | If value = 0: This setting is recommended for a fully compensated DC motor. If value = 1: This setting is recommended for an uncompensated DC motor. The EMF controller must be active for this setting (the EMF controller compensates the armature reaction). If value = 2: This setting is recommended for a fully compensated DC motor. | | |

Advantage compared with value = 0:

Values derived from the setpoint are generally steadier than those derived from the actual value.

Disadvantage compared with value = 0:

The actual value can deviate from the setpoint dramatically, thereby distorting the motor flux calculation.

| p50264[0...n] | Field current controller proportional component activation / I_{field_ctr} P comp | | |
|----------------------|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation of the proportional component on the field current controller. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Dependency: | Refer to: p50255, p50256 | | |
| Note: | If value = 0: The proportional component of the field current controller is kept constantly at zero (i.e. the field current controller functions solely as an integral controller). | | |

| p50265[0...n] | BI: Signal source for field current monitoring / I_{field_mon} sig s | | |
|----------------------|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 8044 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for external monitoring of the field current. The delay time in p50397 is started after a 1/0 signal and a corresponding fault is triggered once it has elapsed. | | |
| Dependency: | Refer to: p50397 Refer to: F60005 | | |

| p50266[0...n] | CI: Field current controller Tn factor signal source / If_{ctrTnFact} sig s | | |
|----------------------|---|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for a factor of the integral time Tn for the field current controller. | | |
| Dependency: | Refer to: p50256 | | |

| p50267[0...n] | CI: Field current controller Kp factor signal source / If_{ctrKpFact} sig s | | |
|----------------------|---|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for a factor of the proportional gain Kp for the field current controller. | | |
| Dependency: | Refer to: p50255 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50269 | Freeze field current setpoint operating mode / If freeze op_mode | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 2 |
| Description: | Sets the operating mode for the "Freeze field current setpoint" function. | | |
| Value: | 0: Never freeze 1: Freeze for tachometer breakage 2: Freeze for every fault | | |
| Notice: | For settings 0 and 1, when a fault message occurs, the EMF control remains active. Even if the speed sensing is faulted or if the contactor on the DC side is open. In these cases, the EMF controller cannot prevent overvoltages occurring at the motor. As a consequence, measures must be ensured on the system side that ensure that the motor is not damaged by overvoltages. | | |
| p50272 | Field current reduction activation / I_field_red act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets activation/de-activation of automatic field current reduction if the EMF is too high for braking operation. | | |
| Value: | 0: Fault 1: Alarm and field reduction | | |
| Dependency: | Refer to: F60043, A60143 | | |
| Note: | If value = 0: If the EMF is too high for braking operation, a message is output accordingly. | | |
| p50273[0...n] | EMF controller pre-control activation / EMF ctr prec act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation for EMF controller pre-control. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Note: | If value = 0: The EMF controller's pre-control output is set to 100% (corresponding to the rated excitation current of the motor (p50102)). | | |
| p50274[0...n] | EMF controller integral component activation / EMF ctr I comp act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation of the integral component on the EMF controller. | | |

Value: 0: Deactivated
1: Activated

Dependency: Refer to: p50284

Note: If value = 0:
The integral component of the EMF controller is kept constantly at zero (i.e. the EMF controller functions solely as a proportional controller).

p50275[0...n] EMF controller P gain / EMF ctr Kp

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 | 100.00 | 0.60 |

Description: Sets the P gain of the EMF controller.

Dependency: Refer to: p50276

Note: The parameter is set automatically during the optimization run for field weakening (p50051 = 27).

p50276[0...n] EMF controller integral time / EMF ctr Tn

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.010 [s] | 10.000 [s] | 0.200 [s] |

Description: Sets the integral time of the EMF controller.

Dependency: Refer to: p50275

Note: The parameter is set automatically during the optimization run for field weakening (p50051 = 27).

p50277[0...n] EMF controller droop / EMF ctr droop

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 10.0 [%] | 0.0 [%] |

Description: Sets the value for the EMF controller's droop feedback.

Note: If value = 0:

Droop feedback is de-activated.

p50280[0...n] EMF controller pre-control setpoint smoothing time constant / EMF prec set T

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |

Description: Sets the smoothing time constant for the setpoint for EMF controller pre-control.

Dependency: Refer to: p50283

Note: This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller.

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50281[0...n] | EMF controller setpoint smoothing time constant / EMF ctr set T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for the EMF controller's setpoint. | | |
| Dependency: | Refer to: p50282 | | |
| Note: | This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller. | | |
| p50282[0...n] | EMF controller actual value smoothing time constant / EMF ctr act T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for the EMF controller's actual value. | | |
| Dependency: | Refer to: p50281 | | |
| Note: | This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller. | | |
| p50283[0...n] | EMF controller pre-control actual value smoothing time constant / EMF prec act T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for the actual value for EMF controller pre-control. | | |
| Dependency: | Refer to: p50280 | | |
| Note: | This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller. | | |
| p50284[0...n] | EMF controller proportional component activation / EMF ctr P comp act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets activation/de-activation of the proportional component on the EMF controller. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Dependency: | Refer to: p50275, p50276 | | |
| Note: | If value = 0: The proportional component of the EMF controller is kept constantly at zero (i.e. the EMF controller functions solely as an integral controller). | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50285[0...n] | EMF setpoint reduction line voltage smoothing time / EMF set line t_sm | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6895 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 10.00 [s] | 0.00 [s] |
| Description: | Sets the smoothing time for the line voltage for the EMF setpoint reduction. | | |
| Dependency: | Refer to: p50286, p50287, p50288, p50289, r52294 | | |
| p50286[0...n] | EMF setpoint reduction line voltage upper limit / EMF set line upper | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6895 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 100.0 [%] | 150.0 [%] | 110.0 [%] |
| Description: | Sets the upper limit for the line voltage for EMF setpoint reduction. | | |
| Dependency: | Refer to: p50287, p50288, p50289, r52294 | | |
| p50287[0...n] | EMF setpoint reduction line voltage lower limit / EMF set line lower | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6895 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets the lower limit for the line voltage for the EMF setpoint reduction. | | |
| Dependency: | Refer to: p50286, p50288, p50289, r52294 | | |
| p50288[0...n] | EMF setpoint reduction evaluation factor / EMF set eval_fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6895 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 200.0 [%] | 100.0 [%] |
| Description: | Sets the evaluation factor for the EMF setpoint reduction. | | |
| Dependency: | Refer to: p50286, p50287, p50289, r52294 | | |
| p50289[0...n] | BI: EMF setpoint reduction activation signal source / EMF set act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6895 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to activate the EMF setpoint reduction. | | |
| Dependency: | Refer to: p50285, p50286, p50287, p50288, r52294 | | |

| | | | |
|--|---|--|---|
| p50295[0...n] Transition rounding operating mode / RFG rounding mode | | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3152 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the response to setpoint inversion on the ramp-function generator. | | |
| Value: | 0: Hard setpoint change 1: Soft setpoint change | | |
| Note: | If p50295 = 0: In the event of setpoint inversion during ramping up, ramp-up is aborted and ramp-down initial rounding commences immediately, and vice versa. As the setpoint is not increased (decreased) any further, the signal at the ramp-function generator output has a breakpoint (in other words, there is a step change in the acceleration rate). If p50295 = 1: In the event of setpoint inversion during ramping up, ramp-up is slowly switched over to ramp-down, and vice versa. The setpoint increases/decreases further. There is no breakpoint in the signal at the ramp-function generator output (in other words, there is no step change in the acceleration rate). | | |
| p50296[0...n] RFG quick stop (OFF3) ramp-down time / RFG OFF3 t_ramp-dn | | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 650.00 [s] | Access level: 2 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting 0.00 [s] |
| Description: | Sets the ramp-down time for quick stop (OFF3) on the ramp-function generator. When the "Quick stop" command is sent, the drive is decelerated to zero speed at the current limit. However, if this is not permissible or desirable for mechanical reasons, a value > 0 must be set in this parameter. The drive will then decelerate along the down ramp set here. | | |
| p50297[0...n] RFG quick stop (OFF3) initial rounding / RFG OFF3 init rndg | | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 100.00 [s] | Access level: 2 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting 0.00 [s] |
| Description: | Sets the initial rounding for quick stop (OFF3) on the ramp-function generator. | | |
| p50298[0...n] RFG quick stop (OFF3) final rounding / RFG OFF3 fin rndg | | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 100.00 [s] | Access level: 2 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting 0.00 [s] |
| Description: | Sets the final rounding for quick stop (OFF3) on the ramp-function generator. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50300[0...n] | RFG positive setpoint limit after ramp-function generator / RFG pos after RFG | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 100.00 [%] |
| Description: | Sets positive setpoint limiting after the ramp-function generator. | | |
| p50301[0...n] | RFG negative setpoint limit after ramp-function generator / RFG neg after RFG | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | -100.00 [%] |
| Description: | Sets negative setpoint limiting after the ramp-function generator. | | |
| p50302[0...n] | RFG ramp-up integrator operating mode / RFG integ op mode | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the operating mode for the ramp-up integrator. The ramp-up integrator controls the changing over of the ramp-function generator parameter sets as appropriate for the set operating mode once the setpoint has been reached for the first time. | | |
| Value: | 0: RFG normal operation 1: Operating mode 1 2: Operating mode 2 3: Operating mode 3 | | |
| Note: | If p50302 = 0: - The parameter sets are not changed over and ramp-function generator setting 1 is always used (or the setting made using p50637, p50638). If p50302 = 1: - Once the setpoint has been reached for the first time, the ramp-function generator parameter set is changed over from 1 to 0. If p50302 = 2: - Once the setpoint has been reached for the first time, the ramp-function generator parameter set is changed over from 1 to 2. If p50302 = 3: - Once the setpoint has been reached for the first time, the ramp-function generator parameter set is changed over from 1 to 3. | | |
| p50303[0...n] | RFG ramp-up time 1 / RFG t_ramp-up 1 | | |
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 650.00 [s] | 10.00 [s] |
| Description: | Sets the ramp-up time for ramp-function generator parameter set 1. | | |

2 Parameters

2.2 List of parameters

Note: The parameter is effective in the following cases:

- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50304[0...n] RFG ramp-down time 1 / RFG t_ramp-dn 1

| | | | |
|---------|------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 650.00 [s] | 10.00 [s] |

Description: Sets the ramp-down time for ramp-function generator parameter set 1.

Note: The parameter is effective in the following cases:

- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50305[0...n] RFG initial rounding 1 / RFG init rndg 1

| | | | |
|---------|------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 100.00 [s] | 0.00 [s] |

Description: Sets the initial rounding for ramp-function generator parameter set 1.

Dependency: Refer to: p50295

Note: The parameter is effective in the following cases:

- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50306[0...n] RFG final rounding 1 / RFG fin rndg 1

| | | | |
|---------|------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 100.00 [s] | 0.00 [s] |

Description: Sets the final rounding for ramp-function generator parameter set 1.

Dependency: Refer to: p50295

Note: The parameter is effective in the following cases:

- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50307[0...n] | RFG ramp-up time 2 / RFG t_ramp-up 2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 650.00 [s] | 10.00 [s] |
| Description: | Sets the ramp-up time for ramp-function generator parameter set 2. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50308[0...n] | RFG ramp-down time 2 / RFG ramp-dn time 2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 650.00 [s] | 10.00 [s] |
| Description: | Sets the ramp-down time for ramp-function generator parameter set 2. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50309[0...n] | RFG initial rounding 2 / RFG init rndg 2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 100.00 [s] | 0.00 [s] |
| Description: | Sets the initial rounding for ramp-function generator parameter set 2. | | |
| Dependency: | Refer to: p50295 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50310[0...n] | RFG final rounding 2 / RFG fin rndg 2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 100.00 [s] | 0.00 [s] |
| Description: | Sets the final rounding for ramp-function generator parameter set 2. | | |
| Dependency: | Refer to: p50295 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50311[0...n] | RFG ramp-up time 3 / RFG t_ramp-up 3 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 650.00 [s] | 10.00 [s] |
| Description: | Sets the ramp-up time for ramp-function generator parameter set 3. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|---|--|--|
| p50312[0...n] | RFG ramp-down time 3 / RFG t_ramp-dn 3 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 650.00 [s] | Access level: 2 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting 10.00 [s] |
| Description: | Sets the ramp-down time for ramp-function generator parameter set 3. | | |
| p50313[0...n] | RFG initial rounding 3 / RFG init rndg 3 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 100.00 [s] | Access level: 2 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting 0.00 [s] |
| Description: | Sets the initial rounding for ramp-function generator parameter set 3. | | |
| Dependency: | Refer to: p50295 | | |
| p50314[0...n] | RFG final rounding 3 / RFG fin rndg 3 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [s] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 100.00 [s] | Access level: 2 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting 0.00 [s] |
| Description: | Sets the final rounding for ramp-function generator parameter set 3. | | |
| Dependency: | Refer to: p50295 | | |
| r50315[0...3] | RFG effective times / RFG t effective | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - [s] | Access level: 1 Func. diagram: 3150 Unit selection: - Expert list: 1 Factory setting - [s] |
| Description: | Displays the effective times on the ramp-function generator. | | |
| Index: | [0] = Ramp-up time [1] = Ramp-down time [2] = Initial rounding [3] = Final rounding | | |
| r50316 | RFG state / RFG state | | |
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 1 Func. diagram: 3152 Unit selection: - Expert list: 1 Factory setting - |
| Description: | Displays the state on the ramp-function generator. | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--------------------------------|----------|----------|------|
| | 00 | RFG enable | ON | OFF | 3152 |
| | 01 | RFG start | ON | OFF | 3152 |
| | 02 | Setpoint enable & OFF1 | ON | OFF | 3152 |
| | 03 | Set ramp-function generator | ON | OFF | 3152 |
| | 04 | Track ramp-function generator | ON | OFF | 3152 |
| | 05 | Bypass ramp-function generator | ON | OFF | 3152 |
| | 07 | Ramp-down | ON | OFF | 3152 |
| | 15 | Ramp-up | ON | OFF | 3152 |

p50317[0...n] RFG tracking enable / RFG track ena

| | | | |
|---------|------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Sets the enable for ramp-function generator tracking.

Value:
0: Inhibit
1: Enable

Dependency: RFG tracking has to be controlled by setting a 1 signal at binector input p50647.
Refer to: p50647

p50318[0...n] RFG setting value selection / RFG set val sel

| | | | |
|---------|------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |

Description: Selection of the setting value for the ramp-function generator output for OFF1.

Value:
0: Ramp-function generator output not set
1: Set RFG output to setting value 1
2: Set RFG output to setting value 2

Recommendation: During "shutdown", limiting is not applied to the ramp-function generator output. As limiting the ramp-function generator output during "shutdown" does not generate a temporary increase in speed, p50318 should be set to 1 or 2.

Dependency: Refer to: p50650

Note:
If p50318 = 0:
The ramp-function generator output is not set.
If p50318 = 1:
The value supplied via connector input p50650[0] is applied as the setting value.
If p50318 = 2:
The value supplied via connector input p50650[1] is applied as the setting value.

p50319[0...n] RFG setpoint enable delay time / RFG set_ena i_del

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3151 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 10.00 [s] | 0.00 [s] |

Description: Sets the delay time for enabling the setpoint on the ramp-function generator.

In the case of a setpoint enable, the setpoint is not injected on the ramp-function generator until this time has elapsed.

| | | | |
|----------------------|---|-------------------------------|----------------------------------|
| p50320[0...n] | Setpoint processing main setpoint factor / m_set_factor | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | 100.00 [%] |
| Description: | Sets the fixed factor for the main setpoint. | | |
| Dependency: | Refer to: p50322 | | |
| p50321[0...n] | Setpoint processing additional setpoint factor / Add_set_factor | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | 100.00 [%] |
| Description: | Sets the fixed factor for the additional setpoint. | | |
| Dependency: | Refer to: p50323 | | |
| p50322[0...n] | CI: Setpoint processing signal source for main setpoint factor / M set factor sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the variable factor for the main setpoint. | | |
| Dependency: | Refer to: p50320 | | |
| p50323[0...n] | CI: Setpoint processing signal source for additional setpoint factor / Add set fac sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the variable factor for the additional setpoint. | | |
| Dependency: | Refer to: p50321 | | |
| p50330[0...n] | RFG time unit / RFG time unit | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 3150, 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the unit for the ramp-function generator times. | | |
| Value: | 0: Second 1: Minute | | |

Note: This time unit is applied to the following parameters:
p50296, p50297, p50298:
- Ramp-down time 4, initial rounding 4, final rounding 4
p50303, p50304, p50305, p50306:
- Ramp-up time 1, ramp-down time 1, initial rounding 1, final rounding 1
p50307, p50308, p50309, p50310:
- Ramp-up time 2, ramp-down time 2, initial rounding 2, final rounding 2
p50311, p50312, p50313, p50314:
- Ramp-up time 3, ramp-down time 3, initial rounding 3, final rounding 3
p50542:
- RFG dy/dt time difference

| | | | |
|---------------|--|----------------------|----------------------------|
| p50331 | Braking distance Encoder Data Set selection / Br dist EDS sel | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 15 | 0 |

Description: Sets the Encoder Data Set (EDS) used to calculate the braking distance (r52047, r52048).

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50351[0...n] | Line undervoltage threshold / Line V_und thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -97 [%] | 0 [%] | -20 [%] |

Description: Sets the threshold for detecting line undervoltage for armature or field.

Dependency: Refer to: F60006

Note: If the line voltage deviates by a higher value and does not fall back within the tolerance limits by the end of the restart time set in p50086, fault F60006 is triggered.

During the time of excess deviation, the drive is kept in operating state "o4".

For "optimization run for CCP" (p50051 = 30) the parameter is automatically set to -20% if the actual value is less than -20%.

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50352[0...n] | Line overvoltage threshold / Line V_over thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [%] | 99 [%] | 20 [%] |

Description: Sets the threshold for detecting line undervoltage for armature or field.

Dependency: Refer to: F60007

Note: If the line voltage deviates by a higher value and does not fall back within the tolerance limits by the end of the restart time set in p50086, fault F60007 is triggered.


During the time of excess deviation, the drive is kept in operating state "o4".

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50353[0...n] | Line monitoring phase failure threshold / Ph_fail thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 3 [%] | 100 [%] | 40 [%] |
| Description: | Sets the threshold for phase failure detection in the context of line monitoring. | | |
| Note: | If the line voltage in operating states <= o4 undershoots the setting value and does not adopt an "OK" state within the restart time set in p50086, fault F60004 is triggered. During the time that the threshold value is undershot and the voltage stabilization time which follows (set in p50090), the drive is kept in operating state o4. If the drive is switched on in operating state o4, the voltages of all phases will not be checked for compliance with this threshold until the time set in p50089 has elapsed. | | |
| p50354 | BI: Stall protection activation signal source / Stall pr act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to activate stall protection. | | |
| Dependency: | Refer to: p50355, p50356 Refer to: F60035 | | |
| Note: | 1 signal: Stall protection activated 0 signal: Stall protection de-activated | | |
| p50355[0...n] | Stall protection monitoring time / Stall t_mon | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 600.0 [s] | 0.5 [s] |
| Description: | Sets the monitoring time for stall protection. The set time starts when a stalled drive is detected. If these conditions still prevail once the time has elapsed, stall protection is activated and fault F60035 is triggered. | | |
| Dependency: | Refer to: p50354, p50356 Refer to: F60035 | | |
| Note: | "Stall protection" monitoring is switched off when p50355 = 0.00 s. | | |
| p50356[0...n] | Stall protection threshold / Stall prot thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 10.0 [%] | 0.4 [%] |
| Description: | Sets the speed threshold for stall protection. | | |
| Dependency: | Refer to: p50355 Refer to: F60035 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50357[0...n] | Tachometer interruption monitoring threshold / Tacho_mon thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 [%] | 100 [%] | 10 [%] |
| Description: | Sets the threshold for tachometer interruption monitoring. | | |
| Dependency: | Refer to: F60042 | | |
| Note: | For p50357 = 100 %, the tachometer interruption monitoring is not active! | | |
| p50361[0...n] | Line monitoring undervoltage delay time / V_under t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 60000 [ms] | 0 [ms] |
| Description: | Sets the delay time for undervoltage detection in the context of line monitoring. | | |
| Note: | This time starts when undervoltage is detected. While this delay time is running, firing pulses are emitted; at the end of this time, fault F60006 is triggered. If a time has been set for automatic restart (p50086), it will not begin until the time set here has elapsed. | | |
| p50362[0...n] | Line monitoring overvoltage delay time / Line V_over t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 60000 [ms] | 0 [ms] |
| Description: | Sets the delay time for overvoltage monitoring in the context of line monitoring. | | |
| Dependency: | Refer to: F60007 | | |
| Note: | The triggering of fault F60007 (line overvoltage) is delayed by the time set at this parameter. Firing pulses are emitted while this time is running. If a time has been set for automatic restart (p50086), it will not begin until the time set here has elapsed. | | |
| p50363[0...n] | Line frequency minimum threshold / f_line min thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 23.0 [Hz] | 60.0 [Hz] | 45.0 [Hz] |
| Description: | Sets the threshold for detecting that the line frequency has been undershot. | | |
| Dependency: | Refer to: F60008 | | |
| Note: | If the line frequency undershoots the value set here and does not rise back above it within the restart time set in p50086, fault F60008 is triggered. All the while the line frequency remains lower than the value set here, the drive is kept in operating state "o4". | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|-------------------------------|------------------------------|
| p50364[0...n] | Line frequency maximum threshold / f_line max thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 50.0 [Hz] | 500.0 [Hz] | 65.0 [Hz] |
| Description: | Sets the threshold for detecting that the line frequency has been overshoot. | | |
| Dependency: | Refer to: F60009 | | |
| Caution: |  SINAMICS DCM DC converters are suitable for line frequencies from 50 Hz up to 60 Hz (rated value). Restricted operation in the extended frequency range (20 Hz to 500 Hz) is possible on request. If a SINAMICS DCM DC converter is continuously operated in the extended frequency range, then it would be damaged or destroyed as a result of overheating. The SINAMICS DCM Control Module is suitable for line frequencies from 20 Hz up to 500 Hz if it is operated with a power unit designed for this frequency range. | | |
| Note: | If the line frequency overshoots the value set here and does not fall back below it within the restart time set in p50086, fault F60009 is triggered. All the while the line frequency remains higher than the value set here, the drive is kept in operating state "o4". | | |
| p50366[0...1] | CI: Current limitation signal source for speed and I2t monitoring / la lim n I2t sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52129[0] [1] 52130[0] |
| Description: | Sets the signal source for speed-dependent current limitation and current limitation from I2t monitoring. | | |
| Note: | [0] = Speed-dependent current limitation [1] = Current limitation from I2t monitoring | | |
| p50370[0...n] | Messages for speed less than minimum speed threshold / n < n_min thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 0.50 [%] |
| Description: | Sets the threshold for the "Speed less than minimum speed" message. | | |
| Dependency: | Refer to: p50371, p50593, r53025 | | |
| Note: | The "Speed less than minimum speed" message is available as follows: - r53025.6 (not inverted) - r53025.7 (inverted) | | |
| p50371[0...n] | Messages for speed less than minimum speed hysteresis / n < n_min hyst | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 0.50 [%] |
| Description: | Sets the hysteresis for the "Speed less than minimum speed" message. | | |

The message is triggered when the threshold is undershot.
Once the value rises above the threshold plus the hysteresis, the message is withdrawn.

Dependency:

Refer to: p50370, p50593, r53025

Note:

The "Speed less than minimum speed reached" message is available as follows:
- r53025.6 (not inverted)
- r53025.7 (inverted)

p50372[0...n] Messages speed positive hysteresis / Msg n > 0 hyst

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 10.00 [%] | 0.10 [%] |

Description:

Sets the hysteresis for the "Speed positive" message.
This parameter acts on the "Speed setpoint positive" message as well as on the "Speed actual value positive" message.

Dependency:

Refer to: p50594, p50598, r53025

Note:

The "Speed positive" message is available as follows:
Setpoint:
- r53025.8 (not inverted)
- r53025.9 (inverted)
Actual value:
- r53025.12 (not inverted)
- r53025.13 (inverted)

p50373[0...n] Messages for reference speed threshold / Ref_speed thresh

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 100.00 [%] |

Description:

Sets the threshold for the "Reference speed reached" message.

Dependency:

Refer to: p50374, p50375, p50592, r53025

Note:

The "Reference speed reached" message is available as follows:
- r53025.4 (not inverted)
- r53025.5 (inverted)

p50374[0...n] Messages for reference speed hysteresis / Ref_speed hyst

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 3.00 [%] |

Description:

Sets the hysteresis for the "Reference speed reached" message.
The message is triggered when the threshold is overshot.
Once the value falls below the threshold minus the hysteresis, the message is withdrawn.

Dependency:

Refer to: p50373, p50375, p50592, r53025

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50375[0...n] | Messages for reference speed OFF delay / Ref_speed t_OFF | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 100.0 [s] | 3.0 [s] |
| Description: | Sets the OFF delay for the "Reference speed reached" message. | | |
| Dependency: | Refer to: p50373, p50374, p50592, r53025 | | |
| p50376[0...n] | Messages for setpoint/actual value deviation 2 threshold / Set/act 2 thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 3.00 [%] |
| Description: | Sets the threshold for the "Setpoint/actual value deviation 2 reached" message. | | |
| Dependency: | Refer to: p50377, p50378, p50596, p50597, r53025 | | |
| Note: | The "Setpoint/actual value deviation 2 reached" message is available as follows: - r53025.2 (not inverted) - r53025.3 (inverted) | | |
| p50377[0...n] | Messages for setpoint/actual value deviation 2 hysteresis / Set/act 2 hyst | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 1.00 [%] |
| Description: | Sets the hysteresis for the "Setpoint/actual value deviation 2 reached" message. The message is triggered when the threshold is overshoot. Once the value falls below the threshold minus the hysteresis, the message is withdrawn. | | |
| Dependency: | Refer to: p50376, p50378, p50596, p50597, r53025 | | |
| p50378[0...n] | Messages for setpoint/actual value deviation 2 OFF delay / Set/act 2 t_OFF | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 100.0 [s] | 3.0 [s] |
| Description: | Sets the OFF delay for the "Setpoint/actual value deviation 2 reached" message. | | |
| Dependency: | Refer to: p50376, p50377, p50596, p50597, r53025 | | |

p50380[0...n] Messages for overspeed threshold positive direction of rotation / Msg n_over pos

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 200.0 [%] | 120.0 [%] |

Description: Sets the threshold for the maximum speed in positive direction of rotation.

Dependency: Refer to: p50381, p50595, r53025
Refer to: F60038

Note: The "Overspeed" message is available as follows:
- F60038
- r53025.10 (not inverted)
- r53025.11 (inverted)

p50381[0...n] Messages for overspeed threshold negative direction of rotation / Msg n_over neg

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.0 [%] | 0.0 [%] | -120.0 [%] |

Description: Sets the threshold for the maximum speed in negative direction of rotation.

Dependency: Refer to: p50380, p50595, r53025
Refer to: F60038

Note: The "Overspeed" message is available as follows:
- F60038
- r53025.10 (not inverted)
- r53025.11 (inverted)

p50388[0...n] Messages for setpoint/actual value deviation 1 threshold / Set/act 1 thresh

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 3.00 [%] |

Description: Sets the threshold for the "Setpoint/actual value deviation 1 reached" message.

Dependency: Refer to: p50389, p50390, p50590, p50591, r53025
Refer to: F60031

Note: The "Setpoint/actual value deviation 1 reached" message is available as follows:
- F60031
- r53025.0 (not inverted)
- r53025.1 (inverted)

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50389[0...n] | Messages for setpoint/actual value deviation 1 hysteresis / Set/act 1 hyst | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 1.00 [%] |
| Description: | Sets the hysteresis for the "Setpoint/actual value deviation 1 reached" message. The message is triggered when the threshold is overshoot. Once the value falls below the threshold minus the hysteresis, the message is withdrawn. | | |
| Dependency: | Refer to: p50388, p50390, p50590, p50591, r53025 Refer to: F60031 | | |
| p50390[0...n] | Messages for setpoint/actual value deviation 1 OFF delay / Set/act t_OFF | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [s] | 100.0 [s] | 3.0 [s] |
| Description: | Sets the OFF delay for the "Setpoint/actual value deviation 1 reached" message. | | |
| Dependency: | Refer to: p50388, p50389, p50590, p50591, r53025 Refer to: F60031 | | |
| p50394[0...n] | Messages for field current threshold minimum threshold / Msg If min thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 3.00 [%] |
| Description: | Sets the threshold for the "Field current threshold minimum" message. | | |
| Dependency: | Refer to: p50395, r53026 | | |
| Note: | This threshold also affects the phase logic execution in the context of the Direction reversal by field reversal and Braking by field reversal functions. The "Field current threshold minimum" message is displayed via r53026.0. | | |
| p50395[0...n] | Messages for field current threshold minimum hysteresis / Msg If min hyst | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 1.00 [%] |
| Description: | Sets the hysteresis for the "Field current threshold minimum" message. The message is triggered when the threshold is undershot. Once the value rises above the threshold plus the hysteresis, the message is withdrawn. | | |
| Dependency: | Refer to: r53026 | | |
| Note: | The "Field current threshold minimum" message is displayed via r53026.0. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50396[0...n] | Field current monitoring setpoint factor / If_mon set_fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8044 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 [%] | 100 [%] | 50 [%] |
| Description: | Sets the factor for the setpoint in the context of field current monitoring. | | |
| Dependency: | Refer to: p50265, p50397 Refer to: F60005 | | |
| p50397[0...n] | Field current monitoring fault delay time / If_mon F t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8044 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.02 [s] | 60.00 [s] | 0.50 [s] |
| Description: | Sets the delay time for triggering fault F60005 in the context of field current monitoring. | | |
| Dependency: | Refer to: p50265, p50396 Refer to: F60005 | | |
| p50398[0...n] | Messages for field current actual value less than setpoint fact / Msg If<set fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 80.00 [%] |
| Description: | Sets the factor for the setpoint for the "Field current actual value less than setpoint" message. | | |
| Dependency: | Refer to: p50399, r53026 | | |
| Note: | This threshold also affects the phase logic execution in the context of the Direction reversal by field reversal and Braking by field reversal functions. The "Field current actual value less than setpoint" message is displayed via r53026.1. | | |
| p50399[0...n] | Messages for field current actual value less than setpoint hyst / Msg If<set hyst | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 1.00 [%] |
| Description: | Sets the hysteresis for the "Field current actual value less than setpoint" message. The message is triggered when the threshold is undershot (setpoint x factor). Once the value rises above the threshold (setpoint x factor) plus the hysteresis, the message is withdrawn. | | |
| Dependency: | Refer to: p50398, r53026 | | |
| Note: | The "Field current actual value less than setpoint" message is displayed via r53026.1. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|--|---|
| p50401[0...n] | Fixed value 1 / Fix val 1 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 1. | | |
| Dependency: | Refer to: r52401 | | |
| Note: | This value can be interconnected via connector output r52401. | | |
| <hr/> | | | |
| p50402[0...n] | Fixed value 2 / Fix val 2 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 2. | | |
| Dependency: | Refer to: r52402 | | |
| Note: | This value can be interconnected via connector output r52402. | | |
| <hr/> | | | |
| p50403[0...n] | Fixed value 3 / Fix val 3 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 3. | | |
| Dependency: | Refer to: r52403 | | |
| Note: | This value can be interconnected via connector output r52403. | | |
| <hr/> | | | |
| p50404[0...n] | Fixed value 4 / Fix val 4 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 4. | | |
| Dependency: | Refer to: r52404 | | |
| Note: | This value can be interconnected via connector output r52404. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50405[0...n] | Fixed value 5 / Fix val 5 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets fixed value 5. | | |
| Dependency: | Refer to: r52405 | | |
| Note: | This value can be interconnected via connector output r52405. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50406[0...n] | Fixed value 6 / Fix val 6 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets fixed value 6. | | |
| Dependency: | Refer to: r52406 | | |
| Note: | This value can be interconnected via connector output r52406. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50407[0...n] | Fixed value 7 / Fix val 7 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets fixed value 7. | | |
| Dependency: | Refer to: r52407 | | |
| Note: | This value can be interconnected via connector output r52407. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50408[0...n] | Fixed value 8 / Fix val 8 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets fixed value 8. | | |
| Dependency: | Refer to: r52408 | | |
| Note: | This value can be interconnected via connector output r52408. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|--|---|
| p50409[0...n] | Fixed value 9 / Fix val 9 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 9. | | |
| Dependency: | Refer to: r52409 | | |
| Note: | This value can be interconnected via connector output r52409. | | |
| <hr/> | | | |
| p50410[0...n] | Fixed value 10 / Fix val 10 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 10. | | |
| Dependency: | Refer to: r52410 | | |
| Note: | This value can be interconnected via connector output r52410. | | |
| <hr/> | | | |
| p50411[0...n] | Fixed value 11 / Fix val 11 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 11. | | |
| Dependency: | Refer to: r52411 | | |
| Note: | This value can be interconnected via connector output r52411. | | |
| <hr/> | | | |
| p50412[0...n] | Fixed value 12 / Fix val 12 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -340.28235E36 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 340.28235E36 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 12. | | |
| Dependency: | Refer to: r52412 | | |
| Note: | This value can be interconnected via connector output r52412. | | |

| | | | |
|----------------------|--|--|---|
| p50413[0...n] | Fixed value 13 / Fix val 13 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -340.28235E36 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 340.28235E36 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 13. | | |
| Dependency: | Refer to: r52413 | | |
| Note: | This value can be interconnected via connector output r52413. | | |
| p50414[0...n] | Fixed value 14 / Fix val 14 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -340.28235E36 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 340.28235E36 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 14. | | |
| Dependency: | Refer to: r52414 | | |
| Note: | This value can be interconnected via connector output r52414. | | |
| p50415[0...n] | Fixed value 15 / Fix val 15 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -340.28235E36 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 340.28235E36 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 15. | | |
| Dependency: | Refer to: r52415 | | |
| Note: | This value can be interconnected via connector output r52415. | | |
| p50416[0...n] | Fixed value 16 / Fix val 16 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -340.28235E36 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 340.28235E36 [%] | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets fixed value 16. | | |
| Dependency: | Refer to: r52416 | | |
| Note: | This value can be interconnected via connector output r52416. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|---|--|
| p50421[0...n] | Fixed bit 0 / Fixed bit 0 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 0. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.0. | | |
| <hr/> | | | |
| p50422[0...n] | Fixed bit 1 / Fixed bit 1 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 1. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.1. | | |
| <hr/> | | | |
| p50423[0...n] | Fixed bit 2 / Fixed bit 2 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 2. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.2. | | |
| <hr/> | | | |
| p50424[0...n] | Fixed bit 3 / Fixed bit 3 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 3. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.3. | | |

| | | | |
|----------------------|--|---|--|
| p50425[0...n] | Fixed bit 4 / Fixed bit 4 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 4. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.4. | | |
| p50426[0...n] | Fixed bit 5 / Fixed bit 5 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 5. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.5. | | |
| p50427[0...n] | Fixed bit 6 / Fixed bit 6 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 6. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.6. | | |
| p50428[0...n] | Fixed bit 7 / Fixed bit 7 | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3100 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal level for fixed bit 7. | | |
| Value: | 0: Low 1: High | | |
| Dependency: | Refer to: r53230 | | |
| Note: | This signal can be interconnected via binector output r53230.7. | | |

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|----------------------|--|----------------------|----------------------------|
| p50430[0...7] | BI: Fixed setpoint signal source for connector selection / Fix set conn sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of the connectors (p50431[0 to 7]). | | |
| Dependency: | Refer to: p50431, p50432, p50680, p50681, r52204, r52209, r52210, r53170 | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50431[0...7] | CI: Signal source for fixed setpoint / Fix set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for generating the fixed setpoint (CO: r52204). | | |
| Dependency: | Refer to: p50430, p50432, p50680, p50681, r52204, r52209, r52210, r53170 | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| p50432[0...7] | Fixed setpoint bypass ramp-function generator / Fix set bypass RFG | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to enable or disable the impact of the individual fixed setpoints when generating signal r53170.10, "Bypass ramp-function generator". | | |
| Value: | 0: Inhibit 1: Enable | | |
| Dependency: | Refer to: r53170 | | |
| Note: | [0] = Enable bypassing of ramp-function generator at fixed setpoint 0 ... [7] = Enable bypassing of ramp-function generator at fixed setpoint 7 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50433[0...n] | CI: Signal source for default setpoint / Def set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3113 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52011[0] |
| Description: | Sets the signal source for the default setpoint. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50435[0...7] | BI: Jog setpoint signal source for connector selection / Jog set conn sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3125 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of the connectors (p50436[0 to 7]). | | |
| p50436[0...7] | CI: Signal source for jog setpoint / Jog set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3125 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for generating the jog setpoint (CO: r52202). | | |
| p50437[0...7] | Jog setpoint bypass ramp-function generator / Jog set bypass RFG | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 3125 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to enable or disable the impact of the individual jog setpoints when generating signal r53170.11, "Bypass ramp-function generator". | | |
| Value: | 0: Do not bypass 1: Bypass | | |
| Note: | [0] = Enable bypassing of ramp-function generator at jog setpoint 0 ... [7] = Enable bypassing of ramp-function generator at jog setpoint 7 | | |
| p50438[0...n] | CI: Jog signal source for default setpoint / Jog def set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3125 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52208[0] |
| Description: | Sets the signal source for the default setpoint when jog is not selected. | | |
| p50440[0...7] | BI: Creep setpoint signal source for connector selection / Cr set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of the connectors (p50441[0 to 7]) for the creep setpoint. | | |
| Dependency: | Refer to: p50441 | | |

2 Parameters

2.2 List of parameters

| | | | |
|--|---|-------------------------------|----------------------------|
| p50441[0...7] | | | |
| CI: Signal source for creep setpoint / Cr set sig s | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for generating the creep setpoint (CO: r52201). | | |
| Dependency: | Refer to: r52201 | | |
| <hr/> | | | |
| p50442[0...7] | | | |
| Creep setpoint bypass ramp-function generator / Cr set bypass RFG | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to enable/disable the impact of the individual creep setpoints when generating signal r53170.12, "Bypass ramp-function generator". | | |
| Value: | 0: Do not bypass 1: Bypass | | |
| Note: | [0]: Enable bypassing of ramp-function generator at creep setpoint 0 ... [7]: Enable bypassing of ramp-function generator at creep setpoint 7 | | |
| <hr/> | | | |
| p50443[0...n] | | | |
| CI: Creep signal source for default setpoint / Cr def set sig s | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52207[0] |
| Description: | Sets the signal source for the default setpoint when creep is not selected. | | |
| <hr/> | | | |
| p50444[0...n] | | | |
| BI: Creep signal source for shutdown / Cr shutdn sig s | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for shutting down/resetting the injection of the creep setpoint. | | |
| <hr/> | | | |
| p50445 | | | |
| Creep setpoint level/edge / Cr set lev/ed | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets whether the ON command is triggered by a logic 1 level or a 0/1 edge. | | |

Value:
 0: 1 level
 1: 0/1 edge

p50460[0...n] Motorized potentiometer activate ramp-function generator / Mot pot act RFG

| | | | |
|---------|------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |

Description: Setting to activate/de-activate the ramp-function generator on the motorized potentiometer.

Value:
 0: RFG de-activated in automatic mode
 1: RFG activated in automatic and manual modes

p50461[0...n] CI: Motorized potentiometer signal source for automatic setpoint / MotP aut s sig s

| | | | |
|---------|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the ramp-function generator's setpoint in automatic mode on the motorized potentiometer.

p50462[0...n] Motorized potentiometer ramp-up time / MotP t_r-up

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 [s] | 300.00 [s] | 10.00 [s] |

Description: Sets the ramp-up time on the motorized potentiometer.

p50463[0...n] Motorized potentiometer ramp-down time / MotP t_r-dn

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 [s] | 300.00 [s] | 10.00 [s] |

Description: Sets the ramp-down time on the motorized potentiometer.

p50464[0...n] Motorized potentiometer time difference for dy/dt / MotP t_dif dy/dt

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 [s] | 300.00 [s] | 10.00 [s] |

Description: Sets the time difference for the ramp-function generator dy/dt on the motorized potentiometer.

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|--|---|
| p50465[0...n] | Motorized potentiometer expansion factor / MotP exp fact | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 3110 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the expansion factor on the motorized potentiometer. | | |
| Value: | 0: Factor 1 1: Factor 60 | | |
| Dependency: | Refer to: p50462, p50463, p50464 | | |
| Note: | The expansion factor affects the following parameters: - p50462 (ramp-up time) - p50463 (ramp-down time) - p50464 (time difference for dy/dt) | | |
| p50466[0...n] | CI: Motor potentiometer setting value signal source / MotP s val sig s | | |
| DC_CTRL | Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: PERCENT Max - | Access level: 2 Func. diagram: 3110 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for the setting value for the motorized potentiometer. | | |
| Dependency: | Refer to: p50472 | | |
| Note: | The setting value (CI: p50466) becomes effective on a 0/1 edge of the setting command (BI: p50472). | | |
| p50467[0...n] | Motorized potentiometer starting value / MotP start value | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3110 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets the starting value on the motorized potentiometer. | | |
| Dependency: | Refer to: p50473 | | |
| Note: | The value is only effective when saving of the output value is de-activated (p50473 = 0). | | |
| p50468[0...n] | Motorized potentiometer maximum speed / MotP n_max | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 3110 Unit selection: - Expert list: 1 Factory setting 100.00 [%] |
| Description: | Sets the maximum speed on the motorized potentiometer. | | |
| Dependency: | Refer to: p50471 | | |
| Note: | This parameter is only effective in manual mode (p50471 = 0). The setpoint output from the motorized potentiometer is limited to this value. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50469[0...n] | Motorized potentiometer minimum speed / MotP n_min | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | -100.00 [%] |
| Description: | Sets the minimum speed on the motorized potentiometer. | | |
| Dependency: | Refer to: p50471 | | |
| Note: | This parameter is only effective in manual mode (p50471 = 0). The setpoint output from the motorized potentiometer is limited to this value. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50470[0...n] | BI: Motorized potentiometer signal source for CW/CCW / MotP CW/CCW sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changing over between clockwise/counter-clockwise rotation on the motorized potentiometer. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50471[0...n] | BI: Motorized potentiometer signal source for manual/automatic / MotP man/aut sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changing between manual and automatic modes. | | |
| Dependency: | Refer to: p50461, p50673, p50674 | | |
| Note: | If p50471 = 0 signal (manual mode): In manual mode, the setpoint is increased and reduced using binector inputs p50673 and p50674 respectively. If p50471 = 1 signal (automatic mode): In automatic mode, the setpoint is specified using connector input p50461. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50472[0...n] | BI: Motorized potentiometer accept setting value / MotP acc set val | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to accept the setting value for the motorized potentiometer. | | |
| Dependency: | Refer to: p50466 | | |
| Note: | The setting value (CI: p50466) becomes effective on a 0/1 edge of the setting command (BI: p50472). | | |

2 Parameters

2.2 List of parameters

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|----------------------|--|-------------------------------|----------------------------|
| p50473[0...n] | Motorized potentiometer save output value / MotP save outp val | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets how the output value is saved on the motorized potentiometer. | | |
| Value: | 0: Save de-activated 1: Save activated | | |
| Dependency: | Refer to: p50467, r52240 | | |
| Note: | If p50473 = 0: The output value (CI: r52240) is not saved. The starting value specified in p50467 is applied after ON. If p50473 = 1: The output value (CI: r52240) is saved to non-volatile memory after OFF. The saved value is applied after ON. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50480[0...n] | Oscillation setpoint 1 / Oscillation set 1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.0 [%] | 200.0 [%] | 0.5 [%] |
| Description: | Sets setpoint 1 for the square-wave generator. | | |
| Dependency: | Refer to: p50481, p50482, p50483 | | |
| Note: | This setpoint is applied for the time set in p50481. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50481[0...n] | Oscillation setpoint 1 time / Oscill set 1 t | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.1 [s] | 300.0 [s] | 0.1 [s] |
| Description: | Sets the time during which setpoint 1 should be applied for the square-wave generator. | | |
| Dependency: | Refer to: p50480, p50482, p50483 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50482[0...n] | Oscillation setpoint 2 / Oscillation set 2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.0 [%] | 200.0 [%] | -0.4 [%] |
| Description: | Sets setpoint 2 for the square-wave generator. | | |
| Dependency: | Refer to: p50480, p50481, p50483 | | |
| Note: | This setpoint is applied for the time set in p50483. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50483[0...n] | Oscillation setpoint 2 time / Oscill set 2 t | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.1 [s] | 300.0 [s] | 0.1 [s] |
| Description: | Sets the time during which setpoint 2 should be applied for the square-wave generator. | | |
| Dependency: | Refer to: p50480, p50481, p50482 | | |
| p50484[0...n] | CI: Oscillation signal source for default setpoint / Oscill def set | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52209[0] |
| Description: | Sets the signal source for the default setpoint for oscillation. This setpoint is injected when the "Oscillate" function is not selected. | | |
| Dependency: | Refer to: p50485 | | |
| p50485[0...n] | BI: Oscillation selection of signal source / Oscill sel sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of the "Oscillate" function. | | |
| Dependency: | Refer to: p50480, p50481, p50482, p50483, p50484 | | |
| Note: | BI: p50485 = 0 signal Oscillation is not selected. The default setpoint is applied (CI: p50484). BI: p50485 = 1 signal Oscillation is selected. The square-wave generator is active (p50480, p50481, p50482, p50483). | | |
| p50486 | BI: Motor interface signal source for brush length / Mot br l sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8035 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for triggering fault F60025 "Brush length". | | |
| Dependency: | Refer to: r53120 Refer to: F60025 | | |
| Note: | The fault is triggered with a delay. The signal is available via binector output r53210.0 for further interconnection. | | |

2 Parameters

2.2 List of parameters

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|---------------------|---|----------------------|----------------------------|
| p50487 | BI: Motor interface signal source for bearing condition / Mot brg cond sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8035 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for triggering fault F60026 "Bearing condition". | | |
| Dependency: | Refer to: r53120 Refer to: F60026 | | |
| Note: | The fault is triggered with a delay. The signal is available via binector output r53120.1 for further interconnection. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50488 | BI: Motor interface signal source for motor fan / Mot mot fan sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8035 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for triggering fault F60027 "Motor fan". | | |
| Dependency: | Refer to: r53120 Refer to: F60027 | | |
| Note: | The fault is triggered with a delay. The signal is available via binector output r53210.0 for further interconnection. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50489 | BI: Motor interface signal source for motor temperature / Mot mot temp sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8035 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for triggering fault F60028 "Motor temperature". | | |
| Dependency: | Refer to: r53120 Refer to: F60028 | | |
| Note: | The fault is triggered with a delay. The signal is available via binector output r53210.3 for further interconnection. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50490 | Motor interface temperature sensor / Mot temp sensor | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8030 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 8 | 0 |
| Description: | Sets the temperature sensor for monitoring the motor temperature. | | |
| Value: | 0: No sensor 1: KTY84 2: PTC thermistor R _{rated} 600 3: PTC thermistor R _{rated} 1200 4: PTC thermistor R _{rated} 1330 5: PTC thermistor R _{rated} 2660 | | |

6: PT100
 7: NTC thermistor K227
 8: PT1000

Dependency:

Refer to: r50012, r52051
 Refer to: F60029, A60032

Note:

Comments regarding PTC thermistors:

- PTC thermistors according to DIN 44081 / 44082 with the specified R for the rated response temperature.
- For Siemens motors, PTC thermistors with 1330 Ohm are used.
- Parameters p50491 and p50492 (alarm and switch-off temperature) are ineffective. The alarm and switch-off temperatures are defined by the PTC thermistor type being used.

Comments on NTC thermistor K227:

The evaluation electronics on the CUD only allow resistance values of less than approx. 2 kOhm to be measured. As a consequence, only temperatures greater than approx. 90 °C can be measured when using these temperature sensors. For lower temperatures, the lowest possible value (approx. 90 °C) is displayed.

p50491[0...n]**Motor interface alarm threshold for temperature monitoring / Mot_temp al thr**

DC_CTRL

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** FloatingPoint32**Dyn. index:** DDS, p0180**Func. diagram:** 8030**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0 [°C]

200 [°C]

0 [°C]

Description:

Sets the alarm threshold for monitoring the motor temperature.

Dependency:

The parameter is only valid for the following temperature sensors with a continuous characteristic:

- KTY84 (p50490 = 1)
- PT100 (p50490 = 6)
- NTC thermistor K227 (p50490 = 7)
- PT1000 (p50490 = 8)

Refer to: p50490, p50492, r52051

Refer to: A60032

p50492[0...n]**Motor interface fault threshold for temperature monitoring / Mot_temp flt thr**

DC_CTRL

Can be changed: U, T**Calculated:** -**Access level:** 2**Data type:** FloatingPoint32**Dyn. index:** DDS, p0180**Func. diagram:** 8030**P-Group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min****Max****Factory setting**

0 [°C]

200 [°C]

0 [°C]

Description:

Sets the fault threshold for monitoring the motor temperature.

Dependency:

The parameter is only valid for the following temperature sensors with a continuous characteristic:

- KTY84 (p50490 = 1)
- PT100 (p50490 = 6)
- NTC thermistor K227 (p50490 = 7)
- PT1000 (p50490 = 8)

Refer to: p50490, p50491, r52051

Refer to: F60029

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50500[0...n] | CI: Torque limiting signal source for t_set in slave mode / T_set s mode sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52170[0] |
| Description: | Sets the signal source for the torque setpoint in slave mode. | | |
| Dependency: | Refer to: p50503 | | |
| p50501[0...n] | CI: Torque limiting signal source for torque additional setpoint / T_lim add s sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the torque additional setpoint in torque limiting. The value is injected in addition to friction and moment of inertia compensation. | | |
| p50502 | CI: Speed controller additional setpoint signal source / Add set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the additional setpoint of the speed controller. This value is added to the speed controller's output value. | | |
| p50503[0...n] | Torque limiting t_set factor in slave mode / T_set fact sl mode | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -300.00 [%] | 300.00 [%] | 100.00 [%] |
| Description: | Sets the factor for the torque setpoint in slave mode. | | |
| Dependency: | Refer to: p50500 | | |
| p50509 | CI: Speed limiting controller signal source for speed actual value / n_lim n_act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |
| Description: | Sets the signal source for the speed actual value (n_act) on the speed limiting controller. | | |

p50510 CI: Speed limiting controller signal source for pos torque limit / T lim pos sig s

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52002[0] |

Description: Sets the signal source for the positive torque limit on the speed limiting controller.

Dependency: Refer to: r52136

Note: This parameter specifies which parameter is to be injected as the limit value for torque limiting 1 (r52136).

p50511 CI: Speed limiting controller signal source for neg torque limit / T lim neg sig s

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52004[0] |

Description: Sets the signal source for the negative torque limit on the speed limiting controller.

Dependency: Refer to: r52137

Note: This parameter specifies which parameter is to be injected as the limit value for torque limiting 2 (r52137).

p50512[0...n] Speed limiting controller max speed pos direction of rotation / n_max pos dir rot

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 200.0 [%] | 105.0 [%] |

Description: Sets the maximum speed for the positive direction of rotation on the speed limiting controller.

p50513[0...n] Speed limiting controller max speed neg direction of rotation / n_max neg dir

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.0 [%] | 0.0 [%] | -105.0 [%] |

Description: Sets the maximum speed for the negative direction of rotation on the speed limiting controller.

p50515[0...n] Speed limiting controller P gain / n_lim Kp

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.10 | 200.00 | 3.00 |

Description: Sets the P gain on the speed limiting controller.

2 Parameters

2.2 List of parameters

| | | | |
|---|---|-------------------------------|----------------------------|
| p50519[0...1] CI: Input signal for friction compensation / Fric comp inp sig | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52179[0] [1] 0 |
| Description: | Sets the signal sources for friction compensation. | | |
| Index: | [0] = Signed [1] = Absolute | | |
| Note: | The signals in p50519[0] and p50519[1] are summed and applied to the friction compensation input. | | |
| p50520[0...n] Friction compensation 0 % speed / Fric comp n 0% | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 0 % speed. | | |
| Recommendation: | In the case of operation in both directions of rotation, this basic value should be set to 0% to prevent the armature current from oscillating. | | |
| Note: | The basic values are based on the device rated direct current or the device rated torque. The basic values for friction compensation (p50520 ... p50530) are set automatically during the optimization run for friction compensation (p50051 = 28). There is linear interpolation between the basic values; here, the friction compensation value takes on the input signal's sign. | | |
| p50521[0...n] Friction compensation 10 % speed / Fric comp n 10% | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 10 % speed. | | |
| p50522[0...n] Friction compensation 20 % speed / Fric comp n 20% | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 20 % speed. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50523[0...n] | Friction compensation 30 % speed / Fric comp n 30% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 30 % speed. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50524[0...n] | Friction compensation 40 % speed / Fric comp n 40% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 40 % speed. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50525[0...n] | Friction compensation 50 % speed / Fric comp n 50% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 50 % speed. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50526[0...n] | Friction compensation 60 % speed / Fric comp n 60% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 60 % speed. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50527[0...n] | Friction compensation 70 % speed / Fric comp n 70% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 70 % speed. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50528[0...n] | Friction compensation 80 % speed / Fric comp n 80% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 80 % speed. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50529[0...n] | Friction compensation 90 % speed / Fric comp n 90% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 90 % speed. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50530[0...n] | Friction compensation 100% speed / Fric comp n 100% | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [%] | 100.0 [%] | 0.0 [%] |
| Description: | Sets friction compensation at 100% speed. | | |
| Note: | This basic value is also effective at speeds > 100%. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50540[0...n] | Speed controller acceleration time / n_ctr t_accel | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 1000.00 [s] | 0.01 [s] |
| Description: | Sets the acceleration time on the speed controller. | | |
| Dependency: | Refer to: r52150, r52174 | | |
| Note: | The acceleration time is the time which would be needed to accelerate the drive from 0 to 100% of the maximum speed at 100% device rated current (with no friction present). It is a measure of the moment of inertia at the motor shaft. The acceleration time is set automatically during the optimization run for the speed controller (p50051 = 26). | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| p50541[0...3] | Speed controller setpoint/actual value difference factor / Set/act dif fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 | 650.00 | 0.00 |
| Description: | Sets the factor for the acceleration on the speed controller, which is dependent upon the difference between the setpoint and the actual value. | | |

In the case of the "Acceleration dependent upon setpoint/actual value difference" function, only the proportion of the speed controller's setpoint/actual value difference which has an absolute value in excess of the threshold (p50543) is switched through.

Dependency: Refer to: p50543

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50542[0...n] | RFG dy/dt time difference / RFG dy/dt t_dif | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [s] | 1000.00 [s] | 0.01 [s] |
| Description: | Sets the dt for the output of dy/dt in r52191. The change in the ramp-function generator's output variable (p52190) in relation to the time set in p50542 is output in r52191. | | |
| Dependency: | Refer to: p50330, r52191 | | |
| Note: | Example: A ramp-up time of 5 s is set on the ramp-function generator; in other words, a complete ramp-up from y = 0% to 100% will take 5 s. A time difference dt of 2 s is set in p50542. This results in a dy/dt of 40% at r52191, since the set dt of 2s produces a dy of $(2\text{ s} / 5\text{ s}) * 100\% = 40\%$. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50543[0...n] | Speed controller setpoint/actual value difference threshold / Set/act dif thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the threshold for acceleration dependent upon the setpoint/actual value difference. In the case of the "Acceleration dependent upon setpoint/actual value difference" function, only the proportion of the speed controller's setpoint/actual value difference which has an absolute value in excess of the threshold (p50543) is switched through. | | |
| Dependency: | Refer to: p50541 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50546[0...n] | Smoothing time constant for inertia compensation / Comp inert T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the smoothing time constant for the acceleration value for moment of inertia compensation. | | |
| Dependency: | Refer to: p50619 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50550[0...n] | Speed controller adaptation Kp y coordinate 1 / Adapt Kp y1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.10 | 2000.00 | 3.00 |
| Description: | Sets the y coordinate for pair of values 1 for adaptation of the P gain (Kp). | | |

2 Parameters

2.2 List of parameters

Note: This P gain (Kp) is effective up to x coordinate 1 (p50556).
 The adaptation of the P gain (Kp) is defined using 2 pairs of values.
 Pair of values 1:
 p50556/p50550 (x/y coordinate)
 Pair of values 2:
 p50559/p50225 (x/y coordinate)

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50551[0...n] | Speed controller adaptation Tn y coordinate 1 / Adapt Tn y1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.010 [s] | 10.000 [s] | 0.650 [s] |

Description: Sets the y coordinate for pair of values 1 for adaptation of the integral time (Tn).

Note: This integral time (Tn) is effective up to x coordinate 1 (p50557).
 The adaptation of the integral time (Tn) is defined using 2 pairs of values.
 Pair of values 1:
 p50557/p50551 (x/y coordinate)
 Pair of values 2:
 p50560/p50226 (x/y coordinate)

| | | | |
|----------------------|--|----------------------|----------------------------|
| p50552[0...3] | Speed controller adaptation droop y coordinate 1 / Adapt droop y1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 | 10.000 | 0.000 |

Description: Sets the y coordinate for pair of values 1 for adaptation of the droop.

Notice: - For the droop, generally values up to 10 % are practical (p50552 = 0.000 ... 0.100). Under certain circumstances, higher values can result in an unstable response of the speed controller.
 - The droop is entered as absolute factor without any dimensions and it is especially important to note that it is not a percentage.
 Example:
 Set droop = 5 % --> p50552 = 0.05

Note: This droop is effective up to x coordinate 1 (p50558).
 The adaptation of the droop is defined using 2 pairs of values.
 Pair of values 1:
 p50558/p50552 (x/y coordinate)
 Pair of values 2:
 p50561/p50227 (x/y coordinate)

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50553[0...n] | CI: Speed controller adaptation Kp signal source / Adapt Kp sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the P gain (Kp) on the speed controller.

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50554[0...n] | CI: Speed controller adaptation Tn signal source / Adapt Tn sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the integral time (Tn) on the speed controller. | | |
| p50555[0...n] | CI: Speed controller adaptation droop signal source / Adapt droop sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the droop on the speed controller. | | |
| Note: | A setting of 10% droop means that at 100% controller output (100% torque or current setpoint), the speed will deviate from the setpoint by 10% ("softening" of closed-loop control). | | |
| p50556[0...n] | Speed controller adaptation Kp x coordinate 1 / Adapt Kp x1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the x coordinate for pair of values 1 for adaptation of the P gain (Kp). | | |
| Notice: | The following condition applies for x coordinate 1/2: p50556 < p50559 | | |
| Note: | The adaptation of the P gain (Kp) is defined using 2 pairs of values. Pair of values 1: p50556/p50550 (x/y coordinate) Pair of values 2: p50559/p50225 (x/y coordinate) | | |
| p50557[0...n] | Speed controller adaptation Tn x coordinate 1 / Adapt Tn x1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the x coordinate for pair of values 1 for adaptation of the integral time (Tn). | | |
| Notice: | The following condition applies for x coordinate 1/2: p50557 < p50560 | | |
| Note: | The adaptation of the integral time (Tn) is defined using 2 pairs of values. Pair of values 1: p50557/p50551 (x/y coordinate) Pair of values 2: p50560/p50226 (x/y coordinate) | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50558[0...3] | Speed controller adaptation droop x coordinate 1 / Adapt droop x1 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the x coordinate for pair of values 1 for adaptation of the droop. | | |
| Notice: | The following condition applies for x coordinate 1/2: p50558 < p50561 | | |
| Note: | The adaptation of the droop is defined using 2 pairs of values. Pair of values 1: p50558/p50552 (x/y coordinate) Pair of values 2: p50561/p50227 (x/y coordinate) | | |
| p50559[0...n] | Speed controller adaptation Kp x coordinate 2 / Adapt Kp x2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the x coordinate for pair of values 2 for adaptation of the P gain (Kp). | | |
| Notice: | The following condition applies for x coordinate 1/2: p50556 < p50559 | | |
| Note: | The adaptation of the P gain (Kp) is defined using 2 pairs of values. Pair of values 1: p50556/p50550 (x/y coordinate) Pair of values 2: p50559/p50225 (x/y coordinate) | | |
| p50560[0...n] | Speed controller adaptation Tn x coordinate 2 / Adapt Tn x2 | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the x coordinate for pair of values 2 for adaptation of the integral time (Tn). | | |
| Notice: | The following condition applies for x coordinate 1/2: p50557 < p50560 | | |
| Note: | The adaptation of the integral time (Tn) is defined using 2 pairs of values. Pair of values 1: p50557/p50551 (x/y coordinate) Pair of values 2: p50560/p50226 (x/y coordinate) | | |

| | | | |
|----------------------|---|--|--|
| p50561[0...n] | Speed controller adaptation droop x coordinate 2 / Adapt droop x2 | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 100.00 [%] | Access level: 2 Func. diagram: 6805 Unit selection: - Expert list: 1 Factory setting 0.00 [%] |
| Description: | Sets the x coordinate for pair of values 2 for adaptation of the droop. | | |
| Notice: | The following condition applies for x coordinate 1/2: p50558 < p50561 | | |
| Note: | The adaptation of the droop is defined using 2 pairs of values. Pair of values 1: p50558/p50552 (x/y coordinate) Pair of values 2: p50561/p50227 (x/y coordinate) | | |
| p50562[0...n] | Speed controller droop positive limiting / Droop pos lim | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 200.00 [%] | Access level: 2 Func. diagram: 6805 Unit selection: - Expert list: 1 Factory setting 100.00 [%] |
| Description: | Sets positive limiting for the droop on the speed controller. | | |
| Dependency: | Refer to: p50563 | | |
| p50563[0...n] | Speed controller droop negative limiting / Droop neg lim | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -200.00 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 0.00 [%] | Access level: 2 Func. diagram: 6805 Unit selection: - Expert list: 1 Factory setting -100.00 [%] |
| Description: | Sets negative limiting for the droop on the speed controller. | | |
| Dependency: | Refer to: p50562 | | |
| p50565 | Speed controller optimization frequency response plot base speed / f_plot n_base | | |
| DC_CTRL | Can be changed: T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 1.0 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 30.0 [%] | Access level: 2 Func. diagram: 2660 Unit selection: - Expert list: 1 Factory setting 20.0 [%] |
| Description: | Sets the base speed for the frequency response plot for the optimization run "Speed control optimization for drives that are capable of oscillation" (p50051 = 29). | | |
| Dependency: | Refer to: p50566, p50567 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50566 | Speed controller optimization frequency response plot amplitude / f_plot amplitude | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.01 [%] | 5.00 [%] | 1.00 [%] |
| Description: | Sets the amplitude for the frequency response plot for the optimization run "Speed control optimization for drives that are capable of oscillation" (p50051 = 29). | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50567 | Speed controller optimization frequency response plot time / f_plot time | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.30 [s] | 3.00 [s] | 1.00 [s] |
| Description: | Sets the time for the frequency response plot for the optimization run "Speed control optimization for drives that are capable of oscillation" (p50051 = 29). | | |
| | In this case, an average is generated over the time set here per measuring frequency. | | |
| Note: | High values improve the result, however they slow down the measuring time. | | |
| | For the 3.0 s setting, it takes approximately 9 minutes to plot the frequency response. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50570[0...n] | Adaptation armature current controller changeover input / Adapt la chgov inp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6853 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the input quantity for armature current controller adaptation. | | |
| Value: | 0: la_act r52117 1: la_set r52119 | | |
| Dependency: | Refer to: p50571, p50572 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50571[0...n] | Adaptation armature current controller non-linear L activation / Adapt N_lin L act | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6853 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate the adaptation of non-linear inductances for the armature current controller. | | |
| Value: | 0: Adaptation non-linear L active 1: Fixed value 100 % effective | | |
| Dependency: | Refer to: p50570, p50572, r52350 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50572[0...n] | Adapt arm curr controller intermittent adapt activation / Adapt Interm Act | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6853 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate the intermittent adaptation for the armature current controller. | | |
| Value: | 0: Intermittent adaptation effective 1: Fixed value 100 % | | |
| Dependency: | Refer to: p50570, p50571, r52350 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50573[0...n] | Adaptation armature current controller limiting / Adapt Ia_ctrl lim | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6853 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1.0 [%] | 1000.0 [%] | 200.0 [%] |
| Description: | Setting to limit the armature current controller adaptation. | | |
| Dependency: | Refer to: p50571, p50572, r52350 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50574[0...n] | Adapt arm curr controller intermittent adapt Kp increase / Ad Interm Kp incr | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6853 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 | 10.0 | 1.0 |
| Description: | Sets the Kp increase for the intermittent adaptation for the armature current controller. | | |
| Dependency: | Refer to: p50572 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50575[0...n] | Adaptation field current controller changeover input / Adapt If chgov inp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the input variable for the field current controller adaptation. | | |
| Value: | 0: If_act r52265 1: If_set r52268 | | |
| Dependency: | Refer to: p50576, p50577 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50576[0...n] | Adaptation field current controller non-linear L activation / Adapt n_lin act | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate the adaptation of non-linear inductances for the field current controller. | | |

2 Parameters

2.2 List of parameters

Value: 0: Adaptation non-linear L active
1: Fixed value 100 % effective
Dependency: Refer to: p50575, p50577, r52355

p50577[0...n] Adapt field curr controller non-linear gating unit activation / Adapt n_lin GU act

| | | | |
|---------|------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: DDS, p0180 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Activates the adaptation to the non-linearity of the gating unit for the field current controller.

Value: 0: Adaptation gating unit effective
1: Fixed value 100 % effective

Dependency: Refer to: p50575, p50576, r52355

p50578[0...n] Adaptation field current controller limiting / Adapt If_ctrl lim

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1.0 [%] | 1000.0 [%] | 200.0 [%] |

Description: Setting to limit the field current controller adaptation.

Dependency: Refer to: p50576, p50577, r52355

p50580[0...n] BI: Field reversal direction of rotation signal source / Field rev sig s

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6920 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the direction of rotation for the "field reversal" function.

0 signal:

Positive field direction is selected (r53195.0 = 1, r53195.1 = 0).

The speed actual value is not inverted.

1 signal:

Negative field direction is selected (r53195.0 = 0, r53195.1 = 1).

The speed actual value is inverted.

Dependency: Refer to: p50092, p50581, p50583, r53195

p50581[0...n] BI: Field reversal braking signal source / Field rev br sig s

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6920 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the "field reversal braking" function.

0/1 signal:

Reversal of the field direction (this has a braking effect).

At $n < n_{min}$, the original field direction is selected again. The drive goes into operating state o7.2.

Dependency: Refer to: p50092, p50580, p50583, r53195

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50583[0...n] | CI: Field reversal speed actual value signal source / FldRev n_act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6920 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |

Description: Sets the signal source for the speed actual value when reversing the field.

Dependency: Refer to: p50092, p50580, p50581, r53195

| | | | |
|---------------|---|-------------------------|----------------------------|
| p50590 | CI: Messages for set/act val dev 1 signal source for speed setpoint / Msg dev1 set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52165[0] |

Description: Sets the signal source for the speed setpoint for the "Setpoint/actual value deviation 1" message.

Dependency: Refer to: p50591, r53025
Refer to: F60031

| | | | |
|---------------|--|-------------------------|----------------------------|
| p50591 | CI: Messages for set/act val dev 1 signal source for speed act val / Msg dev1 act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the speed actual value for the "Setpoint/actual value deviation 1" message.

Dependency: Refer to: p50590, r53025
Refer to: F60031

| | | | |
|---------------|--|-------------------------|----------------------------|
| p50592 | CI: Messages for ref speed signal source for speed actual value / Msg ref act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |

Description: Sets the signal source for the speed actual value for the "Reference speed reached" message.

Dependency: Refer to: r53025

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50593 | CI: Messages for speed less than min speed signal source for act val / Msg n<n_min sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |
| Description: | Sets the signal source for the "Speed less then minimum speed" message. | | |
| Dependency: | Refer to: r53025 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50594[0...n] | CI: Messages polarity speed setpoint signal source / MsgPol n_set S_src | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52170[0] |
| Description: | Sets the signal source for the "Speed setpoint polarity" message. | | |
| Dependency: | Refer to: p50372, r53025 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50595 | CI: Signal source for overspeed messages / Msg n_over sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |
| Description: | Sets the signal source for the speed actual value for the overspeed message. | | |
| Dependency: | Refer to: p50380, p50381, r53025 Refer to: F60038 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50596 | CI: Messages for set/act val dev 2 signal source for speed setpoint / Msg dev2 set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52174[0] |
| Description: | Sets the signal source for the speed setpoint for the "Setpoint/actual value deviation 2" message. | | |
| Dependency: | Refer to: p50597, r53025 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50597 | CI: Messages for set/act val dev 2 signal source for speed act val / Msg dev2 act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8020 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |
| Description: | Sets the signal source for the speed actual value for the "Setpoint/actual value deviation 2" message. | | |

Dependency: Refer to: p50596, r53025

p50598[0...n] CI: Messages polarity speed actual value signal source / MsgPol n_act S_src

| | | | |
|---------|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 8025 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52179[0] |

Description: Sets the signal source for the "Speed actual value polarity" message.

Dependency: Refer to: p50372, r53025

p50600[0...4] CI: Signal source for armature gating unit input / A g unit in sig s

| | | | |
|---------|--|-------------------------|----------------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6858, 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52102[0] |
| | | | [1...4] 0 |

Description: Sets the signal source for the gating unit input on the armature circuit.

p50601[0...5] CI: Signal source for speed limiting controller setpoint / n_lim set sig s

| | | | |
|---------|--|-------------------------|--|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6835, 6840, 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52141[0] |
| | | | [1] 0 |
| | | | [2] 52134[0] |
| | | | [3] 0 |
| | | | [4] 52125[0] |
| | | | [5] 0 |

Description: Sets the signal source for the setpoint on the armature current controller.

Notice: Re index 5:

When entering a supplementary current setpoint via p50601[5] it is not permissible to use the current setpoint integrator or the reduced gearbox load function. p50158 must be set = 0.000 s.

Possible effect if this is not observed:

Torque direction change will not be able to be completed. The drive remains in one torque direction.

Note: [0 to 1] = Speed limiting controller

Sets the signal sources for the setpoint on the speed limiting controller. The two values are added together.

[2 to 3] = Current limitation

Sets the signal sources for the setpoint on the current controller (before current limitation). The two values are added together.

[4 to 5] = Closed-loop current control

Sets the signal sources for the setpoint on the current controller (before the current controller). The two values are added together. The absolute value is generated from the value in index 5.

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50602 | CI: CI-loop arm current control sig source for arm current act val / la ctr la ac sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52117[0] |
| Description: | Sets the signal source for the armature current actual value for closed-loop armature current control. | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50603[0...6] | CI: Current limitation current limit torque direction I / I_lim I_lim t d I | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0...4] 1 |
| | | | [5] 52002[0] |
| | | | [6] 52002[0] |
| Description: | Sets the signal source for the variable current limit in torque direction I. | | |
| Note: | About [0 to 3]: Selects which parameter is injected as the variable current limit in torque direction I. Scaling: +100% corresponding to p50100 * p50171. | | |
| | About [4]: Selects which parameter is injected as the current limit in torque direction I for quick stop or shutdown. Scaling: +100% corresponding to p50100 * p50171. | | |
| | About [5]: Selects which parameter is injected as the variable current limit in torque direction I. Scaling: +100% corresponding to r50072[1]. | | |
| | About [6]: Selects which parameter is injected as the current limit in torque direction I for quick stop or shutdown. Scaling: +100% corresponding to r50072[1]. | | |

| | | | |
|----------------------|---|-------------------------|----------------------------|
| p50604[0...6] | CI: Current limitation current limit torque direction II / I_lim I_lim t d II | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52135[0] |
| | | | [1] 52135[1] |
| | | | [2] 52135[2] |
| | | | [3] 52135[3] |
| | | | [4] 52135[4] |
| | | | [5] 52135[5] |
| | | | [6] 52135[6] |
| Description: | Sets the signal source for the variable current limit in torque direction II. | | |
| Note: | About [0 to 3]: Selects which parameter is injected as the variable current limit in torque direction II. Scaling: +100% corresponding to p50100 * p50171. | | |
| | About [4]: Selects which parameter is injected as the current limit in torque direction II for quick stop or shutdown. Scaling: +100% corresponding to p50100 * p50171. | | |

About [5]:

Selects which parameter is injected as the variable current limit in torque direction II.

Scaling: +100% corresponding to r50072[1].

About [6]:

Selects which parameter is injected as the current limit in torque direction II for quick stop or shutdown.

Scaling: +100% corresponding to r50072[1].

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50605[0...4] | CI: Torque limiting signal source for positive torque limit / T lim pos sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52002[0] |
| Description: | Sets the signal source for the variable positive torque limit. | | |
| Note: | Scaling: [0 to 3] = 100% of the parameter value corresponds to the positive system torque limit according to la = p50171. [4] = 100% of the parameter value corresponds to the positive torque limit according to la =r50072[1]. | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50606[0...4] | CI: Torque limiting signal source for negative torque limit / T lim neg sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52138[0] |
| | | | [1] 52138[1] |
| | | | [2] 52138[2] |
| | | | [3] 52138[3] |
| | | | [4] 52138[4] |
| Description: | Sets the signal source for the variable negative torque limit. | | |
| Note: | Scaling: [0 to 3] = 100% of the parameter value corresponds to the negative system torque limit according to la = p50171. [4] = 100% of the parameter value corresponds to the negative torque limit according to la =r50072[1]. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50607[0...n] | CI: Torque limiting signal source for master drive t_set / Mst tq set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52148[0] |
| Description: | Sets the signal source for the master drive's torque setpoint. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50608 | CI: Auto-reversing stage signal source for torque direction setpoint / Tqe dir set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52119[0] |
| Description: | Sets the signal source for the torque direction setpoint for the auto-reversing stage. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50609[0...n] | CI: Signal source for speed controller actual value / n_ctr act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the actual value on the speed controller. | | |
| Dependency: | Refer to: p50083 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50610 | CI: Signal source for field gating unit input value / Field g unit sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52252[0] |
| Description: | Sets the signal source for the input value on the field gating unit. | | |

| | | | |
|----------------------|---|-------------------------|---|
| p50611[0...3] | CI: Field curr setp limiting setpoint sig source / If_lim set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52277[0] [1] 0 [2] 0 [3] 0 |
| Description: | Sets the signal sources for generating the field current setpoint (CO: r52275). | | |
| Dependency: | Refer to: r52275 | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50612[0...1] | CI: CI-loop field current ctrl sig source for field current act val / If_ctr If_ac sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52266[0] [1] 0 |
| Description: | Sets the signal source for the field current actual value for closed-loop field current control. | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50613[0...4] | CI: Field current setpoint limiting sig source for var upper limit / If_li up li sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal sources for generating the upper limit of the field current setpoint (CO: r52273). | | |
| Dependency: | Refer to: r50073, p50102, r52273 | | |

p50614[0...4] CI: Field current setpoint limiting sig source for var lower limit / If_lim I lim sig s

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0...3] 1 |
| | | | [4] 0 |

Description: Sets the signal sources for generating the lower limit of the field current setpoint (CO: r52274).

Dependency: Refer to: p50103, r52274

p50615[0...3] CI: EMF controller setpoint signal source / EMF ctr set sig s

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52289[0] |
| | | | [1] 0 |
| | | | [2] 0 |
| | | | [3] 0 |

Description: Sets the signal source for the setpoints on the EMF controller.

Index:
 [0] = Setpoint 0
 [1] = Setpoint 1
 [2] = Setpoint 2
 [3] = Setpoint 3

Dependency: Refer to: r52288

Note: The overall setpoint is available via connector output r52288 for further interconnection.

p50616 CI: EMF controller actual value signal source / EMF ctr act sig s

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52286[0] |

Description: Sets the signal source for the actual value on the EMF controller.

Dependency: Refer to: r52285

Note: The actual value is available via connector output r52285 for further interconnection.

p50618 CI: Field gating unit signal source for field direction / Field g unit dir

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52268[0] |

Description: Sets the signal source for the field direction on the field gating unit.

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50619 | CI: Acceleration value for inertia compensation / Comp inert acc val | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52191[0] |
| Description: | Sets the signal source for the acceleration value for inertia compensation. | | |
| p50620 | CI: Speed controller setpoint/actual value difference signal source / n_ctr set/ac sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52165[0] |
| Description: | Sets the signal source for the setpoint/actual value difference on the speed controller. | | |
| Dependency: | Refer to: r52164 | | |
| Note: | The setpoint/actual value difference for the speed controller is available in r52164 for further interconnection. | | |
| p50621 | CI: Speed controller setpoint 1 signal source / n_ctr set 1 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52176[0] |
| Description: | Sets the signal source for setpoint 1 on the speed controller. | | |
| Dependency: | Refer to: p50622, p50623, p50624, r52165 | | |
| Note: | The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624). | | |
| p50622 | CI: Speed controller setpoint 2 signal source / n_ctr set 2 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52174[0] |
| Description: | Sets the signal source for setpoint 2 on the speed controller. | | |
| Dependency: | Refer to: p50621, p50623, p50624, r52165 | | |
| Note: | The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624). | | |
| p50623 | CI: Signal source for speed controller actual value 1 / n_ctr act 1 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52179[0] |
| Description: | Sets the signal source for actual value 1 on the speed controller. | | |

Dependency: Refer to: p50621, p50622, p50624, r52165
Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

p50624 **CI: Signal source for speed controller actual value 2 / n_ctr act 2 sig s**

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for actual value 2 on the speed controller.

Dependency: Refer to: p50621, p50622, p50623, r52165

Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

p50625[0...n] **CI: Signal source for speed controller setpoint / n_ctr set sig s**

| | | | |
|---------|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52170[0] |

Description: Sets the signal source for the setpoint on the speed controller.

This signal can be smoothed using p50228.

Dependency: Refer to: p50228

p50626[0...n] **CI: Signal source for speed controller actual value smoothing / Act v smoo sig s**

| | | | |
|---------|--|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |

Description: Sets the signal source to enable smoothing of the actual value on the speed controller.

p50627 **CI: Derivative-action element signal source / D elem sig s**

| | | | |
|---------|--|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52178[0] |

Description: Sets the signal source for the derivative-action element.

Dependency: Refer to: p50205, p50206, r52168, r52169

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50628 | CI: Band-stop 1 signal source / Band-st 1 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52179[0] |
| Description: | Sets the signal source for band-stop 1. | | |
| Dependency: | Refer to: p50201, p50202, r52177 | | |
| p50629 | CI: Band-stop 2 signal source / Band-st 2 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52177[0] |
| Description: | Sets the signal source for band-stop 2. | | |
| Dependency: | Refer to: p50203, p50204, r52178 | | |
| p50630 | CI: Speed controller droop signal source / Droop sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52162[0] |
| Description: | Sets the signal source for the droop on the speed controller. | | |
| p50631 | CI: Speed controller integral component setting value signal source / I_co set v sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the setting value of the integral component for the speed controller. | | |
| Dependency: | Refer to: p50230, p50695 | | |
| p50632[0...3] | CI: RFG signal source for positive limiting after RFG / RFG pos lim sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal sources for positive limiting after the ramp-function generator (setpoint limiting). | | |
| Note: | The minimum of the signals is forwarded to the limiter via connector input p50632[0 to 3]. | | |

| | | | |
|----------------------|--|-------------------------------|--|
| p50633[0...3] | CI: RFG signal source for negative limiting after RFG / RFG neg lim sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52210[0] [1] 52210[1] [2] 52210[2] [3] 52210[3] |
| Description: | Sets the signal sources for negative limiting after the ramp-function generator (setpoint limiting). | | |
| Note: | The maximum of the signals is forwarded to the limiter via connector input p50633[0 to 3]. | | |
| p50634[0...1] | CI: RFG input signal for limiting after RFG / RFG lim inp sig | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52190[0] [1] 0 |
| Description: | Sets the signal sources for the input signals in the case of limiting after the ramp-function generator (setpoint limiting). | | |
| Note: | The signals via connector input p50634[0 to 1] are added to the input and forwarded to "Limiting after ramp-function generator". | | |
| p50635[0...n] | CI: Setpoint processing signal source for RFG setpoint / RFG set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52194[0] |
| Description: | Sets the signal source for the ramp-function generator's setpoint. | | |
| p50636[0...5] | CI: RFG signal source for valuation factor 1 / RFG val_f 1 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal sources for the valuation factors for ramp-function generator parameter set 1. | | |
| Index: | [0] = Ramp-up time and ramp-down time [1] = Initial rounding and final rounding [2] = Ramp-up time [3] = Ramp-down time [4] = Initial rounding [5] = Final rounding | | |
| Dependency: | Refer to: p50303, p50304, p50305, p50306 | | |

2 Parameters

2.2 List of parameters

Note: The valuation factors affect the set values of the following parameters:

- p50303: Ramp-up time 1
- p50304: Ramp-down time 1
- p50305: Initial rounding 1
- p50306: Final rounding 1

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50637[0...n] | BI: RFG parameter set 2 selection signal source / RFG par s 2 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of "ramp-function generator parameter set 2". 1 signal: RFG parameter set 2 is effective (p50307, p50308, p50309, p50310). | | |
| Dependency: | Refer to: p50307, p50308, p50309, p50310, p50638 Refer to: F60041 | | |
| Note: | The following applies as regards selection of ramp-function generator parameter set 2: - This selection has a higher priority than selection by means of the ramp-up integrator. - This selection has a lower priority than quick stop (OFF3); in other words, in the event of a quick stop (OFF3) the values set in p50296, p50297, and p50298 become effective. - A corresponding message is output if ramp-function generator parameter sets 2 and 3 are selected at the same time. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50638[0...n] | BI: RFG parameter set 3 selection signal source / RFG par s 3 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of "ramp-function generator parameter set 3". 1 signal: RFG parameter set 3 is effective (p50311, p50312, p50313, p50314). | | |
| Dependency: | Refer to: p50311, p50312, p50313, p50314, p50637 Refer to: F60041 | | |
| Note: | The following applies as regards selection of ramp-function generator parameter set 3: - This selection has a higher priority than selection by means of the ramp-up integrator. - This selection has a lower priority than quick stop (OFF3); in other words, in the event of a quick stop (OFF3) the values set in p50296, p50297, and p50298 become effective. - A corresponding message is output if ramp-function generator parameter sets 2 and 3 are selected at the same time. | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50639[0...1] | CI: RFG signal source for setting value / RFG set val sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52167[0] |
| Description: | Sets the signal source for the ramp-function generator's setting values. | | |
| Index: | [0] = Setting value [1] = Setting value if machine is not running | | |

Dependency: The setting value for the ramp-function generator output is selected via binector input p50640.
p50640 = 0 signal:
If the machine is not running, the value supplied via connector input p50639[1] is accepted.
p50640 = 1 signal:
The value supplied via connector input p50639[0] is accepted as the setting value.
Refer to: p50640

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50640[0...n] | BI: RFG signal source for accepting setting value / RFG accept set v | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for accepting the setting value of the ramp-function generator.

Dependency: Refer to: p50639

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50641[0...n] | BI: Bypass ramp-function generator signal source / Bypass RFG sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for "Bypass ramp-function generator".

Note: The "Bypass ramp-function generator" signal can also be set via binector input p50649[0 to 2].

| | | | |
|----------------------|---|-------------------------|----------------------------|
| p50642[0...3] | CI: Setpoint processing sig source for pos limiting of main setpoint / M set lim p sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52002[0] |

Description: Sets the signal source for variable positive limiting of the main setpoint.

Notice: Negative values at the selected parameters generate a negative maximum value at the limiting output.

Note: The minimum of the values set via index 0 to 3 is applied as the limit.

| | | | |
|----------------------|---|-------------------------|----------------------------|
| p50643[0...3] | CI: Setpoint processing sig source for neg limiting of main setpoint / M set lim n sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52184[0] |
| | | | [1] 52185[0] |
| | | | [2] 52186[0] |
| | | | [3] 52187[0] |

Description: Sets the signal source for variable positive limiting of the main setpoint.

Notice: Positive values at the selected parameters generate a positive minimum value at the limiting output.

Note: The maximum of the values set via index 0 to 3 is applied as the limit.

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50644[0...n] | CI: Setpoint processing signal source for main setpoint / M set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52206[0] |
| Description: | Sets the signal source for the main setpoint in the context of setpoint processing. | | |
| Dependency: | Refer to: p50320, p50322 | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50645[0...n] | CI: Setpoint processing signal source for additional setpoint / A set sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the additional setpoint in the context of setpoint processing. | | |
| Dependency: | Refer to: p50321, p50323 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50646[0...n] | BI: RFG signal source for ramp-up integrator enable / R-up int ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3150 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling the ramp-up integrator on the ramp-function generator. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50647[0...n] | BI: RFG tracking activation signal source / RFG trck act sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for activating/de-activating ramp-function generator tracking. | | |
| Dependency: | The enable for ramp-function generator tracking must be available (p50317 = 1). Refer to: p50317 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50648 | CI: RFG signal source for input signal / RFG inp sig sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3151 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52193[0] |
| Description: | Sets the signal source for the ramp-function generator's input signal. | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| p50649[0...2] | BI: Bypass ramp-function generator signal source / Bypass RFG sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 53170.10 |
| | | | [1] 53170.11 |
| | | | [2] 53170.12 |
| Description: | Sets the signal sources for "Bypass ramp-function generator". | | |
| Dependency: | Refer to: p50641 | | |
| Note: | The "Bypass ramp-function generator" signal can also be set via binector input p50641. About index 0, 1, 2 and their factory setting: The "Bypass ramp-function generator" signal comes from the "Fixed setpoint", "Jog setpoint", "Creep setpoint" function. | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p50650[0...1] | CI: RFG signal source for setting value with OFF1 / RFG s v OFF1 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52167[0] |
| | | | [1] 52179[0] |
| Description: | Sets the signal sources for the ramp-function generator's setting value with OFF1. The ramp-function generator is set to this value once. | | |
| Index: | [0] = Setting value 1 [1] = Setting value 2 | | |
| Dependency: | The selection of the signal source for the setting value is set via p50318. p50318 = 0: Do not set ramp-function generator output p50318 = 1: Set ramp-function generator output to the value supplied via connector input p50650[0]. p50318 = 2: Set ramp-function generator output to the value supplied via connector input p50650[1]. Refer to: p50318 | | |

| | | | |
|----------------------|---|-------------------------|----------------------------|
| p50651[0...6] | CI: RFG tracking signal sources / RFG track sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | [0] 52290[0] |
| | | | [1] 52167[0] |
| | | | [2] 52143[0] |
| | | | [3] 52144[0] |
| | | | [4] 52131[0] |
| | | | [5] 52132[0] |
| | | | [6] 50219[0] |
| Description: | Sets the signal sources for the effective limits for ramp-function generator tracking. | | |
| Index: | [0] = Scaled motor flux [1] = Speed actual value [2] = Effective positive torque limit [3] = Effective negative torque limit [4] = Effective positive current limit | | |

2 Parameters

2.2 List of parameters

[5] = Effective negative current limit
 [6] = Effective speed controller proportional gain

p50671[0...n] **BI: Setpoint processing sig source to enable neg dir of rotation / Ena n dir r sig s**

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the signal source to enable the negative direction of rotation.

Dependency: Refer to: p50672

Note: 1 signal: Negative direction of rotation enabled
 0 signal: Negative direction of rotation disabled

p50672[0...n] **BI: Setpoint processing signal source to enable pos dir of rotation / Ena p dir r sig s**

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the signal source to enable the positive direction of rotation.

Dependency: Refer to: p50671

Note: 1 signal: Positive direction of rotation enabled
 0 signal: Positive direction of rotation disabled

p50673[0...n] **BI: Motorized potentiometer signal source to increase setpoint / MotP incr sig s**

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source to increase the setpoint for the motorized potentiometer.

Dependency: Refer to: p50471

Note: This parameter is only effective in manual mode (p50471 = 0).

p50674[0...n] **BI: Motorized potentiometer signal source to lower setpoint / MotP lower sig s**

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source to lower the setpoint for the motorized potentiometer.

Dependency: Refer to: p50471

Note: This parameter is only effective in manual mode (p50471 = 0).

p50680[0...n] BI: Fixed setpoint signal source for connector selection 0 / Fix set con0 sig s

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the selection of connector 0 (p50431[0]).

Dependency: Refer to: p50430, p50431

p50681[0...n] BI: Fixed setpoint signal source for connector selection 1 / Fix set con1 sig s

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the selection of connector 1 (p50431[1]).

Dependency: Refer to: p50430, p50431

p50684[0...n] BI: Speed controller droop enable / Droop enable

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |

Description: Sets the signal source to enable droop on the speed controller.

Note: The following values are multiplied by the droop output dependent upon the signal state:

1 signal: Enable (r50630)

0 signal: No enable (0%)

p50687[0...n] BI: Speed controller signal source for master/slave drive / Mast/sl sig s

| | | | |
|---------|---------------------------------------|-------------------------------|----------------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6810, 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the master or slave drive on the speed controller.

Note: 1 signal:

Torque control is active on the slave drive.

0 signal:

Speed control is active on the master drive.

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50691[0...n] | BI: Sequence control line contactor feedback / Line cont feedb | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for feedback from the line contactor. The feedback signal is checked and fault F60104 is triggered in the following cases: - If, following power-up, a 1 signal is not detected within the time set in p50095 (in other words, if the line contactor has not closed). - If a 0 signal is detected during operation. | | |
| Note: | Feedback from the line contactor can be achieved by integrating one of the line contactor's auxiliary contacts into the device control. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------------|
| p50692[0...n] | BI: CI-loop field curr ctrl sig source for inject of standst field / If_ctr stst sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6910, 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the selection of standstill field injection. | | |
| Dependency: | Refer to: F60045 | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50693[0...n] | BI: EMF controller enable signal source / EMF ctr ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source to enable the EMF controller. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50694[0...n] | BI: Torque limiting signal source to enable changeover / T lim ch ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source to enable the torque limits to be changed over. | | |
| Dependency: | Refer to: p50180, p50181, p50182, p50183 | | |
| Note: | 1 signal: Changeover enabled 0 signal: Changeover disabled | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50695[0...n] | BI: Signal source for setting speed controller integral component / Set I_co sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for setting the integral component on the speed controller. The value supplied via connector input p50631 is used as the setting value. With a 0/1 signal from p50695, the integral component of the speed controller is tracked continuously to the value of the signal present at connector input p50631 for the time that has been set in p50230. | | |
| Dependency: | Refer to: p50230, p50631 | | |
| Note: | For the same signal source for the speed controller enable and integral component, the time in p50230 must be set greater than 0 ms. | | |
| p50696[0...n] | BI: Signal source for stop speed controller integral component / Stop I_co sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for stopping the integral component on the speed controller. | | |
| Note: | Dependent upon the signal state, the following applies: 0 signal: Integral component is not stopped 1 signal: Integral component is stopped | | |
| p50697[0...n] | BI: Enable for inertia compensation / Inert comp ena | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling moment of inertia compensation. | | |
| Note: | Dependent upon the signal state, the following values are added to the output for friction and moment of inertia compensation: 1 signal: Enable (r52173) 0 signal: No enable (0%) | | |
| p50698[0...n] | BI: Signal source for speed controller PI/P controller changeover / n_ctr PI/P sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the speed-dependent changeover between PI and P controller on the speed controller. | | |
| Dependency: | Refer to: p50221, p50222, r52166 | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50700 | CUD analog input 0 type / CUD AI 0 type | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Sets the type for analog input 0 (X177.25/26) on the CUD. | | |
| Value: | 0: Bipolar voltage input (-10 V ... +10 V) 1: Bipolar current input (-20 mA to +20 mA) 2: Unipolar current input monitored (+4 mA to +20 mA) | | |
| Note: | AI: Analog Input | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p50701[0...n] | CUD analog input 0 scaling / CUD AI 0 scal | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.0 [%] | 1000.0 [%] | 100.0 [%] |
| Description: | Sets the scaling for analog input 0 (X177.25/26) on the CUD. The value indicates the percentage value for the mapping of an input voltage of 10 V or an input current of 20 mA at the analog input. Example: p50701 = 90% --> 10 V or 20 mA is scaled to 90% --> 5 V or 10 mA is equivalent to 45% | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50702 | CUD analog input 0 offset / CUD AI 0 offs | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets the offset for analog input 0 (X177.25/26) on the CUD. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50703 | CUD analog input 0 signal processing / CUD AI 0 sig proc | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the signal processing mode for analog input 0 (X177.25/26) on the CUD. | | |
| Value: | 0: Signal not controlled 1: Signal absolute value generation 2: Signal inverted 3: Signal absolute value generation inverted | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50704 | BI: CUD analog input 0 inversion / CUD AI 0 inv | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for inverting the signal from analog input 0 (X177.25/26) on the CUD. 1 signal: Inversion 0 signal: No inversion | | |
| p50705 | CUD analog input 0 smoothing time constant / CUD AI 0 T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the signal from analog input 0 (X177.25/26) on the CUD. | | |
| p50706 | BI: CUD analog input 0 signal source for enable / CUD AI 0 ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling analog input 0 (X177.25/26) on the CUD. | | |
| Note: | 1 signal: Analog input enabled 0 signal: Analog input not enabled (r52011 = 0%) | | |
| p50707 | CUD analog input 0 simulation setpoint / CUD AI 0 sim setp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -130.0 [%] | 130.0 [%] | 0.0 [%] |
| Description: | Sets the setpoint for the simulation of analog input 0 (X177.25/26) on the CUD. | | |
| Dependency: | Refer to: p50709 | | |
| Note: | Simulation is selected using p50709 = 1. | | |
| p50708 | Activation of analog input synchronization / AI sync act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2083 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Setting to activate/de-activate the synchronization of the analog inputs of two Control Unit DC MASTERS (CUDs). | | |

2 Parameters

2.2 List of parameters

Value: 0: No synchronized analog inputs
1: 6 synchronized analog inputs on left-hand CUD
2: 6 synchronized analog inputs on right-hand CUD
3: 6 synchronized analog inputs on left-hand and right-hand CUD

Notice: This parameter must always be set to the same value on both CUDs!

Note: If value = 0:
There is no quasi-synchronization of the analog inputs on the two CUDs. Connector outputs r52030[0 to 6] on both CUDs always indicate a value of 0%.
If value = 1:
The analog inputs of the right-hand CUD are interpolated on the left-hand CUD in such a way that 6 simultaneously scanned values appear at the connector outputs r52030[0 to 6] of the left-hand CUD. Connector outputs r52030[0 to 6] on the right-hand CUD always indicate a value of 0%.
If value = 2:
The analog inputs of the left-hand CUD are interpolated on the right-hand CUD in such a way that 6 simultaneously scanned values appear at the connector outputs r52030[0 to 6] of the right-hand CUD. Connector outputs r52030[0 to 6] on the left-hand CUD always indicate a value of 0%.
If value = 3:
The analog inputs of the right-hand CUD are interpolated on the left-hand CUD in such a way that 6 simultaneously scanned values appear at the connector outputs r52030[0 to 6] of the left-hand CUD.
The analog inputs of the left-hand CUD are interpolated on the right-hand CUD in such a way that 6 simultaneously scanned values appear at the connector outputs r52030[0 to 6] of the right-hand CUD.

p50709 CUD analog input 0 simulation selection / CUD AI 0 sim sel

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Setting to select the simulation of analog input 0 (X177.25/26) on the CUD.

Value: 0: Simulation deactivated
1: Simulation activated

Dependency: Refer to: p50707

Note: The setpoint for the simulation is set in p50707.

p50710 CUD analog input 1 type / CUD AI 1 type

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |

Description: Sets the type for analog input 1 (X177.27/28) on the CUD.

Value: 0: Bipolar voltage input (-10 V ... +10 V)
1: Bipolar current input (-20 mA to +20 mA)
2: Unipolar current input monitored (+4 mA to +20 mA)

Note: AI: Analog Input

p50711[0...n] CUD analog input 1 scaling / CUD AI 1 scal

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.0 [%] | 1000.0 [%] | 100.0 [%] |

Description: Sets the scaling for analog input 1 (X177.27/28) on the CUD.

The value indicates the percentage value for the mapping of an input voltage of 10 V or an input current of 20 mA at the analog input.

Example:

p50711 = 90%

--> 10 V or 20 mA is scaled to 90%

--> 5 V or 10 mA is equivalent to 45%

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50712 | CUD analog input 1 offset / CUD AI 1 offs | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets the offset for analog input 1 (X177.27/28) on the CUD. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50713 | CUD analog input 1 signal processing / CUD AI 1 sig proc | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the signal processing mode for analog input 1 (X177.27/28) on the CUD. | | |
| Value: | 0: Signal not controlled 1: Signal absolute value generation 2: Signal inverted 3: Signal absolute value generation inverted | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50714 | BI: CUD analog input 1 inversion / CUD AI 1 inv | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for inverting the signal from analog input 1 (X177.27/28) on the CUD. 1 signal: Inversion 0 signal: No inversion | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50715 | CUD analog input 1 smoothing time constant / CUD AI 1 T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the signal from analog input 1 (X177.27/28) on the CUD. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50716 | BI: CUD analog input 1 signal source for enable / CUD AI 1 ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling analog input 1 (X177.27/28) on the CUD. | | |
| Note: | 1 signal: Analog input is enabled 0 signal: Analog input is disabled (value = 0%) | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50717 | CUD analog input 1 simulation setpoint / CUD AI 1 sim setp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -130.0 [%] | 130.0 [%] | 0.0 [%] |
| Description: | Sets the setpoint for the simulation of analog input 1 (X177.27/28) on the CUD. | | |
| Dependency: | Refer to: p50719 | | |
| Note: | Simulation is selected using p50719 = 1. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50719 | CUD analog input 1 simulation selection / CUD AI 1 sim sel | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to select the simulation of analog input 1 (X177.27/28) on the CUD. | | |
| Value: | 0: Simulation deactivated 1: Simulation activated | | |
| Dependency: | Refer to: p50717 | | |
| Note: | The setpoint for the simulation is set in p50717. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p50721[0...n] | CUD analog input 2 scaling / CUD AI 2 scal | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -1000.0 [%] | 1000.0 [%] | 100.0 [%] |
| Description: | Sets the scaling for analog input 2 (X177.29/30) on the CUD. The value indicates the percentage value for the mapping of an input voltage of 10 V at the analog input. Example: p50721 = 90% --> 10 V is scaled to 90 % --> 5 V corresponds to 45 % | | |
| Note: | AI: Analog Input | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50722 | CUD analog input 2 offset / CUD AI 2 offs | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets the offset for analog input 2 (X177.29/30) on the CUD. | | |
| p50723 | CUD analog input 2 signal processing / CUD AI 2 sig proc | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the signal processing mode for analog input 2 (X177.29/30) on the CUD. | | |
| Value: | 0: Signal not controlled 1: Signal absolute value generation 2: Signal inverted 3: Signal absolute value generation inverted | | |
| p50724 | BI: CUD analog input 2 inversion / CUD AI 2 inv | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for inverting the signal from analog input 2 (X177.29/30) on the CUD. 1 signal: Inversion 0 signal: No inversion | | |
| p50725 | CUD analog input 2 smoothing time constant / CUD AI 2 T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the signal from analog input 2 (X177.29/30) on the CUD. | | |
| p50726 | BI: CUD analog input 2 signal source for enable / CUD AI 2 ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling analog input 2 (X177.29/30) on the CUD. | | |

2 Parameters

2.2 List of parameters

Note: 1 signal:
Analog input is enabled
0 signal:
Analog input is disabled (value = 0%)

| | | | |
|---------------------|---|--|--|
| p50727 | CUD analog input 2 simulation setpoint / CUD AI 2 sim setp | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -130.0 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 130.0 [%] | Access level: 2 Func. diagram: 2080 Unit selection: - Expert list: 1 Factory setting 0.0 [%] |
| Description: | Sets the setpoint for the simulation of analog input 2 (X177.29/30) on the CUD. | | |
| Dependency: | Refer to: p50729 | | |
| Note: | Simulation is selected using p50729 = 1. | | |

| | | | |
|---------------------|---|--|--|
| p50729 | CUD analog input 2 simulation selection / CUD AI 2 sim sel | | |
| DC_CTRL | Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 2080 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting to select the simulation of analog input 2 (X177.29/30) on the CUD. | | |
| Value: | 0: Simulation deactivated 1: Simulation activated | | |
| Dependency: | Refer to: p50727 | | |
| Note: | The setpoint for the simulation is set in p50727. | | |

| | | | |
|----------------------|---|---|--|
| p50731[0...3] | Fast analog inputs scaling / Fast AI scal | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min -1000.0 [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max 1000.0 [%] | Access level: 2 Func. diagram: 2085, 2090 Unit selection: - Expert list: 1 Factory setting 100.0 [%] |
| Description: | Sets the scaling for fast analog inputs "Select input 3 to 6". The value indicates the percentage value for the mapping of an input voltage of 10 V at the analog input. Example: p50731[2] = 90% --> 10 V is scaled to 90% for select input 5 --> 5 V corresponds to 45% for select input 5 | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |
| Note: | AI: Analog Input | | |

| | | | |
|----------------------|--|-------------------------|----------------------------------|
| p50732[0...3] | Fast analog inputs offset / Fast AI offs | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets the offset for fast analog inputs "Select input 3 to 6". | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p50733[0...3] | Fast analog inputs signal processing / Fast AI sig | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the signal processing for fast analog inputs "Select input 3 to 6". | | |
| Value: | 0: Signal not controlled 1: Signal absolute value generation 2: Signal inverted 3: Signal absolute value generation inverted | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |

| | | | |
|----------------------|---|----------------------|----------------------------------|
| p50734[0...3] | BI: Fast analog inputs inversion / Fast AI inv | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for inverting the signals for fast analog inputs "Select input 3 to 6". 1 signal: Inversion 0 signal: No inversion | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p50735[0...3] | Fast analog inputs smoothing time constant / Fast AI T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the signals for fast analog inputs "Select input 3 to 6". | | |

2 Parameters

2.2 List of parameters

Index:
[0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p50736[0...3] | BI: Signal source to enable fast analog inputs / Fast AI enable signal | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling fast analog inputs "Select input 3 to 6". | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |
| Note: | 1 signal: Analog input is enabled 0 signal: Analog input is disabled (value = 0%) | | |

| | | | |
|----------------------|--|-------------------------|----------------------------------|
| p50737[0...3] | Fast analog inputs setpoint simulation / Fast AI sim setp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -130.0 [%] | 130.0 [%] | 0.0 [%] |
| Description: | Sets the setpoint for the simulation of the fast analog inputs (select input 3 ... 6). | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |
| Dependency: | Refer to: p50739 | | |
| Note: | Simulation is selected using p50739[0...3] = 1. | | |

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p50739[0...3] | Fast analog inputs simulation selection / Fast AI sim sel | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2085, 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to select the simulation of the fast analog inputs (select input 3 ... 6). | | |
| Value: | 0: Simulation deactivated 1: Simulation activated | | |
| Index: | [0] = Select input 3 (X177.1/2) [1] = Select input 4 (X177.3/4) [2] = Select input 5 (X177.5/6) [3] = Select input 6 (X177.7/8) | | |
| Dependency: | Refer to: p50737 | | |
| Note: | The setpoint for the simulation is set in p50737[0...3]. | | |

| p50741[0...n] | | Analog input main actual value scaling / AI m act scal | |
|----------------------|--|---|----------------------------|
| DC_CTRL | Can be changed: C2(1), U, T | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -270.00 [V] | 270.00 [V] | 60.00 [V] |
| Description: | Sets the input voltage (8 - 270 V) for scaling to 100%. Rated value of the input voltage at n_max (= tachometer voltage at maximum speed). This parameter specifies the maximum speed at p50083 = 1. | | |
| Note: | AI: Analog Input Example: p50741 = 60 --> 30 V is scaled to 50 % for analog input main actual value scaled --> 60 V is scaled to 100% for analog input main actual value scaled | | |

| p50742 | | Analog input main actual value offset / AI m act offs | |
|---------------------|--|--|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [%] | 200.00 [%] | 0.00 [%] |
| Description: | Sets the offset for the "main actual value" (XT1.103/104). | | |

| p50743 | | Analog input main actual value signal processing / AI m act sig | |
|---------------------|---|--|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the mode for signal processing for the "main actual value" analog input (XT1.103/104). | | |
| Value: | 0: Signal not controlled 1: Signal absolute value generation 2: Signal inverted 3: Signal absolute value generation inverted | | |

| p50744 | | BI: Analog input main actual value inversion / AI m act inv | |
|---------------------|---|--|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for inverting the signal from the "main actual value" analog input (XT1.103/104). 0 signal: No inversion 1 signal: Inversion | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50745 | Analog input main actual value smoothing time constant / AI m act T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the signal from the "main actual value" analog input (XT1.103/104). | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50746 | BI: Signal source to enable analog input main actual value / AI m act ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for enabling the analog input for the "main actual value" (XT1.103/104). | | |
| Note: | 1 signal: Analog input enabled 0 signal: Analog input not enabled (r52013 = 0%). | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p50747 | Analog input main actual value setpoint simulation / AI m_actV sim setp | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -130.0 [%] | 130.0 [%] | 0.0 [%] |
| Description: | Sets the setpoint for the simulation of the "main actual value" analog input (XT1.103/104). | | |
| Dependency: | Refer to: p50749 | | |
| Note: | Simulation is selected using p50749 = 1. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50749 | Analog input main actual value simulation selection / AI m_actV sim sel | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to select the simulation of the "main actual value" analog input (XT1.103/104). | | |
| Value: | 0: Simulation deactivated 1: Simulation activated | | |
| Dependency: | Refer to: p50747 | | |
| Note: | The setpoint for the simulation is set in p50747. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50750 | CI: CUD analog output 0 signal source / CUD AO 0 sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the output value at analog output 0 (X177.49/50). | | |

Note: AO: Analog Output

| | | | |
|---------------|--|----------------------|----------------------------|
| p50751 | CUD analog output 0 signal processing / CUD AO 0 sig proc | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |

Description: Sets the mode for signal processing at analog output 0 (X177.49/50).

Value:
 0: Signal not controlled
 1: Signal absolute value generation
 2: Signal inverted
 3: Signal absolute value generation inverted

| | | | |
|---------------|---|----------------------|----------------------------|
| p50752 | CUD analog output 0 smoothing time constant / CUD AO 0 T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |

Description: Sets the time constant for smoothing the signal from analog output 0 (X177.49/50).

| | | | |
|---------------|--|----------------------|----------------------------|
| p50753 | CUD analog output 0 scaling / CUD AO 0 scal | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [V] | 200.00 [V] | 10.00 [V] |

Description: Sets the scaling for analog output 0 (X177.49/50).

The value indicates the output value for the mapping of an input value of 100% at the analog output.

Note:
 Example:
 p50753 = 5 V
 --> 100% is scaled to 5 V
 --> 50% corresponds to 2.5 V

| | | | |
|---------------|---|----------------------|----------------------------|
| p50754 | CUD analog output 0 offset / CUD AO 0 offs | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -10.00 [V] | 10.00 [V] | 0.00 [V] |

Description: Sets the offset for analog output 0 (X177.49/50).

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p50755 | CI: CUD analog output 1 signal source / CUD AO 1 sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for the output value at analog output 1 (X177.51/52). | | |
| Note: | AO: Analog Output | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50756 | CUD analog output 1 signal processing / CUD AO 1 sig proc | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the mode for signal processing at analog output 1 (X177.51/52). | | |
| Value: | 0: Signal not controlled 1: Signal absolute value generation 2: Signal inverted 3: Signal absolute value generation inverted | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50757 | CUD analog output 1 smoothing time constant / CUD AO 1 T | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the time constant for smoothing the signal from analog output 1 (X177.51/52). | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50758 | CUD analog output 1 scaling / CUD AO 1 scal | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -200.00 [V] | 200.00 [V] | 10.00 [V] |
| Description: | Sets the scaling for analog output 1 (X177.51/52). The value indicates the output value for the mapping of an input value of 100% at the analog output. | | |
| Note: | Example: p50758 = 5 V --> 100% is scaled to 5 V --> 50% corresponds to 2.5 V | | |

| p50759 | | CUD analog output 1 offset / CUD AO 1 offs | |
|---------------------|---|---|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -10.00 [V] | 10.00 [V] | 0.00 [V] |
| Description: | Sets the offset for analog output 1 (X177.51/52). | | |

| p50765 | | CUD digital inputs simulation selection / CUD DI sim sel | |
|---------------------|--|---|--|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2050, 2060, 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 bin |
| Description: | Setting to select the simulation of the digital inputs on the CUD. | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | DI 0 (X177.11) | High | Low | 2050 |
| | 01 | DI 1 (X177.12) | High | Low | 2050 |
| | 02 | DI 2 (X177.13) | High | Low | 2050 |
| | 03 | DI 3 (X177.14) | High | Low | 2050 |
| | 04 | DI 4 (X177.15) | High | Low | 2060 |
| | 05 | DI 5 (X177.16) | High | Low | 2060 |
| | 06 | DI 6 (X177.17) | High | Low | 2065 |
| | 07 | DI 7 (X177.18) | High | Low | 2065 |

Dependency: Refer to: p50766
Note: The setpoint for the simulation is set in p50766.0...7.

| p50766 | | CUD digital inputs simulation setpoint / CUD DI simul setp | |
|---------------------|--|---|--|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2050, 2060, 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0000 0000 bin |
| Description: | Sets the setpoint for the simulation of the digital inputs on the CUD. | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | DI 0 (X177.11) | High | Low | 2050 |
| | 01 | DI 1 (X177.12) | High | Low | 2050 |
| | 02 | DI 2 (X177.13) | High | Low | 2050 |
| | 03 | DI 3 (X177.14) | High | Low | 2050 |
| | 04 | DI 4 (X177.15) | High | Low | 2060 |
| | 05 | DI 5 (X177.16) | High | Low | 2060 |
| | 06 | DI 6 (X177.17) | High | Low | 2065 |
| | 07 | DI 7 (X177.18) | High | Low | 2065 |

Dependency: Refer to: p50765
Note: Simulation is selected using p50765.0...7 = 1.

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|--|--|
| p50770[0...3] | CUD digital outputs inversion / CUD DO inv | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting to invert the signals at the CUD's digital outputs. | | |
| Value: | 0: Not inverted 1: Inverted | | |
| Index: | [0] = DO 0 (X177.19) [1] = DO 1 (X177.20) [2] = DO 2 (X177.21) [3] = DO 3 (X177.22) | | |
| Note: | DO: Digital Output | | |
| <hr/> | | | |
| p50771 | BI: CUD digital output 0 signal source / CUD DO 0 sig s | | |
| DC_CTRL | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for digital output 0 (X177.19) on the CUD. | | |
| <hr/> | | | |
| p50772 | BI: CUD digital output 1 signal source / CUD DO 1 sig s | | |
| DC_CTRL | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for digital output 1 (X177.20) on the CUD. | | |
| <hr/> | | | |
| p50773 | BI: CUD digital output 2 signal source / CUD DO 2 sig s | | |
| DC_CTRL | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for digital output 2 (X177.21) on the CUD. | | |
| <hr/> | | | |
| p50774 | BI: CUD digital output 3 signal source / CUD DO 3 sig s | | |
| DC_CTRL | Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Sets the signal source for digital output 3 (X177.22) on the CUD. | | |
| Note: | A restart is required if p50774 is logically combined with (2)r51579.0! | | |

| | | | |
|----------------------|---|---|--|
| p50775 | CUD digital output 0 delay time / CUD DO 0 t_del | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 10000 [ms] | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 [ms] |
| Description: | Sets the delay time for digital output 0 (X177.19) on the CUD. | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50776 | CUD digital output 1 delay time / CUD DO 1 t_del | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 10000 [ms] | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 [ms] |
| Description: | Sets the delay time for digital output 1 (X177.20) on the CUD. | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50777 | CUD digital output 2 delay time / CUD DO 2 t_del | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 10000 [ms] | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 [ms] |
| Description: | Sets the delay time for digital output 2 (X177.21) on the CUD. | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50778 | CUD digital output 3 delay time / CUD DO 3 t_del | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0 [ms] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 10000 [ms] | Access level: 2 Func. diagram: 2055 Unit selection: - Expert list: 1 Factory setting 0 [ms] |
| Description: | Sets the delay time for digital output 3 (X177.22) on the CUD. | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50780[0...3] | CUD digital inputs/outputs inversion / CUD DI/DO inv | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 2060, 2065 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting to invert the signals at the CUD's digital outputs. | | |

2 Parameters

2.2 List of parameters

| | |
|--------------------|--|
| Value: | 0: Not inverted 1: Inverted |
| Index: | [0] = DI/DO 4 (X177.15) [1] = DI/DO 5 (X177.16) [2] = DI/DO 6 (X177.17) [3] = DI/DO 7 (X177.18) |
| Dependency: | The terminal must be set as an output (p50789[0...3]). Refer to: p50789 |
| Note: | DI/DO: Bidirectional Digital Input/Output |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50781 | BI: CUD digital input/output 4 signal source / CUD DI/DO 4 sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2060 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for digital input/output 4 (X177.15) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[0] = 1). Refer to: p50789 | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50782 | BI: CUD digital input/output 5 signal source / CUD DI/DO 5 sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2060 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for digital input/output 5 (X177.16) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[1] = 1). Refer to: p50789 | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50783 | BI: CUD digital input/output 6 signal source / CUD DI/DO 6 sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for digital input/output 6 (X177.17) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[2] = 1). Refer to: p50789 | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50784 | BI: CUD digital input/output 7 signal source / CUD DI/DO 7 sig s | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for digital input/output 7 (X177.18) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[3] = 1). Refer to: p50789 | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50785 | CUD digital input/output 4 delay time / CUD DI/DO 4 t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2060 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the delay time for digital input/output 4 (X177.15) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[0] = 1). Refer to: p50789 | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50786 | CUD digital input/output 5 delay time / CUD DI/DO 5 t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2060 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the delay time for digital input/output 5 (X177.16) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[1] = 1). Refer to: p50789 | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50787 | CUD digital input/output 6 delay time / CUD DI/DO 6 t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the delay time for digital input/output 6 (X177.17) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[2] = 1). Refer to: p50789 | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |
| p50788 | CUD digital input/output 7 delay time / CUD DI/DO 7 t_del | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 0 [ms] |
| Description: | Sets the delay time for digital input/output 7 (X177.18) on the CUD. | | |
| Dependency: | The terminal must be set as an output (p50789[3] = 1). Refer to: p50789 | | |
| Note: | The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p50789[0...3] | CUD digital inputs/outputs type / CUD DI/DO typ | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2060, 2065 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the type for the digital inputs/outputs on the CUD. | | |
| Value: | 0: Input 1: Output | | |
| Index: | [0] = DI/DO 4 (X177.15) [1] = DI/DO 5 (X177.16) [2] = DI/DO 6 (X177.17) [3] = DI/DO 7 (X177.18) | | |
| Note: | DI/DO: Bidirectional Digital Input/Output | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50790 | P2P IF operating mode / P2P op mode | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 6 | 0 |
| Description: | Sets the operating mode for the peer-to-peer interface (P2P IF). | | |
| Value: | 0: No function 5: Peer-to-peer communication 6: Communication with SIMOREG CCP | | |
| Note: | P2P IF: Peer-to-peer interface CCP: Converter Commutation Protector | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50791 | P2P IF number of data words / P2P num words | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 5 | 5 |
| Description: | Sets the number of words to be transmitted for the peer-to-peer interface (P2P IF) in "Peer-to-peer communication" mode (p50790 = 5). | | |
| Dependency: | Refer to: p50790 | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50793 | P2P IF baud rate / P2P baud rate | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 13 | 13 |
| Description: | Sets the baud rate for the peer-to-peer interface (P2P IF). | | |
| Value: | 1: 300 baud 2: 600 baud 3: 1200 baud 4: 2400 baud 5: 4800 baud | | |

6: 9600 baud
 7: 19200 baud
 8: 38400 baud
 9: 56700 baud
 11: 93750 baud
 13: 187500 baud

p50794[0...4] CI: P2P IF transmit data signal source / P2P tr data sig s

| | | | |
|---------|--|-----------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Integer16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the data to be transmitted on the peer-to-peer interface (P2P IF).
 The transmit data is displayed in r50813[0 to 4].

Index:
 [0] = Word 1
 [1] = Word 2
 [2] = Word 3
 [3] = Word 4
 [4] = Word 5

Dependency: Refer to: r50813

p50795 P2P/CCP bus terminator / P2P/CCP bus term

| | | | |
|---------|------------------------------|----------------------|----------------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6970, 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |

Description: Sets the bus terminator for the peer-to-peer interface and the interface to the SIMOREG CCP.

Value:
 0: OFF
 1: ON

Note: CCP: Converter Commutation Protector
 P2P: Peer-to-Peer interface

p50797 P2P IF telegram monitoring time / P2P t_telegr mon

| | | | |
|---------|-----------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [s] | 65.000 [s] | 0.000 [s] |

Description: Sets the telegram monitoring time for the peer-to-peer interface (P2P IF).
 The time set is only effective in "Peer-to-peer interface" operating mode (p50790 = 5).
 p50797 = 0:
 Monitoring is de-activated.
 p50797 > 0:
 Monitoring is activated.
 As well as one valid telegram being received, the next valid telegram must be received within the set time. Otherwise, fault F60012 is triggered.

Dependency: Refer to: F60012

2 Parameters

2.2 List of parameters

Note: Telegram monitoring is activated in the following cases:

- From receipt of the first error-free telegram
- After switching on of the electronics power supply
- From receipt of the first error-free telegram after telegram monitoring has responded (i.e. telegram monitoring timeout).

The telegram monitoring time (p50797) depends on the baud rate set (p50793) The following minimum setting values are recommended for safe operation:

- 300 baud --> p50797 = 0.520 s (recommended minimum value)
- 600 baud --> p50797 = 0.260 s (recommended minimum value)
- 1200 baud --> p50797 = 0.140 s (recommended minimum value)
- 2400 baud --> p50797 = 0.080 s (recommended minimum value)
- 4800 baud --> p50797 = 0.040 s (recommended minimum value)

If the "Automatic restart" function (p50086b > 0) has been selected on the peer-to-peer communication partner, only a parameter setting p50797 > p50086 (on the communication partner) will be meaningful.

| p50798 | | BI: P2P IF signal source for triggering F60012 / P2P F60012 sig s | | |
|---------------------|---|--|----------------------------|--|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 53300.0 | |
| Description: | Sets the signal source for triggering fault F60012 "Telegram monitoring timeout". | | | |
| Dependency: | Refer to: F60012 | | | |

| r50799[0...8] | | P2P/CCP diagnostics / P2P/CCP diag | | |
|----------------------|---|---|----------------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6970, 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the diagnostic information for the peer-to-peer interface and the interface to SIMOREG CCP. | | | |
| Index: | [0] = Number of error-free telegrams [1] = Number of erroneous telegrams [2] = Number of byte frame errors [3] = Number of overrun errors [4] = Number of parity errors [5] = Number of STX errors [6] = Number of block check errors [7] = Number of break errors [8] = Number of timeout errors | | | |
| Note: | The fault frequency is recorded with free-running counters; when a counter reaches 65535 it is reset to 0. The diagnostic information in indexes 5, 6 and 8 is irrelevant for communication with SIMOREG CCP (p50790 = 6). Possible causes for STX errors: - Non-observance of start interval before STX - STX incorrect, i.e. not equal to 02 Possible causes for timeout errors: - Telegram monitoring timeout (p50797) | | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r50813[0...4] | P2P IF transmit data display / P2P tr data disp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the transmit data for the peer-to-peer interface (P2P IF). The signal source for the data to be transmitted is set via connector input p50794[0 to 4]. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 | | |
| Dependency: | Refer to: p50794 | | |
| p50816 | BI: P2P IF receive enable signal source / P2P recv ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source to enable data to be received on the peer-to-peer interface (P2P IF). 1 signal: Data receive enabled 0 signal: Data receive not enabled | | |
| p50817 | BI: P2P IF transmit enable signal source / P2P tr ena sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source to enable data to be transmitted on the peer-to-peer interface (P2P IF). 1 signal: Data transmission enabled 0 signal: Data transmission not enabled | | |
| p50820 | PPI/USS bus terminator / PPI/USS bus term | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2410 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Sets the bus terminator for the RS485 interface (PPI/USS, X178). | | |
| Value: | 0: OFF 1: ON | | |

| | | | |
|-----------------------|--|-----------------------|----------------------------|
| r50823[0...1] | Electronic power supply voltage display / Electr supp V disp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8048 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2001 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |
| Description: | Displays the voltages for the electronic power supply. | | |
| Index: | [0] = P10 (+10 V) [1] = N10 (-10 V) | | |
| Dependency: | Refer to: r50824 Refer to: F60091, F60092 | | |
| Note: | For r50823[0]: A voltage value outside the permissible limits will trigger fault F60091. For r50823[1]: A voltage value outside the permissible limits will trigger fault F60092. | | |
| r50824 | Electronic power supply failure duration / Electr supp t_fail | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8048 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [ms] | - [ms] | - [ms] |
| Description: | Displays the failure duration for the electronic power supply. | | |
| Dependency: | Refer to: r50823 | | |
| r50825[0...29] | Armature power unit compensation values / PU arm comp val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the compensation values for the armature power unit. | | |
| r50826[0...15] | Field power unit compensation values / PU field comp val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the compensation values for the field power unit. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| r50827 | Internal diagnostics / Int diag | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8060 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the counter reading for internal errors. | | |

| | | | |
|-----------------------|---|----------------------|----------------------------|
| r50829[0...55] | CUD compensation values / CUD calib. val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the compensation values for the analog inputs/outputs on the Control Unit DC MASTER (CUD).

Note: Analog input 0 - X177.25/26 - voltage input
 [0] = Compensation value at 0 V
 [1] = Compensation value at +10 V
 [2] = Compensation value at -10 V
 [3] = Compensation value at reference value
 Analog input 0 - X177.25/26 - current input
 [4] = Compensation value at 0 mA
 [5] = Compensation value at +20 mA
 [6] = Compensation value at -20 mA
 [7] = Compensation value at reference value
 Analog input 1 - X177.27/28 - voltage input
 [8] = Compensation value at 0 V
 [9] = Compensation value at +10 V
 [10] = Compensation value at -10 V
 [11] = Compensation value at reference value
 Analog input 1 - X177.27/28 - current input
 [12] = Compensation value at 0 mA
 [13] = Compensation value at +20 mA
 [14] = Compensation value at -20 mA
 [15] = Compensation value at reference value
 Analog input 2 - X177.29/30
 [16] = Compensation value at 0 V
 [17] = Compensation value at +10 V
 [18] = Compensation value at -10 V
 [19] = Compensation value at reference value
 Analog input XT1.103/104 - 25 V
 [20] = Compensation value at 0 V
 [21] = Compensation value at +25 V
 [22] = Compensation value at -25 V
 [23] = Compensation value at reference value
 Analog input XT1.103/104 - 80 V
 [24] = Compensation value at 0 V
 [25] = Compensation value at +80 V
 [26] = Compensation value at -80 V
 [27] = Compensation value at reference value

2 Parameters

2.2 List of parameters

Analog input XT1.103/104 - 270 V

[28] = Compensation value at 0 V

[29] = Compensation value at +270 V

[30] = Compensation value at -270 V

[31] = Compensation value at reference value

Analog input 3 - X177.1/2

[32] = Compensation value at 0 V

[33] = Compensation value at +10 V

[34] = Compensation value at -10 V

[35] = Compensation value at reference value

Analog input 4 - X177.3/4

[36] = Compensation value at 0 V

[37] = Compensation value at +10 V

[38] = Compensation value at -10 V

[39] = Compensation value at reference value

Analog input 5 - X177.5/6

[40] = Compensation value at 0 V

[41] = Compensation value at +10 V

[42] = Compensation value at -10 V

[43] = Compensation value at reference value

Analog input 6 - X177.7/8

[44] = Compensation value at 0 V

[45] = Compensation value at +10 V

[46] = Compensation value at -10 V

[47] = Compensation value at reference value

Analog output 0 - X177.49/50

[48] = Compensation value for 0 V

[49] = Compensation value for +10 V

[50] = Compensation value for -10 V

[51] = Compensation value for reference value

Analog output 1 - X177.51/52

[52] = Compensation value for 0 V

[53] = Compensation value for +10 V

[54] = Compensation value for -10 V

[55] = Compensation value for reference value

The compensation values for analog outputs 0 and 1, as well as for analog inputs 3 to 6, are calculated from the measurement result + an offset of 32768.

| p50830 Thyristor diagnostics mode / Thyr_diag mode | | | |
|---|---|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6865 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 3 | 0 |
| Description: | Sets the thyristor diagnostics mode. Value = 0: The thyristor test is de-activated. Value = 1: The thyristors are tested when first switching on or jogging after the electronics power supply has been switched on. Value = 2: The thyristors are tested at each switch-on or jogging. Value = 3: The thyristors are tested at the next switch-on or jogging. p50830 is set to 0 if the test was completed error-free. | | |

| | |
|--------------------|--|
| Value: | 0: Switched off 1: After the first ON command 2: After each ON command 3: After next ON command |
| Dependency: | Refer to: F60061 |
| Note: | The thyristor test function cannot be used when supplying extremely high inductances (e.g. when supplying a field from armature terminals, supplying solenoids, etc.) and must be de-activated (p50830 = 0). |

When SINAMICS DCM are connected in parallel (6 pulse or 12 pulse), thyristor diagnostics may only be selected at the master. The thyristor diagnostics is then first carried out at the master, and then automatically at all of the slaves one after the other. If a defective thyristor is detected at a SINAMICS DCM, then the corresponding fault message is initiated at this SINAMICS DCM and not at the master where thyristor diagnostics was started.

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50831 | Diagnostics memory trace control word / Trace STW | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8052 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Sets the trigger resolution for the trace. | | |
| Value: | 0: No trigger for start 1: Start immediately 2: Start together with STARTER trace | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p50832 | Diagnostics memory copy recording file to memory card / Copy diag file | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8052 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Setting for starting the procedure to copy the diagnostics file to the memory card. | | |
| Value: | 0: Inactive 1: Start copying procedure 2: Copy file into User\Data folder | | |
| Note: | The value is reset automatically at the end of the copying procedure. If a diagnostics file is empty, the file written to the memory card will also be empty. This file will overwrite any existing file on the memory card. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p50833 | Device fan test / Dev fan test | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8047 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to test the device fans. | | |
| Value: | 0: Stop fan 1: Start fan | | |
| Dependency: | Refer to: r53135 Refer to: F60167 | | |
| Note: | The status of the fans is displayed in binector outputs r53135.8 to 11. | | |

2 Parameters

2.2 List of parameters

| | | | |
|----------------------|--|----------------------|----------------------------|
| r50836[0...3] | Voltage sensing communication error counter / V_sens comm_err | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the communication error for armature and field voltage sensing. | | |
| Index: | [0] = Number of CRC errors armature [1] = Number of communication errors armature [2] = Number of CRC errors field [3] = Number of communication errors field | | |

| | | | |
|-----------------------|--|----------------------|--------------------------|
| p50837[0...11] | Reset thyristor load data / Thyr_load reset | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 4 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: - |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to reset the thyristor load data for a thyristor. | | |
| Value: | 0: Do not reset data 1: Reset data | | |
| Index: | [0] = Thyristor X11 [1] = Thyristor X12 [2] = Thyristor X13 [3] = Thyristor X14 [4] = Thyristor X15 [5] = Thyristor X16 [6] = Thyristor X21 [7] = Thyristor X22 [8] = Thyristor X23 [9] = Thyristor X24 [10] = Thyristor X25 [11] = Thyristor X26 | | |
| Note: | It is only permissible to reset the thyristor load data after a thyristor has been replaced. | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| p50838[0...2] | Diagnostics memory message number / Diag_mem msg_no | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8052 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 60000 | 60999 | 60000 |
| Description: | Sets message numbers for the diagnostics memory. A trace is saved in the diagnostics file if one of these messages occurs. | | |

| | | | |
|-----------------------|---|----------------------|----------------------------|
| r50840[0...31] | Gating module serial number / Gate_mod ser_no. | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the serial number of the gating module. | | |

For the Control Module, the serial number of the voltage sensing module is displayed.

r50840[0]: Serial number character 1

...

r50840[31]: Serial number character 32

For the commissioning software, the ASCII characters are displayed uncoded.

Note:

An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

| | | | |
|-----------------------|---|----------------------|----------------------------|
| r50841[0...31] | Gating module part number / Gat_mod part no. | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the part number of the gating module. | | |
| | For the Control Module, the part number of the voltage sensing module is displayed. | | |
| | r50841[0]: Part number character 1 | | |
| | ... | | |
| | r50841[31]: Part number character 32 | | |
| | For the commissioning software, the ASCII characters are displayed uncoded. | | |
| Note: | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |

| | | | |
|-----------------------|---|----------------------|----------------------------|
| r50842[0...31] | Field module serial number / Field mod ser no. | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the serial number of the field module. | | |
| Note: | The individual digits of the number are displayed in ASCII code in the indices. | | |
| | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |

| | | | |
|-----------------------|---|----------------------|----------------------------|
| r50843[0...31] | Field module part number / Field mod part no. | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6960 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the part number of the field module. | | |
| Note: | The individual digits of the number are displayed in ASCII code in the indices. | | |
| | An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | |

| | | | |
|----------------------|--|----------------------|----------------------------|
| p50899[0...6] | Control blocks activation / Ctrl blocks act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 1721 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 1 |
| Description: | Setting to activate/de-activate control blocks. | | |

2 Parameters

2.2 List of parameters

Index 0 (FP3130):

The switch-on command and the intervention of r0807.0 and r53010.2 are always active.

Index 2 (FP6810):

The "speed actual value selection" is always active.

Value:
0: Control block de-activated
1: Control block activated

Index:
[0] = Speed setpoint processing (FP3105 to FP3135)
[1] = RFG (FP3150 to FP3155)
[2] = Closed-loop speed control (FP6800 to FP6820)
[3] = Torque limiting/Current limitation (FP6825 to FP6845, FP8040)
[4] = Closed-loop armature current control (FP6852 to FP6855)
[5] = EMF setpoint processing and control (FP6900)
[6] = Closed-loop field current control (FP6905 to FP6910)

Note: This parameter is only evaluated once while powering up, i.e. a change only becomes effective after a new start or after powering up with saved parameters (p0976 = 11).

The ability to de-activate control function blocks has been designed for users who set up their own control configurations using Drive Control Chart (DCC) (e.g. synchronous generator field winding instead of running a motor). De-activating control function blocks which are not needed frees up CPU time for the DCC blocks.

r50960[0...4] Device fan operating hours display / Dev_fan h disp

| | | | |
|---------|-----------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8045 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [h] | - [h] | - [h] |

Description: Displays the operating hours for the device fan.

Index:
[0] = Fan terminal XV1
[1] = Fan terminal XV2
[2] = Fan terminal XV3
[3] = Fan terminal XV4
[4] = Fan ON

Dependency:
Refer to: p50961, p50962
Refer to: A60165

Note: The operating hours from "fan on" are only increased for the Control Module.

p50961[0...4] Device fan service life / Dev_fan serv life

| | | | |
|---------|-----------------------------------|----------------------|--------------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8045 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [h] | 1000000 [h] | [0...3] 30000 [h] [4] 0 [h] |

Description: Sets the service life for the device fan.

Index:
[0] = Fan terminal XV1
[1] = Fan terminal XV2
[2] = Fan terminal XV3
[3] = Fan terminal XV4
[4] = Fan ON

Dependency:
Refer to: r50960, p50962
Refer to: A60165

Note: An appropriate alarm is issued 500 hours before the set service life expires.

| | | | |
|-----------------------|--|----------------------|----------------------------|
| p50962[0...4] | Device fan reset operating hours / Dev_fan reset h | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8045 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to reset the operating hours of the device fan that have accumulated. | | |
| Value: | 0: Inactive 1: Reset | | |
| Index: | [0] = Fan terminal XV1 [1] = Fan terminal XV2 [2] = Fan terminal XV3 [3] = Fan terminal XV4 [4] = Fan ON | | |
| Dependency: | Refer to: r50960, p50961 | | |
| Note: | Procedure to reset the operating hours: Set p50962[x] = 1 The parameter is automatically set to zero after this is done. | | |
| p50963 | Behavior of the fan control / Behavior fan ctrl | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8047 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Behavior of the fan control: 0 : The fan control takes into account the temperature sensor. 1 : The fan control does not take into account the temperature sensor. | | |
| Value: | 0: The fan control takes into account the temperature sensor. 1: The fan control doesn't take into account the temperature sensor | | |
| Dependency: | Refer to: r50960, p50961 | | |
| Note: | Setting 1: The fan is only switched off after the parameterized fan run-on time, independent of the various temperature measurements and independent of the calculated thyristor temperature rise (=barrier layer temperature of the thyristors). As a consequence, it is also possible to acknowledge a fan fault even at ambient temperatures > 35°. | | |
| p51117[0...15] | BI: Binector-connector converter signal source / Bin/con sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for the binector inputs on the binector-connector converter. | | |
| Dependency: | Refer to: r52620 | | |

| p51118 | | Invert binector-connector converter signals / Bin/con sig inv | | | |
|---------------------|---|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | 0000 0000 0000 0000 bin | | |
| Description: | Setting to invert the individual binector inputs of the binector connector converter. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | BI p51117[0] | Inverted | Not inverted | - |
| | 01 | BI p51117[1] | Inverted | Not inverted | - |
| | 02 | BI p51117[2] | Inverted | Not inverted | - |
| | 03 | BI p51117[3] | Inverted | Not inverted | - |
| | 04 | BI p51117[4] | Inverted | Not inverted | - |
| | 05 | BI p51117[5] | Inverted | Not inverted | - |
| | 06 | BI p51117[6] | Inverted | Not inverted | - |
| | 07 | BI p51117[7] | Inverted | Not inverted | - |
| | 08 | BI p51117[8] | Inverted | Not inverted | - |
| | 09 | BI p51117[9] | Inverted | Not inverted | - |
| | 10 | BI p51117[10] | Inverted | Not inverted | - |
| | 11 | BI p51117[11] | Inverted | Not inverted | - |
| | 12 | BI p51117[12] | Inverted | Not inverted | - |
| | 13 | BI p51117[13] | Inverted | Not inverted | - |
| | 14 | BI p51117[14] | Inverted | Not inverted | - |
| | 15 | BI p51117[15] | Inverted | Not inverted | - |
| Dependency: | Refer to: p51117, r52620 | | | | |
| Note: | BI: Binector Input | | | | |

| r51560[0...1] | | CCP software version / CCP SW version | | |
|----------------------|---|--|----------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the software version for the Converter Commutation Protector (CCP). Index 0: CCP software version Index 1: Version of the CCP boot sector software | | | |

| r51569[0...15] | | CCP serial number / CCP ser no. | | |
|-----------------------|--|--|----------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 6970 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the serial number of the Converter Commutation Protector (CCP). | | | |
| Note: | The individual digits of the number are displayed in ASCII code in the indices. An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual. | | | |

| | | | | | |
|----------------------|---|---|----------------------------|-----------------|-----------|
| r51570 | CCP order number / CCP Order No. | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6970 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 | 254 | - | | |
| Description: | Displays the order number (MLFB) of the connected Converter Commutation Protector (CCP). | | | | |
| Value: | 0: No CCP connected 250: 6RA7085-6FC00-0 251: 6RA7091-6FC00-0 252: 6RA7095-6FC00-0 253: 6RA7090-6KC00-0 254: 6RA7095-6KC00-0 | | | | |
| r51571 | CCP rated supply voltage / CCP V_{rated} | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - [V] | - [V] | - [V] | | |
| Description: | Displays the rated supply voltage according to the rating plate of the Converter Commutation Protector (CCP). | | | | |
| r51572 | CCP rated current / CCP I_{rated} | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - [A] | - [A] | - [A] | | |
| Description: | Displays the rated current according to the rating plate of the Converter Commutation Protector (CCP). | | | | |
| r51574.0...12 | CO/BO: CCP state / CCP state | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6970 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the state of the Converter Commutation Protector (CCP). | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Voltage at U, V, W ok | Yes | No | 6970 |
| | 01 | Voltage at C - D greater than +100 V | Yes | No | 6970 |
| | 02 | Voltage at C - D less than -100 V | Yes | No | 6970 |
| | 03 | Turn-off capacitors have reached the setpoint voltage | Yes | No | 6970 |
| | 04 | Turn-off in progress | Yes | No | 6970 |
| | 05 | Connection between parallel CCPs OK | Yes | No | 6970 |
| | 08 | Connector X165_2 (at DCM) is connected with X165 (at CCP) | Yes | No | 6970 |
| | 09 | I2t value voltage limiting chopper 1 too high | Yes | No | 6970 |
| | 10 | I2t value voltage limiting chopper 2 too high | Yes | No | 6970 |
| | 11 | Memory for technical data for CCP OK | Yes | No | 6970 |
| | 12 | Chopper capacitors pre-charging completed | Yes | No | 6970 |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r51575 | CO: CCP I2t value voltage limiting chopper 1 / CCP I2t chopper 1 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the I2t value for the voltage limiting chopper 1 for Converter Commutation Protector (CCP). | | |
| r51576 | CO: CCP I2t value voltage limiting chopper 2 / CCP I2t chopper 2 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the I2t value for the voltage limiting chopper 2 for Converter Commutation Protector (CCP). | | |
| p51577 | CCP chopper voltage setpoint response threshold upper / CCP V_set thr up | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 850 [V] | 2900 [V] | 1600 [V] |
| Description: | Sets the upper response threshold of the voltage limiter implemented in the CCP. During the turn-off operation of the CCP when reducing the armature current, this limits the counter voltage that is created - and which is also necessary - to a non-hazardous value for the basic device and for the associated CCP. | | |
| Note: | CCP: Converter Commutation Protector The parameter is set automatically during the "optimization run for CCP" (p50051 = 30). The correct setting of this parameter can be taken from the following reference: SIMOREG CCP Operating Instructions | | |
| p51578 | CCP turn-off capacitors pre-charging voltage setpoint / C pre-ch V_set | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6970 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 145 [V] | 830 [V] | 145 [V] |
| Description: | Sets the minimum charging voltage required for the turn-off capacitors used in the CCP to successfully turn off the thyristors. This value is used as setpoint for the two-level controller, which precharges the turn-off capacitors from the line supply. The maximum pre-charging voltage that can be reached is limited by the average rectified value of the line voltage that is actually connected. | | |
| Note: | CCP: Converter Commutation Protector The parameter is set automatically during the "optimization run for CCP" (p50051 = 30). The correct setting of this parameter can be taken from the following reference: SIMOREG CCP Operating Instructions | | |

| r51579.0...7 | | CO/BO: CCP command / CCP command | | | |
|---------------------|---|---|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6970 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the command from the SINAMICS DCM to the SIMOREG CCP. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Firing the turn-off thyristors | Yes | No | - |
| | 01 | Line voltage (armature) in the tolerance range | Yes | No | - |
| | 02 | CCP connected to the parallel switching master | Yes | No | - |
| | 03 | Line contactor ON | Yes | No | - |
| | 04 | Torque direction I active | Yes | No | - |
| | 05 | Torque direction II active | Yes | No | - |
| | 06 | Reserved (always 1) | Yes | No | - |
| | 07 | Reserved (always 1) | Yes | No | - |
| Note: | CCP: Converter Commutation Protector | | | | |
| p51580 | | Commutation monitoring control word / Commut_monit STW | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6865 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | 0111 bin | | |
| Description: | Sets the criterion to detect a commutation failure for the commutation monitoring. 3 decision criteria are available in order to identify commutation failure. For test purposes, these criteria can be individually set using these parameters. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Criterion 1 (signal from thyristor blocking voltage) | Yes | No | 6865 |
| | 01 | Criterion 2 (curvature of the current cusp) | Yes | No | 6865 |
| | 02 | Criterion 3 (amplitude of the current actual value) | Yes | No | 6865 |
| Note: | The converter commutation is continuously monitored. If a commutation failure is detected, fault F60030 is initiated and thyristor turn-off is initiated by the CCP (if available). Re bit 00, 01: These criteria are only effective if a CCP (Converter Commutation Protector) is being used. | | | | |
| p51583 | | CCP test turn-off command / CCP turn-off cmd | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 | | |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6970 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | 0 | 2 | 0 | | |
| Description: | Setting to issue a turn-off command to the Converter Commutation Protector (CCP) for test purposes. | | | | |
| Value: | 0: No turn-off cmd 1: Issue in torque direction I 2: Issue in torque direction II | | | | |
| Notice: | After a turn-off command is issued to the CCP, this parameter automatically returns to the value 0. | | | | |

2 Parameters

2.2 List of parameters

Note: If the test command is issued in operation (i.e. in operating state o0.1 or o0.2), then the turn-off operation of the SIMOREG CCP acts on the thyristor bridge that is presently enabled. This is independent of whether the turn-off command is issued in torque direction I or II.

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p51591[0...n] | Armature inductance reduction factor / L_armat red fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6854 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 [%] | 100 [%] | 100 [%] |

Description: Sets the reduction factor for the current-dependent armature inductance.
At 100% motor rated current (p50100), the armature inductance is lower than it is at armature current 0 by this factor.

Dependency: Refer to: p50111

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p51592[0...n] | Armature commutating inductance / Arm Lk | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6854 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [mH] | 1000.0 [mH] | 0.0 [mH] |

Description: Sets the commutating inductance in the armature circuit.

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p51594[0...n] | Interphase inductance in 12-pulse operation / L_intph 12-pulse | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6854 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [mH] | 1000000.0 [mH] | 0.0 [mH] |

Description: Sets the inductance of the interphase transformer in 12-pulse operation (two 6-pulse thyristor bridge circuits connected in parallel).

Dependency: Refer to: p51595

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p51595[0...n] | Interphase inductance reduction factor / L_intph red fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6854 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 [%] | 100 [%] | 100 [%] |

Description: Sets the reduction factor for the current-dependent interphase inductance.
At 100% motor rated current (p50100), the interphase inductance is lower than it is at armature current 0 by this factor.

Dependency: Refer to: p51594

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

| | | | |
|----------------------|---|--|---|
| p51596[0...n] | Interphase resistance in 12-pulse operation / R_intph 12-pulse | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.000 [ohm] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: - Max 1000.000 [ohm] | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.000 [ohm] |
| Description: | Sets the resistance of an interphase transformer in 12-pulse operation. | | |
| Note: | The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25). | | |
| p51597[0...n] | Field inductance reduction factor / L_field red fact | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 10 [%] | Calculated: - Dyn. index: DDS, p0180 Unit group: - Scaling: PERCENT Max 100 [%] | Access level: 2 Func. diagram: 6910 Unit selection: - Expert list: 1 Factory setting 100 [%] |
| Description: | Sets the reduction factor for the current-dependent field inductance. At 100% motor rated current (p50102), the field inductance is lower than it is at field current 0 by this factor. | | |
| Dependency: | Refer to: p50116 | | |
| Note: | The parameter is set automatically during the "optimization run for pre-control and the current controller for the field current controller" (p50051 = 24). | | |
| r51598 | Short-circuit voltage Uk, per unit / V_sh-cct Uk p.u. | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 1 Func. diagram: 6854 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Displays the per unit short-circuit voltage of the line supply. The value is calculated from the commutation inductance (p51592) and the rated converter data (In = r50072[1], Vn = p50078[0], fn = r50017). | | |
| p51607[0...n] | BI: Setpoint processing reduction signal source / Red sig s | | |
| DC_CTRL | Can be changed: T Data type: Unsigned32 / Binary P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: CDS, p0170 Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 3135 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the signal source for activating/de-activating the reduction factor for the speed setpoint. | | |
| Dependency: | Refer to: p51608, r52194, r52195 | | |
| Note: | Dependent upon binector input (p51607): 1 signal: The reduction factor (p51608) is de-activated (r52194 = r52195). 0 signal: The reduction factor (p51608) is activated (r52194 = r52195 x p51608). | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p51608[0...n] | Setpoint processing reduction factor / Red factor | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 100.00 [%] | 15.00 [%] |
| Description: | Sets the reduction factor for the speed setpoint in the context of setpoint processing. | | |
| Dependency: | Dependent upon binector input (p51607): 1 signal: The reduction factor (p51608) is not applied (r52194 = r52195). 0 signal: The reduction factor (p51608) is applied (r52194 = r52195 x p51608). Refer to: p51607, r52194, r52195 | | |
| p51616 | E stop response / E stop response | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2070 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the response of the control to the triggering of an E stop. | | |
| Value: | 0: E stop has the same effect as OFF2 1: E stop triggers immediate pulse inhibit | | |
| Note: | If value = 0: E stop has the same effect as OFF2. If value = 1: E stop interrupts the firing pulse sequence immediately. The process does not wait for Ia = 0 and Alpha W pulses are not emitted. | | |
| p51618 | LOCAL mode enable behavior / LOCAL enab behav | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 2580 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Sets the behavior for enable via terminal X177.13 in the LOCAL mode. | | |
| Value: | 0: Terminal X177.13 is not effective in the LOCAL mode 1: Terminal X177.13 is effective in the LOCAL mode | | |
| p51619[0...n] | BI: Signal source for switching on line contactor / Line cont ON sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 2070 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 53081.0 |
| Description: | Sets the signal source for the "Line contactor ON" relay output (XR1.109/110). | | |

| | | | |
|------------------------|---|-------------------------------|----------------------------|
| p51651[0...n] | Speed controller start pulse positive setpoint / Start pul pos set | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -100.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the setpoint for the positive start pulse on the speed controller. | | |
| Recommendation: | The value can also be used as an integrator setting value for the speed controller. | | |

| | | | |
|----------------------|--|-------------------------------|----------------------------|
| p51652[0...n] | Speed controller start pulse negative factor / Start pul neg fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 200.00 [%] | 50.00 [%] |
| Description: | Sets the factor for the start pulse when the setpoint is negative. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p51653[0...n] | Speed controller start pulse negative setpoint / Start pul neg set | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | -100.00 [%] | 100.00 [%] | 0.00 [%] |
| Description: | Sets the setpoint for the negative start pulse on the speed controller. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p51655 | CI: Speed controller start pulse positive signal source / Start p pos sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52451[0] |
| Description: | Sets the signal source for the setpoint of the positive start pulse on the speed controller. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| p51656 | CI: Speed controller start pulse negative signal source / Start p neg sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 52452[0] |
| Description: | Sets the signal source for the setpoint of the negative start pulse on the speed controller. | | |

| | | | |
|----------------------|---|-------------------------------|----------------------------|
| p51657[0...n] | BI: Speed controller start pulse pos/neg changeover signal source / Start pulse signal source | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: CDS, p0170 | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changing over the setpoint between positive and negative start pulses on the speed controller. | | |
| p51660 | BI: Signal source for master switch travel command 1 / Travel command 1 signal source | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for travel command 1 on the 4-step master switch. | | |
| p51661 | BI: Signal source for master switch travel command 2 / Travel command 2 signal source | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for travel command 2 on the 4-step master switch. | | |
| p51662 | BI: Signal source for master switch setpoint step S2 / Setpoint step S2 signal source | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changing over to setpoint step S2 on the 4-step master switch. | | |
| p51663 | BI: Signal source for master switch setpoint step S3 / Setpoint step S3 signal source | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changing over to setpoint step S3 on the 4-step master switch. | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p51664 | BI: Signal source for master switch setpoint step S4 / Set step S4 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal source for changing over to setpoint step S4 on the 4-step master switch. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p51665 | Master switch setpoint step S1 value / Set step S1 value | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 110.00 [%] | 10.00 [%] |
| Description: | Sets the setpoint for setpoint step S1 on the 4-step master switch. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p51666 | Master switch setpoint step S2 value / Set step S2 value | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 110.00 [%] | 25.00 [%] |
| Description: | Sets the setpoint for setpoint step S2 on the 4-step master switch. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p51667 | Master switch setpoint step S3 value / Set step S3 value | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 110.00 [%] | 40.00 [%] |
| Description: | Sets the setpoint for setpoint step S3 on the 4-step master switch. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p51668 | Master switch setpoint step S4 value / Set step S4 value | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.00 [%] | 110.00 [%] | 100.00 [%] |
| Description: | Sets the setpoint for setpoint step S4 on the 4-step master switch. | | |

2 Parameters

2.2 List of parameters

| | | | | |
|--|--|-------------------------|----------------------------|-----------------|
| p51700[0...1] | | | | |
| CI: Signal source for connector recorder function / Rec fct con sig s | | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 8050 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 0 | |
| Description: | Sets the signal source for the connectors to be recorded by the recorder function. | | | |
| Dependency: | Refer to: p51701, p51702, p51703, p51704, p51705, p51706 | | | |
| Note: | [0] = Signal source for the first connector to be recorded [1] = Signal source for the second connector to be recorded | | | |
| <hr/> | | | | |
| p51701[0...1] | | | | |
| BI: Signal source for binector recorder function / Rec fct bin sig s | | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 8050 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 0 | |
| Description: | Sets the signal source for the binectors to be recorded by the recorder function. | | | |
| Dependency: | Refer to: p51700, p51702, p51703, p51704, p51705, p51706 | | | |
| Note: | [0] = Signal source for the first binector to be recorded [1] = Signal source for the second binector to be recorded | | | |
| <hr/> | | | | |
| p51702 | | | | |
| Recorder function channel selection / Rec fct sel | | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8050 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | 1111 bin | |
| Description: | Setting to select the channels to be recorded. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Channel 0 | Active | Not active |
| | 01 | Channel 1 | Active | Not active |
| | 02 | Channel 2 | Active | Not active |
| | 03 | Channel 3 | Active | Not active |
| | | | | FP |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| Dependency: | Refer to: p51700, p51701, p51703, p51704, p51705, p51706 | | | |
| <hr/> | | | | |
| p51703 | | | | |
| Recorder function recording interval / Rec fct t_rec | | | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 | |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8050 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | 1 [s] | 1000 [s] | 1 [s] | |
| Description: | Sets the recording interval, during which the signals selected with the channel selection parameters (p51702.0 to 3) are scanned and saved internally. | | | |
| Dependency: | Refer to: p51700, p51701, p51702, p51704, p51705, p51706 | | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p51704 | Recorder function save interval / Rec fct t_save | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8050 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 60 | 1 |
| Description: | Sets the save interval, during which the signals recorded internally are saved to the following recording file: \\USER\SINAMICS\DATA\LOG\Track.csv | | |
| Dependency: | Refer to: p51700, p51701, p51702, p51703, p51705, p51706 | | |
| Notice: | The value is set in minutes. | | |
| p51705 | Start/stop recorder function / Rec fct StartStop | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8050 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Setting to start and stop the recorder function. Value = 1: Recording is started and stopped after reaching of the number of entries set in p51706. p51705 is set to 0. Value = 2: Recording is started: After reaching of the number of entries set in p51706, the file is overwritten from the beginning. Recording runs until it is stopped by setting of p51705 = 0. | | |
| Value: | 0: Stop 1: Start 2: Start with overwrite | | |
| Dependency: | Refer to: p51700, p51701, p51702, p51703, p51704, p51706 | | |
| Notice: | Starting the recorder function overwrites any existing recording file. | | |
| p51706 | Recorder function number of entries / Rec fct num ent | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 8050 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10 | 100000 | 3600 |
| Description: | Sets the number of entries in the recorder function's recording file. Dependent upon the start command (p51705 = 1 or 2), recording is stopped after this number of entries has been reached or the recording file is overwritten from the beginning. | | |
| Dependency: | Refer to: p51700, p51701, p51702, p51703, p51704, p51705 | | |
| p51780 | Fault message response delay time / F delay_time | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2651 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [s] | 60.000 [s] | 0.000 [s] |
| Description: | All fault message responses are not immediately initiated, but only after a parameterizable delay time. | | |

2 Parameters

2.2 List of parameters

Note: Active faults are signaled at r2139.3 and r3114.10.

| | | | |
|---------------|---|----------------------|----------------------------|
| p51790 | BI: Topology switchover signal source / Top_switch s_src | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9360 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source to select the required power unit topology.

| | | | |
|---------------|---|----------------------|----------------------------|
| p51791 | BI: Topology switchover feedback signal source / Top_sw fdbk s_src | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9360 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |

Description: Sets the signal source for the feedback signal of the active power unit topology.

| | | | |
|---------------|--|----------------------|----------------------------|
| p51792 | Topology switchover feedback signal stabilization time / Topo_sw t_stab | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9360 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 1000 [ms] | 0 [ms] |

Description: Sets the stabilization time for the feedback signal of the active power unit topology.

| | | | |
|---------------|--|----------------------|----------------------------|
| p51793 | Topology switchover feedback signal duration / Topo_sw fdbk t_sig | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9360 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [ms] | 10000 [ms] | 100 [ms] |

Description: Sets the maximum duration of the power unit topology switchover.

| | | | |
|---------------|--|----------------------|----------------------------|
| p51794 | Topology switchover armature converter mode of operation 2 / Topo_sw mode 2 | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9360 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 42 | 0 |

Description: Sets the mode of operation of the armature converter for power unit topology 2.

Value:

- 0: Standard mode of operation
- 1: Sole power unit 1-phase
- 3: Sole power unit 3-phase
- 21: 12-pulse parallel, firing angle from the master
- 22: 12-pulse parallel, firing angle master/slave
- 31: 6-pulse serial, firing angle from the master
- 32: 6-pulse serial with sequential phase control

- 41: 12-pulse serial, firing angle from the master
 42: 12-pulse serial with sequential phase control

Dependency: Refer to: p51795
Note: Comments, the same as for p51799

| | | | |
|---------------|---|----------------------|----------------------------|
| p51795 | Topology switchover power unit topology position 2 / Topo_sw pos 2 | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9360 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 45 | 0 |

Description: Sets the position of the power unit in converter topology 2.

Value:

- 0: Parallel interface not active
- 1: Power unit independent/CUD right
- 11: 6-pulse parallel master
- 12: 6-pulse parallel slave
- 13: 6-pulse parallel slave/replacement master
- 21: 12-pulse parallel master
- 22: 12-pulse parallel slave
- 23: 12-pulse parallel, slave parallel to master
- 24: 12-pulse parallel, slave parallel to slave
- 31: 6-pulse serial master
- 32: 6-pulse serial slave
- 33: 6-pulse serial parallel to master
- 34: 6-pulse serial parallel to slave
- 35: 6-pulse serial master, slave is a diode bridge
- 41: 12-pulse serial master
- 42: 12-pulse serial slave
- 43: 12-pulse serial parallel to master
- 44: 12-pulse serial parallel to slave
- 45: 12-pulse serial master, slave is a diode bridge

Dependency: Refer to: p51799
Note: Comments, the same as for p51800

| | | | |
|----------------------|--|-------------------------|----------------------------|
| p51797[0...1] | Sequential phase control switch-on threshold/hysteresis / Seq ph ctr on/hys | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 5 [%] | 100 [%] | [0] 35 [%] [1] 30 [%] |

Description: Sets the switch-on threshold and hysteresis for the phase sequence control.
 The values are referred to the rated device current r50072[1].

Index: [0] = Switch-on threshold
 [1] = Hysteresis

Dependency: Refer to: p51799
Note: The switch-off threshold is calculated as follows:
 Switch-off threshold = switch-on threshold - hysteresis

| p51798 Armature converter voltage diode bridge / la_convert U diode | | | |
|--|---|-------------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | 50.00 [%] | 100.00 [%] | 85.00 [%] |
| Description: | Sets the line voltage at the diode bridge for a 6-pulse/12-pulse series circuit of a SINAMICS DCM with an uncontrolled rectifier (diode bridge). | | |
| Note: | The value set here is a percentage of the line voltage at the SINAMICS DCM. | | |
| p51799 Armature converter mode of operation / la_conv mode_op | | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 42 | 0 |
| Description: | Sets the mode of operation of the armature converter | | |
| Value: | 0: Standard mode of operation 1: Sole power unit 1-phase 3: Sole power unit 3-phase 21: 12-pulse parallel, firing angle from the master 22: 12-pulse parallel, firing angle master/slave 31: 6-pulse serial, firing angle from the master 32: 6-pulse serial with sequential phase control 41: 12-pulse serial, firing angle from the master 42: 12-pulse serial with sequential phase control | | |
| Dependency: | Refer to: p51797, p51800 | | |
| Note: | If value = 0: Standard for the corresponding topology (acc. to p51800). If value = 1: Sole power unit in 1-phase operation (line connection at inputs 1U and 1V). If value = 3: Sole power unit in 3-phase operation (= standard). If value = 21: 12-pulse parallel connection with central firing angle generation in the master (= standard). If value = 22: 12-pulse parallel connection with current setpoint interface, own closed-loop current control and firing angle generation in the master and in the slave. If value = 31: 6-pulse series circuit with central firing pulse generation in the master (= standard). If value = 32: 6-pulse series connection with sequential phase control. If value = 41: 12-pulse series circuit with central firing pulse generation in the master (= standard). If value = 42: 12-pulse series connection with sequential phase control. | | |

| p51800 | | Power unit topology position / PU topo pos | |
|---------------------|---|---|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 45 | 0 |
| Description: | Sets the position of the power unit in the converter topology. | | |
| Value: | 0: Parallel interface not active 1: Power unit independent/CUD right 11: 6-pulse parallel master 12: 6-pulse parallel slave 13: 6-pulse parallel slave/replacement master 21: 12-pulse parallel master 22: 12-pulse parallel slave 23: 12-pulse parallel, slave parallel to master 24: 12-pulse parallel, slave parallel to slave 31: 6-pulse serial master 32: 6-pulse serial slave 33: 6-pulse serial parallel to master 34: 6-pulse serial parallel to slave 35: 6-pulse serial master, slave is a diode bridge 41: 12-pulse serial master 42: 12-pulse serial slave 43: 12-pulse serial parallel to master 44: 12-pulse serial parallel to slave 45: 12-pulse serial master, slave is a diode bridge | | |
| Dependency: | Refer to: p51799 | | |
| Note: | If value = 0: The parallel connection interface is inactive, the hardware does not have to be connected. The power unit operates alone. If value = 1: a) Several converters are connected with one another via the parallel interface. The power units operate independently of one another. Data exchange via the parallel interface is only used to exchange BICO signals. b) At a CUD in the right-hand slot, a value of 1 must always be set. For values > 1: Several converters are connected with one another via the parallel interface. The power units are also connected with one another and operate together (series connection, parallel connection). Data exchange via the parallel interface allows the power units to operate together and is additionally used to exchange BICO signals. | | |

| p51801 | | Parallel interface number of transmit data / Par IF num tr data | |
|---------------------|--|--|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9355 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 16 | 0 |
| Description: | Sets the number of words to be transmitted on the parallel interface. | | |
| Value: | 0: 0 words 4: 4 words 8: 8 words 12: 12 words 16: 16 words | | |

| | | | |
|-----------------------|--|-----------------------|----------------------------|
| p51802 | Parallel interface number of power units / Par_IF PU qty | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 16 | 1 |
| Description: | Sets the number of converters whose power units operate together in the selected converter topology (p51800). | | |
| Note: | For a 6-pulse parallel connection (p51800 = 11, 12 or 13) and activated redundant operation (p51803 = 1), then the power units may fail (e.g. go into a fault condition). In this operating mode, using this parameter, the minimum number of power units must be set which must be ready for operation. In all other cases, the number of power units that operate together must be precisely set. | | |
| p51803 | Parallel interface activation of redundancy mode / Par IF redund mod | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |
| Description: | Setting to activate/de-activate redundancy mode for the parallel interface. | | |
| Value: | 0: Deactivated 1: Activated armature 2: Activated armature + field | | |
| Note: | When a SINAMICS DCM is operated together with a SIMOREG DC-MASTER Converter Commutation Protector (CCP), then the redundant mode must be deactivated. | | |
| p51804[0...15] | CI: Parallel interface slave transmit data / PI slave tr data | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Integer16 | Dyn. index: - | Func. diagram: 9355 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for transmit data when operating the device as a slave on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |

| | | | |
|---------------------|--|---|--|
| p51805 | Parallel interface bus terminator / Par IF bus term | | |
| DC_CTRL | Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: - Min 0 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 1 | Access level: 2 Func. diagram: 9350 Unit selection: - Expert list: 1 Factory setting 0 |
| Description: | Setting to activate/de-activate the bus terminator on the parallel interface. | | |
| Value: | 0: Bus terminator OFF 1: Bus terminator ON | | |
| Dependency: | Refer to: p51806 | | |
| p51806 | Parallel interface bus address / Par IF bus addr | | |
| DC_CTRL | Can be changed: T Data type: Unsigned16 P-Group: - Not for motor type: - Min 1 | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 16 | Access level: 2 Func. diagram: 9350 Unit selection: - Expert list: 1 Factory setting 1 |
| Description: | Sets the bus address for the parallel connection of devices. | | |
| Dependency: | Refer to: p51805 | | |
| p51807 | Parallel interface telegram monitoring failure time / Telegr mon t_fail | | |
| DC_CTRL | Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: - Min 0.000 [s] | Calculated: - Dyn. index: - Unit group: - Scaling: - Max 65.000 [s] | Access level: 2 Func. diagram: 9350 Unit selection: - Expert list: 1 Factory setting 0.100 [s] |
| Description: | Sets the permissible telegram failure time for the parallel interface. This setting means that every device connected to the parallel switching interface can monitor whether it is connected to the parallel switching interface. If a telegram is not received from any other device connected to the parallel switching interface for longer than the set time, then BICO output r53310.0 is set to 1, and also fault F60014 is initiated in the factory setting. Value = 0.0: Telegram monitoring is de-activated. Value = 0.001 ... 65.000: Telegram monitoring is activated. | | |
| Dependency: | Refer to: p50099, r53310 Refer to: F60014 | | |
| Note: | Telegram monitoring is active in the following cases: - From the first error-free telegram received after the electronic power supply has been switched on The telegram can be received from any device. - From the first telegram received error-free after the telegram monitoring has responded (as a result of the failure time expiring). | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p51808 | BI: Parallel interface signal source for F60014 / P IF F60014 sig s | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Binary | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 53310.0 |
| Description: | Sets the signal source for triggering fault F60014 "Telegram monitoring timeout". The fault is triggered on a 1 signal. | | |
| Dependency: | Refer to: r53310 Refer to: F60014 | | |

| | | | |
|----------------------|--|----------------------|----------------------------|
| r51809[0...4] | Parallel interface diagnostic information / Par IF diag info | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the diagnostic information for the parallel interface. | | |
| Index: | [0] = Telegrams transmitted without errors [1] = Telegrams received without errors [2] = Transmission error [3] = Receive error [4] = Timeouts | | |
| Dependency: | Refer to: p51807 | | |
| Note: | The counters are reset to 0 at POWER ON. The counters restart at 0 after reaching a value of 65535. | | |

| | | | |
|---------------|--|----------------------|----------------------------|
| r51810 | Parallel interface activity display / Par IF act disp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

| | | | | | |
|---------------------|---|------------------------------|-----------------|-----------------|-----------|
| Description: | Displays the activities on the individual stations on the parallel interface. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Station 1 transmitting data | Yes | No | - |
| | 01 | Station 2 transmitting data | Yes | No | - |
| | 02 | Station 3 transmitting data | Yes | No | - |
| | 03 | Station 4 transmitting data | Yes | No | - |
| | 04 | Station 5 transmitting data | Yes | No | - |
| | 05 | Station 6 transmitting data | Yes | No | - |
| | 06 | Station 7 transmitting data | Yes | No | - |
| | 07 | Station 8 transmitting data | Yes | No | - |
| | 08 | Station 9 transmitting data | Yes | No | - |
| | 09 | Station 10 transmitting data | Yes | No | - |
| | 10 | Station 11 transmitting data | Yes | No | - |
| | 11 | Station 12 transmitting data | Yes | No | - |
| | 12 | Station 13 transmitting data | Yes | No | - |
| | 13 | Station 14 transmitting data | Yes | No | - |
| | 14 | Station 15 transmitting data | Yes | No | - |
| | 15 | Station 16 transmitting data | Yes | No | - |

| r51811 | | Parallel interface CAN diagnostic information / PI CAN diag info | | | |
|---------------------|---|---|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9350 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the CAN diagnostic information for the parallel interface. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Abort acknowledge flag | | | 9350 |
| | 01 | Write denied flag | | | 9350 |
| | 02 | Wake-up flag | | | 9350 |
| | 03 | Received msg lost flag | | | 9350 |
| | 04 | Bus-off condition flag | | | 9350 |
| | 05 | Error passive mode flag | | | 9350 |
| | 06 | Warning level flag | | | 9350 |
| | 07 | Form error flag | | | 9350 |
| | 08 | Bit error flag | | | 9350 |
| | 09 | Stuck at dominant bit | | | 9350 |
| | 10 | CRC error | | | 9350 |
| | 11 | Stuff bit error | | | 9350 |
| | 12 | ACK error | | | 9350 |
| | 13 | Bus-off status | | | 9350 |
| | 14 | Error passive state | | | 9350 |
| | 15 | Warning status | | | 9350 |

| r51813[0...15] | | Parallel interface transmit data display / PI trans data disp | | | |
|-----------------------|---|--|----------------------------|--|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9355 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the data selected for transmission. | | | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | | | |

| | | | |
|-----------------------|---|-----------------------|----------------------------|
| p51814[0...15] | CI: Parallel interface master transmit data / PI master tr data | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: Unsigned32 / Integer16 | Dyn. index: - | Func. diagram: 9355 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: 4000H | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 0 |
| Description: | Sets the signal sources for transmit data when operating the device as a master on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Note: | This parameter is used to define the transmit data and its position in the transmit telegram. [0]: Word 1 in the telegram ... [4]: Word 5 in the telegram [5]: Word 1 in the telegram ... [9]: Word 5 in the telegram ... | | |

| | | | |
|---------------------|---|----------------------|----------------------------|
| p51815 | Parallel interface number of devices / Par_IF device qty | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 9350 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 16 | 1 |
| Description: | Sets the number of CUDs, which communicate with one another via the parallel switching interface. This setting is intended so that every device connected to the parallel switching interface can monitor whether all devices are active and/or available. Each of the devices connected to the parallel switching interface continually monitors whether all of the devices regularly send telegrams. "Device connected to the parallel switching interface" is every CUD, at which p51800 > 0 . "Regularly sending telegrams" means that the time between two send telegrams from the same device must be less than 100 ms. | | |
| Note: | - If the number set here is less than the actual number of devices connected to the parallel switching interface, then failure of some of the devices is ignored. - A setting of 1 means that the monitoring is inactive. | | |

| | | | |
|----------------------|---|----------------------|----------------------------------|
| p51819[0...1] | External voltage transformer transformation ratio / V transf ext ratio | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950, 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000100 | 1.000000 | 1.000000 |
| Description: | Sets the ratio between output and input voltage on the external voltage transformer for line and armature voltage. | | |
| Index: | [0] = Line voltage [1] = Armature voltage | | |
| Note: | The parameter is only effective on the Control Module. Example: Output voltage = 100 V Input voltage = 2000 V --> p51819 = 100 V / 2000 V = 0.050 | | |
| p51820 | Armature rated supply voltage / Arm V_{rated} | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 50 [Vrms] | 5000 [Vrms] | 1000 [Vrms] |
| Description: | Sets the rated supply voltage (rms value) for which the power unit is suitable (electric strength of the thyristors). | | |
| Note: | The parameter is only effective on the Control Module. The set supply voltage is displayed in r50071. Parameter p50078[0] (armature rated input voltage) is limited to this value. | | |
| p51821[0...1] | Measurement cable connection / Meas cab conn | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1000 | 1000 |
| Description: | Sets the connections used to measure the line voltage and the armature voltage on the A7117 module. | | |
| Value: | 0: No selection 6: XU6 / XV6 / XW6 or XC6 / XD6 50: XU5 / XV5 / XW5 or XC5 / XD5 125: XU4 / XV4 / XW4 or XC4 / XD4 250: XU3 / XV3 / XW3 or XC3 / XD3 575: XU2 / XV2 / XW2 or XC2 / XD2 1000: XU1 / XV1 / XW1 or XC1 / XD1 | | |
| Index: | [0] = Line voltage [1] = Armature voltage | | |
| Note: | The parameter is only effective on the Control Module. The parameter value indicates the rated rms value of the maximum measurable line voltage. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|----------------------|----------------------------------|
| p51822 | Armature rated direct current / Arm I_{rated} | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.1 [A] | 20000.0 [A] | 0.1 [A] |
| Description: | Sets the rated direct current for the armature. The output direct current supported by the power unit in continuous operation should be set in this parameter. | | |
| Note: | The parameter is only effective on the Control Module. | | |
| p51823 | Load voltage at armature rated current / V_{load la_{rated}} | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850, 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.1000 [V] | 1.2000 [V] | 1.0000 [V] |
| Description: | Sets the load voltage resulting from the following calculation formula: $V_{load} = R_{load} * tr * Id$ V _{load} : The load voltage to be set in this parameter R _{load} : The load resistance (default 10 ohm) r: Transformation ratio of the current transformer (I ₂ / I ₁) Id: Output direct current according to parameter p51822 | | |
| Note: | The parameter is only effective on the Control Module. | | |
| p51824 | Current transformer configuration / I_{transf} config | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6850, 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 1 | 5 | 2 |
| Description: | Sets the configuration for the current transformer for current actual value sensing. | | |
| Value: | 1: Current transformer in phase U and V 2: Current transformer in phase U and W 3: Current transformer in phase V and W 4: External current transformer connected in V circuit 5: Bipolar current actual value signal (external shunt) | | |
| Note: | The parameter is only effective on the Control Module. | | |
| p51825 | Power unit type / PU typ | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 2 | 4 | 2 |
| Description: | Sets the power unit type. | | |
| Value: | 2: 2-quadrant power unit 4: 4-quadrant power unit | | |
| Note: | The parameter is only effective on the Control Module. | | |

| | | | |
|----------------------|--|----------------------|---|
| p51826[0...2] | Armature current converter firing pulse chopping times / Pulse chop t | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6860, 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 [µs] | 105 [µs] | [0] 50 [µs] [1] 35 [µs] [2] 70 [µs] |

Description: Sets the times for firing pulse chopping on the armature current converter.

Index: [0] = Length of first pulse
[1] = Length additional pulses
[2] = Break length

Note: The parameter is only effective on the Control Module.
Block pulses are generated (i.e. firing pulses without pulse chopping) with the following setting:
- p51826[0] = 105 µs
- p51826[1] = 105 µs
- p51826[1] = 0 µs

| | | | |
|----------------------|---|----------------------|----------------------------|
| p51829[0...2] | Heat sink temperature threshold / Htsk temp thresh | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8048 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.0 [°C] | 200.0 [°C] | 90.0 [°C] |

Description: Sets the threshold for temperature monitoring on the Control Module.

Index: [0] = Temperature sensor 1 / XT5 / A7109
[1] = Temperature sensor 2 / XT6 / A7109
[2] = Temperature sensor 3 / XT7 / A7116

Dependency: Refer to: p51830
Refer to: F60067

Note: The parameter is only effective on the Control Module.

| | | | |
|----------------------|---|----------------------|----------------------------|
| p51830[0...2] | Heat sink temperature sensor type / Htsk temp type | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8048 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |

Description: Sets the sensor type for the temperature sensors on the Control Module.

Value: 0: No temperature sensor present
1: NTC with 6.8 kOhm
2: NTC with 10 kOhm

Index: [0] = Temperature sensor 1 / XT5 / A7109
[1] = Temperature sensor 2 / XT6 / A7109
[2] = Temperature sensor 3 / XT7 / A7116

Dependency: Refer to: p51829
Refer to: F60067

Note: The NTC temperature sensor should be connected at module A7109 or A7116 at terminal XT5, XT6 or XT7.
The parameter is only effective on the Control Module.

| | | | |
|----------------------|--|----------------------|----------------------------------|
| p51831[0...4] | Fuse monitoring activation / Fuse mon act | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6957, 6965 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 1 | 0 |
| Description: | Setting to activate/de-activate fuse monitoring on the Control Module. | | |
| Value: | 0: Deactivated 1: Activated | | |
| Index: | [0] = Connector X23B [1] = Connector X23C [2] = Connector X23D [3] = Connector X23E [4] = Connector X23F | | |
| Dependency: | Refer to: F60004, F60204 | | |
| Note: | The parameter is only effective on the Control Module. Connector X23B is available on the power interface and on the expansion module (A7112 module). Monitoring at connectors X23C to X23F is only possible using the expansion module. Only groups of up to 6 inputs can be activated and de-activated at the same time. If an expansion module is connected to slot X23A, slot X23B cannot be used on the power interface. | | |
| p51832 | Fan monitoring configuration / Fan mon config | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 8049 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 1 |
| Description: | Sets the configuration for fan monitoring on the Control Module. | | |
| Value: | 0: OFF 1: ON and Low active 2: ON and High active | | |
| Dependency: | Refer to: r53140 Refer to: A60266, F60267 | | |
| Note: | Fan monitoring is wired via input terminal 122/123. The parameter can only be changed for the Control Module. | | |
| p51833 | External fault mode / Ext F mode | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6965, 8049 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 1 |
| Description: | Sets the mode to trigger the external fault F60203 via input terminal 124/125 on the Control Module. | | |
| Value: | 0: Switched off 1: Switched on and Low level triggers fault 2: Switched on and High level triggers fault | | |
| Dependency: | Refer to: r53140 Refer to: F60203 | | |

Note: The parameter can only be changed for the Control Module.
 If value = 1:
 The input signal is available via binector output r53140.4 for further interconnection.
 If value = 2:
 The input signal is available via binector output r53140.3 for further interconnection.

p51834 **BI: Signal source for device fan relay output / Fan relay sig s**
 DC_CTRL **Can be changed:** T **Calculated:** - **Access level:** 2
 Data type: Unsigned32 / Binary **Dyn. index:** - **Func. diagram:** 6965, 8049
 P-Group: - **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min **Max** **Factory setting**
 - - 0

Description: Sets the signal source for the "Fan On" relay output (terminal 120/121) on the power interface.

Note: The parameter can only be changed for the Control Module.

p51835[0...2] **Delay times for device fan monitoring / Fan mon t_del**
 DC_CTRL **Can be changed:** T **Calculated:** - **Access level:** 2
 Data type: FloatingPoint32 **Dyn. index:** - **Func. diagram:** 8049
 P-Group: - **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min **Max** **Factory setting**
 0.0 [s] 60.0 [s] [0] 15.0 [s]
 [1] 5.0 [s]
 [2] 2.0 [s]

Description: Sets the delay times for device fan monitoring on the Control Module.

Index: [0] = ON delay monitoring
 [1] = ON delay fault
 [2] = ON delay alarm

Dependency: Refer to: A60266, F60267

Note: The parameter can only be changed for the Control Module.

p51838 **Field device external rated direct current / I_rated ext**
 DC_CTRL **Can be changed:** T **Calculated:** - **Access level:** 2
 Data type: FloatingPoint32 **Dyn. index:** - **Func. diagram:** 6960, 6910
 P-Group: - **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min **Max** **Factory setting**
 0.00 [A] 600.00 [A] 0.00 [A]

Description: Sets the rated direct current of an external field device (if there is one).

Dependency: Refer to: p50082

Note: This parameter is only effective if p50082 >= 21.

p51839 **External field monitoring / Ext field monit**
 DC_CTRL **Can be changed:** U, T **Calculated:** - **Access level:** 2
 Data type: Integer16 **Dyn. index:** - **Func. diagram:** 8044
 P-Group: - **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min **Max** **Factory setting**
 0 1 0

Description: Setting for activating/de-activating the monitoring for the external field.

Value: 0: Deactivated
 1: Activated


Dependency: Refer to: p50082

| | | | |
|---------------------|---|----------------------|----------------------------|
| p51840 | Auto-reversing stage simulation mode / Auto-rev simul | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6865 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 26 | 0 |
| Description: | Setting to control simulation mode in the auto-reversing stage. | | |
| Value: | 0: No simulation mode 11: Fire thyristor 11 12: Fire thyristor 12 13: Fire thyristor 13 14: Fire thyristor 14 15: Fire thyristor 15 16: Fire thyristor 16 21: Fire thyristor 21 22: Fire thyristor 22 23: Fire thyristor 23 24: Fire thyristor 24 25: Fire thyristor 25 26: Fire thyristor 26 | | |
| Note: | The simulation mode can only be activated in operating states >= o7.0. | | |

| | | | |
|---------------------|--|----------------------|----------------------------|
| p51845 | Line zero crossings offset angle fixed / Line offset fixed | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -120.00 [°] | 120.00 [°] | 0.00 [°] |
| Description: | Sets a fixed offset angle between the line zero crossings at the power unit and the synchronizing voltage. | | |
| Dependency: | Refer to: p51846, p51847 | | |

| | | | |
|----------------------|--|----------------------|----------------------------|
| p51846[0...5] | Line zero crossings offset angle thyristor pair-dependent factor / Line offset Fact | | |
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | -10.00 [°] | 10.00 [°] | 0.00 [°] |
| Description: | Sets an offset angle dependent on a thyristor pair between the line zero crossings at the power unit and the synchronizing voltage. | | |
| Index: | [0] = Thyristor pair 1-6 (UV+) [1] = Thyristor pair 1-2 (WU-) [2] = Thyristor pair 2-3 (VW+) [3] = Thyristor pair 3-4 (UV-) [4] = Thyristor pair 4-5 (WU+) [5] = Thyristor pair 5-6 (VW-) | | |
| Dependency: | Refer to: p51845, p51847 | | |


| p51847[0...5] | | CI: Line zero crossings offset angle thyristor pair-dependent s_src / Line offset s_src | |
|----------------------|--|--|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Sets the signal source for the offset angle dependent on a thyristor pair between the line zero crossings at the power unit and the synchronizing voltage. | | |
| Index: | [0] = Thyristor pair 1-6 (UV+) [1] = Thyristor pair 1-2 (WU-) [2] = Thyristor pair 2-3 (VW+) [3] = Thyristor pair 3-4 (UV-) [4] = Thyristor pair 4-5 (WU+) [5] = Thyristor pair 5-6 (VW-) | | |
| Dependency: | Refer to: p51845, p51846 | | |

| p51852 | | Current actual value sensing analog input configuration / I_sens AI config | |
|---|---|---|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 4 | 0 |
| Description: | Sets the configuration for the armature current actual value sensing. Value = 0: The device-internal armature current actual value sensing is active. Value > 0: An external armature current actual value sensing is fed to the SINAMICS DC MASTER via an analog input. The device-internal armature current actual value sensing is not active. | | |
| Value: | 0: I _a sensing internal 1: Sensing via analog input 3 (X177.1/2) 2: Sensing via analog input 4 (X177.3/4) 3: Sensing via analog input 5 (X177.5/6) 4: Sensing via analog input 6 (X177.7/8) | | |
| Dependency: | Refer to: p51823, p51824 | | |
| Danger: | For value > 0, the following applies: Incorrect setting of parameter p51853 leads to damaging or destruction of the power unit! | | |
|  | | | |
| Note: | For value > 0, the following applies: This is to be used only in certain special cases, where the accuracy of the device-internal armature current actual value sensing is regarded as insufficient. The following applies for the Control Module: p51852 = 0: p51824 is active p51852 > 0: p51824 is not active | | |

| p51853 | | Current actual value sensing analog input voltage at rated I_a / I_{sen} AI V at I_a | |
|---------------------|--|---|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.100 [V] | 10.000 [V] | 5.000 [V] |
| Description: | Sets the voltage for the external current actual value sensing. This voltage is supplied via the input terminal X177:x/x at armature rated current. | | |

2 Parameters

2.2 List of parameters

Dependency: Refer to: p51823, p51824
Danger: The following applies for p51852 > 0:
 Incorrect setting of parameter p51853 leads to damaging or destruction of the power unit!

Note: The following applies for the DC converter:
 p51852 = 0: p51853 is not active
 p51852 > 0: p51853 is active
 The following applies for the Control Module:
 p51852 = 0: p51823 is active
 p51852 > 0: p51853 is active, p51823 is not active

p51854 Armature voltage sensing configuration / Va_sens config

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0 | 2 | 0 |

Description: Sets the configuration for the armature voltage sensing.
 Value = 0:
 The device-internal armature voltage sensing is effective.
 Value = 1:
 An external armature voltage sensing is entered via analog input 2 (X177.29/30). The device-internal armature voltage sensing is not effective.
 Value = 2: both

Value:
 0: Va sensing internal
 1: Va sensing via AI 2 (X177.29/30)
 2: Va sensing internal & via AI 2 (X177.29/30)

Dependency: Refer to: p51823, p51824

Notice: The following applies for p51854 = 0 --> 1 or 2:
 The device must be restarted. Only then does the armature voltage sensing operate correctly via analog input 2.

Note: AI: Analog Input

p51855 Armature voltage sensing analog input reference voltage / Va_sens AI V_ref

| | | | |
|---------|-----------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 10.000 [V] | 2000.000 [V] | 10.000 [V] |

Description: Sets the armature voltage, which corresponds to a +10 V voltage at analog input 2 (X177.29/30).

Dependency: Refer to: p51854

Note: The parameter is only effective for p51854 = 1.

p51861[0...n] Capacitance of the DC link capacitor / Capac_DClink

| | | | |
|---------|-----------------------------------|-------------------------------|----------------------------|
| DC_CTRL | Can be changed: U, T | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: DDS, p0180 | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | 0.000 [µF] | 10000000.000 [µF] | 1000.000 [µF] |

Description: Load connection: capacitance of the DC link capacitor

| | | | |
|---------------------|---|-------------------------|----------------------------|
| p51862 | CI: Capacitance of the DC link capacitor signal source / C_DC link s_src | | |
| DC_CTRL | Can be changed: T | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 / FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | 1 |
| Description: | Load connection: signal source for varying the capacitance of the DC link capacitor | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52000 | CO: Fixed value 0 % / Fix val 0% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value 0 %. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52001 | CO: Fixed value 100 % / Fix val 100% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value 100 %. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52002 | CO: Fixed value 200 % / Fix val 200% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value 200 %. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52003 | CO: Fixed value -100 % / Fix val -100% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value -100 %. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52004 | CO: Fixed value -200 % / Fix val -200% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value -200 %. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52005 | CO: Fixed value 50 % / Fix val 50% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value 50 %. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52006 | CO: Fixed value 150 % / Fix val 150% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value 150 %. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52007 | CO: Fixed value -50 % / Fix val -50% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value -50 %. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52008 | CO: Fixed value -150 % / Fix val -150% | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output with constant fixed value -150%. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52010 | CO: CUD analog input main setpoint raw value / CUD AI m set raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at the "Main setpoint" analog input (X177.25/26). | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52011 | CO: CUD analog input main setpoint / CUD AI m set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the "Main setpoint" analog input (X177.25/26). | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52012 | CO: CUD analog input main actual value raw value / CUD AI m act raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at the "Main actual value" analog input (XT1.103/104). | | |

| | | | |
|---------------------|--|-------------------------|----------------------------------|
| r52013 | CO: CUD analog input main actual value / CUD AI m act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2075, 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the "Main actual value" analog input (XT1.103/104). | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52014 | CO: CUD analog input select input 1 raw value / CUD AI sel 1 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at the analog "Select input 1" (X177.27/28). | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52015 | CO: CUD analog input select input 1 / CUD AI sel 1 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the analog "Select input 1" (X177.27/28). | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52016 | CO: CUD analog input select input 2 raw value / CUD AI sel 2 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at the analog "Select input 2" (X177.29/30). | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52017 | CO: CUD analog input select input 2 / CUD AI sel 2 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2080 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the analog "Select input 2" (X177.29/30). | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52018 | CO: CUD analog input 3 raw value / CUD AI 3 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at analog input 3 (X177.1/2) on the CUD. | | |
| Dependency: | Refer to: r52019 | | |
| Note: | AI: Analog Input | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52019 | CO: CUD analog input 3 result / CUD AI 3 res | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the conversion result at analog input 3 (X177.1/2) on the CUD. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52020 | CO: CUD analog input 4 raw value / CUD AI 4 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at analog input 4 (X177.3/4) on the CUD. | | |
| Dependency: | Refer to: r52021 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52021 | CO: CUD analog input 4 result / CUD AI 4 res | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2085 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the conversion result at analog input 4 (X177.3/4) on the CUD. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52022 | CO: CUD analog input 5 raw value / CUD AI 5 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at analog input 5 (X177.5/6) on the CUD. | | |
| Dependency: | Refer to: r52023 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52023 | CO: CUD analog input 5 result / CUD AI 5 res | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the conversion result at analog input 5 (X177.5/6) on the CUD. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52024 | CO: CUD analog input 6 raw value / CUD AI 6 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the raw value at analog input 6 (X177.7/8) on the CUD. | | |
| Dependency: | Refer to: r52025 | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52025 | CO: CUD analog input 6 result / CUD AI 6 res | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2090 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the conversion result at analog input 6 (X177.7/8) on the CUD. | | |
| r52026 | CO: CUD analog output 0 value after smoothing / CUD AO 0 v aft sm | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for analog output 0 (X177.49/50) on the CUD. | | |
| Dependency: | Refer to: p50750 | | |
| Note: | AO: Analog Output | | |
| r52027 | CO: CUD analog output 1 value after smoothing / CUD AO 1 v aft sm | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2095 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for analog output 1 (X177.51/52) on the CUD. | | |
| Dependency: | Refer to: p50755 | | |
| Note: | AO: Analog Output | | |
| r52047 | CO: Ramp-function generator braking distance (Unsigned32) / RFG brake dist U32 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 3152 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Display and connector output for the braking distance required as increments of the pulse encoder defined in p0400. The pulse encoder to be used must be selected using p50331. The required braking distance is calculated assuming that the speed setpoint at the ramp-function generator input has been set to 0 and the speed actual value is approaching 0, taking the set ramp-down time and roundings into consideration. | | |
| Note: | For p0400[p50331] = 0, a braking distance of 0 is displayed. The braking distance calculation is only correct if the ramp-down time and the roundings do not change during braking (p50302, r00899.5, p50637, p50638). | | |

| r52048 | | CO: Ramp-function generator braking distance (FloatingPoint32) / RFG br dist float | | |
|---------------------|--|---|----------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3152 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output for the braking distance required as increments of the pulse encoder defined in p0400. The pulse encoder to be used must be selected using p50331. The required braking distance is calculated assuming that the speed setpoint at the ramp-function generator input has been set to 0 and the speed actual value is approaching 0, taking the set ramp-down time and roundings into consideration. | | | |
| Note: | For p0400[p50331] = 0, a braking distance of 0 is displayed. The braking distance calculation is only correct if the ramp-down time and the roundings do not change during braking (p50302, r00899.5, p50637, p50638). | | | |

| r52049 | | Temperature sensor available / Temp_sens avail | | |
|---------------------|---|---|----------------------------|-----------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6960 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the integrated temperature sensors. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Temperature sensor XT5 | Available | Not present |
| | 01 | Temperature sensor XT6 | Available | Not present |
| | 02 | Temperature sensor XT7 | Available | Not present |
| | 03 | Gating module temperature sensor | Available | Not present |
| | | | | FP |
| | | | | 6960 |
| | | | | 6960 |
| | | | | 6960 |
| | | | | 6960 |
| Note: | The display is independent of the temperature sensor status and only indicates the desired state. | | | |

| r52050[0...4] | | CO: Temperature sensor display / Temp sensor disp | | |
|----------------------|--|--|----------------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8047, 8048 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output for the device's temperature outputs. | | | |
| Index: | [0] = Temperature 1 [1] = Temperature 2 [2] = Temperature 3 [3] = Gating module temperature [4] = CUD Control Unit temperature | | | |
| Note: | Temperature sensors which are not in use return a high negative value (approx. -200 °C). | | | |

| r52051 | | CO: Motor temperature output / Mot temp outp | | |
|---------------------|---|---|----------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8030 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output for the motor temperature. | | | |

2 Parameters

2.2 List of parameters

Scaling:

0 % corresponds to 0 °C

100 % corresponds to 100 °C

Dependency:

The parameter is only valid for the following temperature sensors with a continuous characteristic:

- KTY84 (p50490 = 1)
- PT100 (p50490 = 6)
- NTC thermistor K227 (p50490 = 7)
- PT1000 (p50490 = 8)

Refer to: p50490

Note:

If p50490 = 0, 2 to 5, a value of 0 is displayed.

r52100

CO: Armature firing angle after limiting / Fir ang aft lim

DC_CTRL

Can be changed: -

Calculated: -

Access level: 1

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: 6860

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min

Max

Factory setting

- [%]

- [%]

- [%]

Description:

Display and connector output for the armature firing angle after limiting by the auto-reversing stage.

r52101

CO: Armature firing angle before limiting / Fir ang bef lim

DC_CTRL

Can be changed: -

Calculated: -

Access level: 1

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: 6860, 6900

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min

Max

Factory setting

- [%]

- [%]

- [%]

Description:

Display and connector output for the armature firing angle before limiting by the auto-reversing stage.

r52102

CO: CI-loop arm curr ctrl prectr value + arm curr controller output / Ia ctr prec+outp

DC_CTRL

Can be changed: -

Calculated: -

Access level: 1

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: 6855

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min

Max

Factory setting

- [%]

- [%]

- [%]

Description:

Display and connector output for the output to the armature gating module (pre-control value + armature current controller output).

r52103

CO: Armature current flow duration / Arm I_flow dur

DC_CTRL

Can be changed: -

Calculated: -

Access level: 2

Data type: FloatingPoint32

Dyn. index: -

Func. diagram: 6850

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min

Max

Factory setting

- [%]

- [%]

- [%]

Description:

Displays the armature current flow duration/time ratio between 2 consecutive firing pulses.

| | | | |
|----------------------|---|-------------------------|----------------------------------|
| r52104 | CO: Armature current increase / Arm I_incr | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Display and connector output for the current increase in the armature (dIa/dt) in A/s. | | |
| r52106 | Torque direction requested / Tqe dir requ | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Integer16 | Dyn. index: - | Func. diagram: 6860 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the requested torque direction. | | |
| Note: | Value = 0: No torque direction requested Value = 1: Torque direction 1 requested Value = 2: Torque direction 2 requested | | |
| r52107 | CO: Arm curr act val averaged over 6 cycles with reference to motor / Ia act 6 mot cyc | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851, 6854 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the signed armature current actual value. The value is averaged over 6 firing cycles and referenced to the rated motor current. | | |
| r52108[0...2] | CO: Phase currents rms value / I_phase rms | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the rms values of the phase currents. The values are averaged over six firing cycles. 100 % corresponds to $\sqrt{2/3} * r50072[1] = 0.8165 * r50072[1]$ The reference value is that rms value of the phase currents that is obtained if the rated DC current flows in the B6 bridge. | | |
| Index: | [0] = Phase U [1] = Phase V [2] = Phase W | | |

| | | | |
|---------------------|--|-------------------------|--|
| r52109 | CO: Armature current actual value averaged over 6 cycles / la act 6 cyc | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851, 6902, 8038, 8042, 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the signed armature current actual value. The value is averaged over 6 firing cycles. | | |
| r52110 | CO: CI-loop arm curr control curr controller output / la ctr outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the closed-loop armature current control output. | | |
| r52111 | CO: CI-loop arm curr control curr controller outp proportional comp / la ctr outp P comp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the proportional component of closed-loop armature current control. | | |
| r52112 | CO: CI-loop arm curr control curr controller outp integral comp / la ctr outp I comp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the integral component of closed-loop armature current control. | | |
| r52113 | CO: CI-loop arm curr control curr setpoint/actual value difference / la ctr set/act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the setpoint/actual value difference of closed-loop armature current control. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52114 | CO: Armature current actual value averaged over 1 cycle / I_a act 1 cyc | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the signed armature current actual value. The value is averaged over 1 firing cycle. | | |
| r52115 | CO: CI-loop arm curr control curr controller actual value abs value / I_a ctr I_{act} abs | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the absolute value of the current controller actual value for closed-loop armature current control. | | |
| r52116 | CO: Armature current actual value internal absolute value / A I_{act} int abs | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the absolute value of the internal armature current actual value. The value is averaged over one firing cycle. | | |
| r52117 | CO: Armature current actual value internal signed / A I_{act} int sign | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the signed internal armature current actual value. The value is averaged between the centers of the firing intervals. | | |
| r52118 | CO: CI-loop arm curr control curr controller setpoint absolute value / I_a ctr I_{set} abs | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the absolute value of the current controller setpoint for closed-loop armature current control. | | |
| Dependency: | Refer to: r50020 | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52119 | CO: CI-loop arm curr control curr controller setpoint / la ctr I_set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the current controller setpoint prior to absolute value generation for closed-loop armature current control. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52120 | CO: Curr limitation arm curr setpoint before red gearbox stressing / la_set bef gear | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6845 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the current controller setpoint before reduced gearbox stressing. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52121 | CO: Closed-loop armature current control pre-control output / la ctr prec outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the armature current pre-control output. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------------|
| r52122 | CO: EMF actual value armature current pre-control / EMF act prec | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6852, 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the EMF actual value for armature current pre-control. | | |
| Note: | 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------------|
| r52123 | CO: EMF actual value signed / EMF act sign | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6852, 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the signed unsmoothed EMF actual value. | | |
| Note: | 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52124 | CO: Active power for a pure ohmic load / P_act ohm load | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the active power for a pure ohmic load (= r52126 * r52127). The value is averaged over six firing cycles. | | |
| Note: | This quantity is used for heating applications (rms value current control or rms value power control). | | |
| r52125 | CO: Curr limitation arm curr setpoint aft reduced gearbox stressing / Ia set aft gear | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6845 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the current controller setpoint after reduced gearbox stressing. | | |
| r52126 | CO: Armature current actual value rms value / Ia_act rms | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the rms value of the internal armature current actual value. The value is averaged over 6 firing cycles, and referred to the rated device current (r50072[1]). | | |
| r52127 | CO: Armature voltage rms value / Ua_act rms | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the rms value of the armature voltage. The value is averaged over six firing cycles. 100 % corresponds to $(3 * \sqrt{2}) / \pi * p50078[0] = 1.35 * p50078[0]$ (= U_di0_rated) | | |
| r52128 | CO: Firing angle linearized / Firing angle lin | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6858 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the linearized firing angle. | | |
| Dependency: | Refer to: p50600 | | |

2 Parameters

2.2 List of parameters

Note: This parameter is calculated when Ua_set is fed into the gating unit.
-100 % corresponds to 180 degrees
+100% corresponds to 0 degrees

r52129 CO: n-dependent current limitation armature current setpoint limit / I_lim la set lim

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8040 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the armature current setpoint after speed-dependent current limitation.
Dependency: Refer to: p50109

r52130 CO: I2t monitoring armature current setpoint after limitation / I2t la set n lim

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the armature current setpoint after limitation by means of I2t monitoring as a percentage of r50072[1].

r52131 CO: Current limitation minimum positive armature current limit / la lim pos min

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6840, 6845 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the minimum positive armature current limit.

r52132 CO: Current limitation maximum negative armature current limit / la lim neg max

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6840, 6845 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the maximum negative armature current limit.

r52133 CO: Current limitation setpoint before limitation (with add_s) / Set bef lim w add

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6840, 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the armature current controller setpoint before limitation (with additional setpoint).

| | | | |
|----------------------|---|-------------------------|----------------------------|
| r52134 | CO: Speed limiting controller curr controller setp before limitation / la set bef lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the current controller setpoint before current limitation. | | |
| r52135[0...6] | CO: Current limitation default for torque direction II / la lim def t d II | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the variable torque limiting defaults in torque direction II. | | |
| Dependency: | Refer to: p50603, p50604 | | |
| Note: | Connector output r52135[0 to 6] is the inverse of p50603[0 to 6] and interconnected by default via connector input p50604[0 to 6]. | | |
| r52136 | CO: Speed limiting controller upper torque limit effective / n_lim t lim up max | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the effective upper torque limit (maximum value) on the speed limiting controller. | | |
| Dependency: | Refer to: r52137 | | |
| r52137 | CO: Speed limiting controller lower torque limit effective / n_lim t lim l min | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the effective lower torque limit (minimum value) on the speed limiting controller. | | |
| Dependency: | Refer to: r52136 | | |
| r52138[0...4] | CO: Torque limiting negative default / Tqe lim neg def | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6825 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the defaults for variable negative torque limiting. | | |
| Dependency: | Refer to: p50606 | | |
| Note: | Connector output r52138[0 to 4] is the inverse of p50605[0 to 4]; it is interconnected by default via connector input p50606[0 to 4]. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52140 | CO: Torque limiting torque setpoint / Tqe lim set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6835 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the torque setpoint. | | |
| r52141 | CO: Torque limiting torque setpoint after limiting / T lim set aft lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the torque setpoint after limiting. | | |
| r52142 | CO: Armature current actual value sensing torque actual value / A act val s tq act | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the torque actual value as a percentage of r50072[1] * p50102. | | |
| r52143 | CO: Torque limiting armature torque limit min pos / T lim arm min pos | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the minimum positive torque limit for the armature. | | |
| r52144 | CO: Torque limiting armature torque limit max neg / T lim arm max neg | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the maximum negative torque limit for the armature. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------------|
| r52145 | CO: Torque limiting setpoint before limiting (with add_s) / Set bef lim w add | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the torque setpoint before limiting (with additional setpoint). | | |
| r52147 | CO: Torque limiting setpoint before limiting (without add_s) / Set b lim w/o add | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830, 6840 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the torque setpoint before limiting (without additional setpoint). | | |
| r52148 | CO: Speed controller torque setpoint / n_ctr tq set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the speed controller's output value with friction and inertia compensation and additional torque setpoint. | | |
| r52149 | CO: Torque actual value in relation to p50100 * p50102 / Tqe act ref | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6851 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the torque actual value referenced to p50100 * p50102. | | |
| r52150 | CO: Speed controller setpoint change / n_ctr set chng | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the setpoint change on the speed controller. | | |
| Dependency: | Refer to: p50540, r52174 | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|--|--|
| r52152 | CO: Speed controller setpoint/actual value difference output / Set/act dif outp | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6820 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for acceleration dependent upon setpoint/actual value difference. In the case of the "Acceleration dependent upon setpoint/actual value difference" function, only the proportion of the speed controller's setpoint/actual value difference which has an absolute value in excess of the threshold (p50543) is switched through. | | |
| Dependency: | Refer to: p50541, p50543 | | |

| | | | |
|---------------------|---|--|--|
| r52154 | CO: Speed controller reference model output / n_ctrl ref outp | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6812 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the reference model for the speed controller. | | |
| Dependency: | Refer to: p50237, p50238, p50239 | | |

| | | | |
|---------------------|--|--|--|
| r52155 | CO: Speed controller reference model setpoint-actual val difference / n_ctr ref set-act | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6812 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the setpoint-actual value difference after the influence of the reference model for the speed controller. | | |
| Dependency: | Refer to: p50621, p50622, p50623, p50624 | | |

| | | | |
|---------------------|---|--|--|
| r52156 | CO: Lead/lag element output value / Lead/lag output | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6810 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the output value of the lead/lag element. | | |
| Dependency: | Refer to: p50207, p50208, p50209 | | |

| | | | |
|---------------------|---|--|--|
| r52160 | CO: Speed controller output value / n_ctr outp val | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 1 Func. diagram: 6815 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the speed controller's output value. | | |

| | | | |
|---------------------|---|-------------------------|--|
| r52161 | CO: Speed controller proportional component output value / P comp outp val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the output value of the proportional component on the speed controller. | | |
| r52162 | CO: Speed controller integral component output value / I_comp outp val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6815 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the integral component of the speed controller's output value. | | |
| r52164 | CO: Speed controller setpoint/actual value difference / n_ctr set/act dif | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6815, 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the speed setpoint/actual value difference used for the speed controller. | | |
| Dependency: | Refer to: p50620 | | |
| r52165 | CO: Speed controller setpoint/actual value difference / n_ctr set/act dif | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the result of the setpoint/actual value difference on the speed controller. | | |
| Dependency: | Refer to: p50621, p50622, p50623, p50624 | | |
| Note: | The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624). | | |
| r52166 | CO: Speed controller actual value selection absolute value / Sel act abs | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810, 6815, 6825, 6900, 8040, 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the selected speed actual value as an absolute value on the speed controller. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------------|
| r52167 | CO: Speed controller actual value selection / Act sel | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the selected speed actual value on the speed controller. | | |
| r52168 | CO: Derivative-action element negative output value / D elem neg outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the negative output value of the derivative-action element. | | |
| Dependency: | Refer to: p50205, p50206, p50627, r52169 | | |
| r52169 | CO: Derivative-action element output value / D elem outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the output value of the derivative-action element. | | |
| Dependency: | Refer to: p50205, p50206, p50627, r52168 | | |
| r52170 | CO: RFG speed setpoint after limiting / RFG n_set aft lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 1720, 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the speed setpoint after limiting. | | |
| r52171 | CO: Friction/inertia compensation output value / Comp outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6815, 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the compensation output value for friction and inertia. | | |
| Dependency: | Refer to: p50223 | | |
| Note: | If p50223 = 1: This value is added to the speed controller's output. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------------|
| r52172 | CO: Friction compensation output value / Fric comp outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the friction compensation output value. | | |
| r52173 | CO: Inertia compensation output value / Inert comp outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the moment of inertia compensation output value. | | |
| Dependency: | Refer to: p50697 | | |
| Note: | If p50697 = 1 signal: This value is added to the friction and moment of inertia compensation output. | | |
| r52174 | CO: Speed controller setpoint smoothed / n_ctr set smooth | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810, 6820 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the smoothed setpoint on the speed controller. | | |
| r52176 | CO: Speed controller droop output value / Droop outp val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6805 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the droop output value on the speed controller. | | |
| r52177 | CO: Band-stop 1 output value / Band-st 1 outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for output value of band-stop 1. | | |
| Dependency: | Refer to: p50201, p50202, p50628 | | |

| | | | |
|--|---|-------------------------|----------------------------|
| r52178 | | | |
| CO: Band-stop 2 output value / Band-st 2 outp | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for output value of band-stop 2. | | |
| Dependency: | Refer to: p50203, p50204, p50629 | | |
| <hr/> | | | |
| r52179 | | | |
| CO: Speed controller actual value smoothed / n_ctr act sm | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the smoothed actual value on the speed controller. | | |
| <hr/> | | | |
| r52181 | | | |
| CO: RFG effective positive setpoint limit / RFG set lim pos | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the effective positive setpoint limit with "Limiting after ramp-function generator". | | |
| <hr/> | | | |
| r52182 | | | |
| CO: RFG effective negative setpoint limit / RFG set lim neg | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the effective negative setpoint limit with "Limiting after ramp-function generator". | | |
| <hr/> | | | |
| r52183 | | | |
| CO: RFG speed setpoint before limiting / RFG n_set bef lim | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the speed setpoint with "Limiting after ramp-function generator". | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52184 | CO: Setpoint processing main setpoint lim neg default 0 / M set neg def 0 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the default value of variable negative main setpoint limiting with index 0. | | |
| Dependency: | Refer to: p50642 | | |
| Note: | The value represents the inversion of p50642[0]. | | |
| r52185 | CO: Setpoint processing main setpoint lim neg default 1 / M set neg def 1 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the default value of variable negative main setpoint limiting with index 1. | | |
| Dependency: | Refer to: p50642 | | |
| Note: | The value represents the inversion of p50642[1]. | | |
| r52186 | CO: Setpoint processing main setpoint lim neg default 2 / M set neg def 2 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the default value of variable negative main setpoint limiting with index 2. | | |
| Dependency: | Refer to: p50642 | | |
| Note: | The value represents the inversion of p50642[2]. | | |
| r52187 | CO: Setpoint processing main setpoint lim neg default 3 / M set neg def 3 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the default value of variable negative main setpoint limiting with index 3. | | |
| Dependency: | Refer to: p50642 | | |
| Note: | The value represents the inversion of p50642[3]. | | |

2 Parameters

2.2 List of parameters

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|---------------------|--|
| r52190 | CO: RFG speed setpoint output / RFG n_set outp |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] |
| | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] |
| | Access level: 1 Func. diagram: 3150, 3151, 3152, 3155 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the speed setpoint calculated by the ramp-function generator. |

| | |
|---------------------|--|
| r52191 | CO: RFG dy/dt rise in relation to p50542 / RFG dy/dt p50542 |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] |
| | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] |
| | Access level: 2 Func. diagram: 3152 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the rise of the ramp-function generator output in relation to the time set in p50542. |
| Dependency: | Refer to: p50542 |

| | |
|---------------------|--|
| r52192 | CO: RFG setpoint before ramp-function generator / RFG set bef RFG |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] |
| | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] |
| | Access level: 1 Func. diagram: 3151, 3152 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the setpoint before the ramp-function generator. |

| | |
|---------------------|--|
| r52193 | CO: Setpoint processing output to ramp-function generator / Outp to RFG |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] |
| | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] |
| | Access level: 1 Func. diagram: 3135 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the setpoint to the ramp-function generator. |
| Dependency: | Refer to: p50648 |

| | |
|---------------------|--|
| r52194 | CO: Setpoint processing setpoint after reduction / Set after reduc |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] |
| | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] |
| | Access level: 1 Func. diagram: 3135 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the sum "main setpoint (limited) + additional setpoint" after setpoint reduction. |
| Dependency: | Refer to: p51607, p51608, r52195 |
| Note: | Setpoint reduction is set via p51608 and activated/de-activated via binector input p51607. |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52195 | CO: Setpoint processing setpoint before reduction / Set before reduc | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the sum "main setpoint (limited) + additional setpoint" before setpoint reduction. | | |
| Dependency: | Refer to: p51607, p51608, r52194 | | |
| Note: | Setpoint reduction is set via p51608 and activated/de-activated via binector input p51607. | | |
| r52196 | CO: Setpoint processing main setpoint upper limit effective / M set up lim eff | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the effective upper limit in the case of main setpoint limiting. | | |
| r52197 | CO: Setpoint processing main setpoint lower limit effective / M set low lim eff | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the effective lower limit in the case of main setpoint limiting. | | |
| r52198 | CO: Setpoint processing main setpoint before limiting / M_setp bef lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3135 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the main setpoint before setpoint limiting. | | |
| r52201 | CO: Creep setpoint output / Creep set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the sum of all creep setpoints (p504441[0 to 7]). | | |
| Dependency: | Refer to: p50440, p50441 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52202 | CO: Jog setpoint output / Jog set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3125 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the sum of all jog setpoints (p50436[0 to 7]). | | |
| Dependency: | Refer to: p50435, p50436 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52203 | CO: Oscillation square-wave generator setpoint / Oscill sq-w gen | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the square-wave generator. | | |
| Dependency: | Refer to: p50480, p50481, p50482, p50483 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52204 | CO: Fixed setpoint output / Fix set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the sum of all fixed setpoints (p50431[0 to 7]). | | |
| Dependency: | Refer to: p50430, p50431 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52206 | CO: Creep setpoint output after selection / Cr set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3130 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the setpoint dependent upon creep. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52207 | CO: Jog setpoint output after selection / Jog set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3125 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the setpoint dependent upon jog. | | |

| | | | |
|----------------------|--|-------------------------|----------------------------|
| r52208 | CO: Oscillation output after selection / Oscil outp aft sel | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3120 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the setpoint dependent upon oscillation selection. | | |
| Note: | If oscillation is selected (p50485 = 1 signal): r52208 = r52203 If oscillation is de-selected (p50485 = 0 signal): r52208 = p50484 | | |
| r52209 | CO: Fixed setpoint output after selection / Fix set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3115 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the sum of all fixed setpoints following selection of at least one connector. | | |
| Dependency: | Refer to: p50430, p50431 | | |
| Note: | If at least one connector has been selected via p50430[0 to 7]: r52209 = r52204 If no connectors have been selected via p50430[0 to 7]: r52209 = r52210 | | |
| r52210[0...3] | CO: RFG positive limiting inverted after RFG / RFG pos lim inv | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the signals interconnected and inverted via connector input p50632[0 to 3]. | | |
| Index: | [0] = Signal p50632[0] inverted [1] = Signal p50632[1] inverted [2] = Signal p50632[2] inverted [3] = Signal p50632[3] inverted | | |
| r52211 | CO: Fixed setpoint output after AOP30 / Fix set outp AOP | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3113 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the fixed setpoint after intervention from the advanced operator panel 30 (AOP30). | | |
| Dependency: | Refer to: p50433 | | |

2 Parameters

2.2 List of parameters

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|---------------------|--|-------------------------|----------------------------|
| r52240 | CO: Motorized potentiometer output / MotP outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output on the motorized potentiometer. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52241 | CO: Motorized potentiometer output dy/dt / MotP outp dy/dt | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the dy/dt output on the motorized potentiometer. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52242 | CO: Motorized potentiometer setpoint / MotP set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3110 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the setpoint on the motorized potentiometer. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52250 | CO: Field firing angle after limiting / Fir ang aft lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the field firing angle after limiting by the auto-reversing stage. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52251 | CO: Field firing angle before limiting / Fir ang bef lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6915 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Displays the field firing angle before limiting by the auto-reversing stage. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52252 | CO: CI-loop field curr ctrl prectr and field curr controller output / If_ctr prec+ctrl | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the output value from pre-control and the field current controller. | | |
| r52260 | CO: Closed-loop field current control current controller output / If_ctr I_ctr outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the output in the case of closed-loop field current control. | | |
| r52261 | CO: CI-loop field curr control curr controller proportional comp / If_ctr I_ctr P com | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the proportional component in the case of closed-loop field current control. | | |
| r52262 | CO: CI-loop field curr control curr controller integral comp / If_ctr I_ctr I com | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the integral component in the case of closed-loop field current control. | | |
| r52263 | CO: CI-loop field curr ctrl current controller set/act val diff / If_ctr I_ctr dif | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the setpoint/actual value difference in the case of closed-loop field current control. | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|---|--|
| r52265 | CO: CI-loop field curr ctrl current controller actual value / If_ctr act | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 | Calculated: - Dyn. index: - | Access level: 1 Func. diagram: 6905, 6910, 8025, 8044 |
| | P-Group: - Not for motor type: - | Unit group: - Scaling: PERCENT | Unit selection: - Expert list: 1 |
| | Min - [%] | Max - [%] | Factory setting - [%] |
| Description: | Display and connector output of the field current controller's actual value. | | |

| | | | |
|---------------------|--|---|--|
| r52266 | CO: Field current actual value internal absolute value / If_act int abs | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 | Calculated: - Dyn. index: - | Access level: 1 Func. diagram: 6912 |
| | P-Group: - Not for motor type: - | Unit group: - Scaling: PERCENT | Unit selection: - Expert list: 1 |
| | Min - [%] | Max - [%] | Factory setting - [%] |
| Description: | Displays the absolute value of the internal field current actual value as a percentage of p50073.01. | | |

| | | | |
|---------------------|---|---|--|
| r52268 | CO: Closed-loop field current control current controller setpoint / If_ctr set | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 | Calculated: - Dyn. index: - | Access level: 1 Func. diagram: 6910, 8025, 8044 |
| | P-Group: - Not for motor type: - | Unit group: - Scaling: PERCENT | Unit selection: - Expert list: 1 |
| | Min - [%] | Max - [%] | Factory setting - [%] |
| Description: | Display and connector output of the field current controller's setpoint. | | |

| | | | |
|---------------------|--|---|--|
| r52271 | CO: Closed-loop field current control pre-control output / If_ctr prec outp | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 | Calculated: - Dyn. index: - | Access level: 1 Func. diagram: 6910 |
| | P-Group: - Not for motor type: - | Unit group: - Scaling: PERCENT | Unit selection: - Expert list: 1 |
| | Min - [%] | Max - [%] | Factory setting - [%] |
| Description: | Display and connector output of pre-control for closed-loop field current control. | | |

| | | | |
|---------------------|---|---|--|
| r52273 | CO: Field current setpoint limiting upper limit output / If_lim up lim | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 | Calculated: - Dyn. index: - | Access level: 2 Func. diagram: 6905 |
| | P-Group: - Not for motor type: - | Unit group: - Scaling: PERCENT | Unit selection: - Expert list: 1 |
| | Min - [%] | Max - [%] | Factory setting - [%] |
| Description: | Display and connector output for the upper limit of the field current setpoint. | | |
| Dependency: | Refer to: r50073, p50102, p50613 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------------|
| r52274 | CO: Field current setpoint limiting lower limit output / If lim low lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the lower limit of the field current setpoint. | | |
| Dependency: | Refer to: p50103, p50614 | | |
| r52275 | CO: Field current setpoint limiting output after limiting / If lim outp lim | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6905, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the field current setpoint after field current setpoint limiting. | | |
| Dependency: | Refer to: p50611 | | |
| r52276 | CO: Field current setpoint limiting output before limiting / If lim outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6905 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the field current setpoint before field current setpoint limiting. | | |
| Dependency: | Refer to: p50611 | | |
| r52277 | CO: EMF controller pre-control and controller output after selection / EMF prec+ctrl sel | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output from pre-control and EMF controller after selection. If p50081 = 0: --> r52277 = 100% If p50081 = 1: --> r52277 = Sum of EMF controller and EMF pre-control outputs | | |
| Dependency: | Refer to: p50081 | | |

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52278 | CO: EMF controller pre-control and controller output / EMF prec+ctrl outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the sum of the outputs from EMF pre-control and the EMF controller. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52280 | CO: EMF controller output / EMF ctr outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output on the EMF controller. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52281 | CO: EMF controller proportional component output / EMF ctr P com outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the proportional component on the EMF controller. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52282 | CO: EMF controller integral component output / EMF ctr I com outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the integral component on the EMF controller. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52283 | CO: EMF controller setpoint/actual value difference / EMF ctr dif | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the setpoint/actual value difference on the EMF controller. | | |

r52284 CO: EMF controller setpoint/actual value difference after droop / EMF ctr dif droop

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output of the setpoint/actual value difference after droop on the EMF controller.

r52285 CO: EMF controller actual value / EMF ctr act

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the absolute value of the actual value on the EMF controller.

Dependency: Refer to: p50616

Note: A value of 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$.

r52286 CO: Average absolute value of EMF actual value / EMF act abs avg

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Displays the absolute value of the EMF actual value averaged over the last 3 firing periods (r52287).

Dependency: Refer to: r52287

Note: 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$

r52287 CO: Average EMF actual value / EMF act avg

| | | | |
|---------|-----------------------------------|-------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6810, 6902, 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Displays the signed EMF actual value averaged over the last 3 firing periods.

Note: 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$

r52288 CO: EMF controller setpoint / EMF ctr set

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the absolute value of the setpoint on the EMF controller.

Dependency: Refer to: p50615

Note: A value of 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$.

| | | | |
|---------------------|--|-------------------------|--|
| r52289 | CO: EMF controller setpoint absolute value / EMF ctr set abs | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the absolute value of the setpoint on the EMF controller. | | |
| Dependency: | Refer to: r50039, p50100, p50101, p50110 | | |
| Note: | A value of 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$. | | |
| r52290 | CO: Closed-loop field current control motor flux output / If ctr motor flux | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6830, 6835, 6851, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the motor flux in the case of closed-loop field current control. The value is a percentage of p50102. | | |
| r52291 | CO: Armature voltage actual value absolute value / Ua act abs | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the actual value of the armature voltage as an absolute value. | | |
| Dependency: | Refer to: r52292 | | |
| Note: | 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$ | | |
| r52292 | CO: Armature voltage signed actual value / Ua act signed | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the signed actual value of the armature voltage. | | |
| Dependency: | Refer to: r52291 | | |
| Note: | 100% corresponds to $p50078[0] * (3 * \sqrt{2}) / \text{Pi}$ | | |
| r52293 | CO: EMF controller pre-control output / EMF ctr prec outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 1 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6900, 6910 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for pre-control on the EMF controller. | | |

Dependency: Refer to: p50273

r52294 CO: EMF setpoint reduction output / EMF setp_red outp

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6895 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the EMF setpoint reduction.

Dependency: Refer to: p50287, p50288

r52295 CO: Field voltage actual value absolute value / Uf act abs

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the actual value of the field voltage as an absolute value.

Dependency: Refer to: r52296

Note: 100% corresponds to $p50078[1] * (3 * \sqrt{2}) / \text{Pi}$.

r52296 CO: Field voltage actual value signed / Uf act val sign

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output for the signed actual value of the field voltage.

Dependency: Refer to: r52295

Note: 100% corresponds to $p50078[1] * (3 * \sqrt{2}) / \text{Pi}$.

r52297 CO: Output voltage of the thyristor bridge (1C/1D) / U_out 1C/1D

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Output voltage of the thyristor bridge (1C/1D) as percentage (average value between 2 firing pulses)

Note: 100% corresponds to $p50078[1] * (3 * \sqrt{2}) / \text{Pi}$.

2 Parameters

2.2 List of parameters

| | | | |
|---------------------|---|--|--|
| r52298 | CO: Load connection supplementary current setpoint output / Suppl Ia_set off | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 3 Func. diagram: 6902 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Load connection: Display and connector output for the supplementary current setpoint. | | |
| Note: | This is used to increase the dynamic response of the voltage control regarding disturbing variable changes when using the SINAMICS DCM as I/R unit or supplying a DC busbar. A supplementary current setpoint is input, which is calculated according to the following formula: $I_{(set,suppl)}=I_d-C*(dU_d)/dt$ 100 % corresponds to p50072[1] | | |

| | | | |
|---------------------|---|--|--|
| r52301 | CO: Armature line voltage U-V / Arm V_line U-V | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6950 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the line voltage U-V in the armature circuit. | | |

| | | | |
|---------------------|---|--|--|
| r52302 | CO: Armature line voltage V-W / Arm V_line V-W | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6950 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the line voltage V-W in the armature circuit. | | |

| | | | |
|---------------------|---|--|--|
| r52303 | CO: Armature line voltage W-U / Arm V_line W-U | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6950 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the line voltage W-U in the armature circuit. | | |

| | | | |
|---------------------|---|--|--|
| r52304 | CO: Field line voltage / Field V_line | | |
| DC_CTRL | Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: - Min - [%] | Calculated: - Dyn. index: - Unit group: - Scaling: PERCENT Max - [%] | Access level: 2 Func. diagram: 6910, 6952 Unit selection: - Expert list: 1 Factory setting - [%] |
| Description: | Display and connector output for the line voltage in the field circuit. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------------|
| r52305 | CO: Average armature line voltage / Arm V_line avg | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950, 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the average line voltage over the 3 phases in the armature circuit. | | |

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|---------------------|---|-------------------------|----------------------------------|
| r52306 | CO: Armature line frequency / Arm f_line | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855, 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the line frequency in the armature circuit. The value is a percentage of 50 Hz. | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52307 | CO: Average motor power supplied / Mot P supp avg | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the average motor power supplied. | | |
| Dependency: | Refer to: r52109, r52287 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52309 | CO: Calculated motor temperature rise / Calc mot temp rise | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8038 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the calculated motor temperature rise. | | |
| Dependency: | Refer to: p50114 Refer to: A60037, F60137 | | |

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|---------------------|--|-------------------------|----------------------------|
| r52310 | CO: I2t monitoring thyristor temperature rise / I2t thyr temp rise | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the calculated thyristor temperature rise as a percentage of the maximum temperature. | | |

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|----------------------|--|-------------------------|----------------------------|
| r52311[0...1] | CO: Current actual value of the parallel power units / la par_power_unit | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the current actual values of the cabinet devices with power units connected in parallel. | | |
| | Only active for 6RM80 with options Z04, Z05, Z07, Z13 and Z15 | | |
| Index: | [0] = Power unit 1 [1] = Power unit 2 | | |
| r52312[0...1] | CO: I2T thyristor temperature rise of the parallel power units / I2T par_power unit | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 8042 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the thyristor temperature rise of the cabinet devices with power units connected in parallel. | | |
| Index: | [0] = Power unit 1 [1] = Power unit 2 | | |
| Note: | This parameter is only active for 6RM80 devices with options Z04, Z05, Z07, Z13 and Z15. | | |
| r52316 | CO: Field line frequency / Field f_line | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the field line frequency. The value is a percentage of 50 Hz. | | |
| r52320 | CO: Armature current control counter EMF ratio / V_counter_ratio | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6855 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Display and connector output of the counter EMF ratio EMF/V_line. | | |
| Dependency: | Refer to: r52122, r52305 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52350 | CO: Adaptation armature current control output / Adapt Ia_ctrl outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6853 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the armature current controller adaptation. | | |
| Dependency: | Refer to: p50572, p50573, p50574 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52355 | CO: Adaptation field current control output / Adapt If_ctrl outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6908 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the field current controller adaptation. | | |
| Dependency: | Refer to: p50577, p50578 | | |

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|---------------------|---|-------------------------|----------------------------|
| r52401 | CO: Fixed value 1 / Fix val 1 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 1 set in p50401. | | |
| Dependency: | Refer to: p50401 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52402 | CO: Fixed value 2 / Fix val 2 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 2 set in p50402. | | |
| Dependency: | Refer to: p50402 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52403 | CO: Fixed value 3 / Fix val 3 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 3 set in p50403. | | |
| Dependency: | Refer to: p50403 | | |

2 Parameters

2.2 List of parameters

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|---------------------|---|-------------------------|----------------------------|
| r52404 | CO: Fixed value 4 / Fix val 4 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 4 set in p50404. | | |
| Dependency: | Refer to: p50404 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52405 | CO: Fixed value 5 / Fix val 5 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 5 set in p50405. | | |
| Dependency: | Refer to: p50405 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52406 | CO: Fixed value 6 / Fix val 6 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 6 set in p50406. | | |
| Dependency: | Refer to: p50406 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52407 | CO: Fixed value 7 / Fix val 7 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 7 set in p50407. | | |
| Dependency: | Refer to: p50407 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52408 | CO: Fixed value 8 / Fix val 8 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 8 set in p50408. | | |
| Dependency: | Refer to: p50408 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52409 | CO: Fixed value 9 / Fix val 9 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 9 set in p50409. | | |
| Dependency: | Refer to: p50409 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52410 | CO: Fixed value 10 / Fix val 10 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 10 set in p50410. | | |
| Dependency: | Refer to: p50410 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52411 | CO: Fixed value 11 / Fix val 11 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 11 set in p50411. | | |
| Dependency: | Refer to: p50411 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52412 | CO: Fixed value 12 / Fix val 12 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 12 set in p50412. | | |
| Dependency: | Refer to: p50412 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52413 | CO: Fixed value 13 / Fix val 13 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 13 set in p50413. | | |
| Dependency: | Refer to: p50413 | | |

2 Parameters

2.2 List of parameters

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|---------------------|--|-------------------------|----------------------------|
| r52414 | CO: Fixed value 14 / Fix val 14 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 14 set in p50414. | | |
| Dependency: | Refer to: p50414 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52415 | CO: Fixed value 15 / Fix val 15 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 15 set in p50415. | | |
| Dependency: | Refer to: p50415 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52416 | CO: Fixed value 16 / Fix val 16 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Connector output for fixed value 16 set in p50416. | | |
| Dependency: | Refer to: p50416 | | |

| | | | |
|---------------------|--|-------------------------|----------------------------|
| r52451 | CO: Speed controller start pulse positive setpoint / Start pul pos set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the positive setpoint of the start pulse on the speed controller. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52452 | CO: Speed controller start pulse negative setpoint evaluated / Start pul neg set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the negative setpoint of the start pulse on the speed controller. The setpoint is evaluated via p51652. | | |
| Dependency: | Refer to: p51652 | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52453 | CO: Speed controller start pulse negative setpoint / Start pul neg set | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the negative setpoint of the start pulse on the speed controller. | | |
| r52454 | CO: Speed controller start pulse output value / Start pul outp val | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6800 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the output value of the start pulse on the speed controller. | | |
| r52510 | CO: Master switch setpoint output / Set outp | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 3105 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for the setpoint prevailing on the 4-step master switch. | | |
| r52601 | CO: P2P IF receive data word 1 / P2P recv 1 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for word 1 of the receive data on the peer-to-peer interface (P2P IF). | | |
| Dependency: | Refer to: r52606 | | |
| r52602 | CO: P2P IF receive data word 2 / P2P recv 2 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output for word 2 of the receive data on the peer-to-peer interface (P2P IF). | | |
| Dependency: | Refer to: r52607 | | |

2 Parameters

2.2 List of parameters

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|---|--|----------------------------|----------------------------|-----------------|
| r52603 | | | | |
| CO: P2P IF receive data word 3 / P2P rcv 3 | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output for word 3 of the receive data on the peer-to-peer interface (P2P IF). | | | |
| Dependency: | Refer to: r52608 | | | |
| <hr/> | | | | |
| r52604 | | | | |
| CO: P2P IF receive data word 4 / P2P rcv 4 | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output for word 4 of the receive data on the peer-to-peer interface (P2P IF). | | | |
| Dependency: | Refer to: r52609 | | | |
| <hr/> | | | | |
| r52605 | | | | |
| CO: P2P IF receive data word 5 / P2P rcv 5 | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output for word 5 of the receive data on the peer-to-peer interface (P2P IF). | | | |
| Dependency: | Refer to: r52610 | | | |
| <hr/> | | | | |
| r52606.0...15 | | | | |
| CO/BO: P2P IF receive data word 1 bit by bit / P2P rcv 1 bbb | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Binector output for the bit-by-bit interconnection of word 1 of the receive data on the peer-to-peer interface (P2P IF). | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | P2P IF receive data bit 0 | 1 | 0 |
| | 01 | P2P IF receive data bit 1 | 1 | 0 |
| | 02 | P2P IF receive data bit 2 | 1 | 0 |
| | 03 | P2P IF receive data bit 3 | 1 | 0 |
| | 04 | P2P IF receive data bit 4 | 1 | 0 |
| | 05 | P2P IF receive data bit 5 | 1 | 0 |
| | 06 | P2P IF receive data bit 6 | 1 | 0 |
| | 07 | P2P IF receive data bit 7 | 1 | 0 |
| | 08 | P2P IF receive data bit 8 | 1 | 0 |
| | 09 | P2P IF receive data bit 9 | 1 | 0 |
| | 10 | P2P IF receive data bit 10 | 1 | 0 |
| | 11 | P2P IF receive data bit 11 | 1 | 0 |
| | 12 | P2P IF receive data bit 12 | 1 | 0 |
| | 13 | P2P IF receive data bit 13 | 1 | 0 |
| | | | | 9300 |

| | | | | |
|----|----------------------------|---|---|------|
| 14 | P2P IF receive data bit 14 | 1 | 0 | 9300 |
| 15 | P2P IF receive data bit 15 | 1 | 0 | 9300 |

Dependency: Refer to: r52601

r52607.0...15 CO/BO: P2P IF receive data word 2 bit by bit / P2P rcv 2 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for the bit-by-bit interconnection of word 2 of the receive data on the peer-to-peer interface (P2P IF).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|----------------------------|-----------------|-----------------|-----------|
| | 00 | P2P IF receive data bit 0 | 1 | 0 | 9300 |
| | 01 | P2P IF receive data bit 1 | 1 | 0 | 9300 |
| | 02 | P2P IF receive data bit 2 | 1 | 0 | 9300 |
| | 03 | P2P IF receive data bit 3 | 1 | 0 | 9300 |
| | 04 | P2P IF receive data bit 4 | 1 | 0 | 9300 |
| | 05 | P2P IF receive data bit 5 | 1 | 0 | 9300 |
| | 06 | P2P IF receive data bit 6 | 1 | 0 | 9300 |
| | 07 | P2P IF receive data bit 7 | 1 | 0 | 9300 |
| | 08 | P2P IF receive data bit 8 | 1 | 0 | 9300 |
| | 09 | P2P IF receive data bit 9 | 1 | 0 | 9300 |
| | 10 | P2P IF receive data bit 10 | 1 | 0 | 9300 |
| | 11 | P2P IF receive data bit 11 | 1 | 0 | 9300 |
| | 12 | P2P IF receive data bit 12 | 1 | 0 | 9300 |
| | 13 | P2P IF receive data bit 13 | 1 | 0 | 9300 |
| | 14 | P2P IF receive data bit 14 | 1 | 0 | 9300 |
| | 15 | P2P IF receive data bit 15 | 1 | 0 | 9300 |

Dependency: Refer to: r52602

r52608.0...15 CO/BO: P2P IF receive data word 3 bit by bit / P2P rcv 3 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Binector output for the bit-by-bit interconnection of word 3 of the receive data on the peer-to-peer interface (P2P IF).

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|----------------------------|-----------------|-----------------|-----------|
| | 00 | P2P IF receive data bit 0 | 1 | 0 | 9300 |
| | 01 | P2P IF receive data bit 1 | 1 | 0 | 9300 |
| | 02 | P2P IF receive data bit 2 | 1 | 0 | 9300 |
| | 03 | P2P IF receive data bit 3 | 1 | 0 | 9300 |
| | 04 | P2P IF receive data bit 4 | 1 | 0 | 9300 |
| | 05 | P2P IF receive data bit 5 | 1 | 0 | 9300 |
| | 06 | P2P IF receive data bit 6 | 1 | 0 | 9300 |
| | 07 | P2P IF receive data bit 7 | 1 | 0 | 9300 |
| | 08 | P2P IF receive data bit 8 | 1 | 0 | 9300 |
| | 09 | P2P IF receive data bit 9 | 1 | 0 | 9300 |
| | 10 | P2P IF receive data bit 10 | 1 | 0 | 9300 |
| | 11 | P2P IF receive data bit 11 | 1 | 0 | 9300 |
| | 12 | P2P IF receive data bit 12 | 1 | 0 | 9300 |
| | 13 | P2P IF receive data bit 13 | 1 | 0 | 9300 |
| | 14 | P2P IF receive data bit 14 | 1 | 0 | 9300 |
| | 15 | P2P IF receive data bit 15 | 1 | 0 | 9300 |

Dependency: Refer to: r52603

2 Parameters

2.2 List of parameters

| r52609.0...15 | | CO/BO: P2P IF receive data word 4 bit by bit / P2P rcv 4 bbb | | | |
|----------------------|--|---|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Binector output for the bit-by-bit interconnection of word 4 of the receive data on the peer-to-peer interface (P2P IF). | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | P2P IF receive data bit 0 | 1 | 0 | 9300 |
| | 01 | P2P IF receive data bit 1 | 1 | 0 | 9300 |
| | 02 | P2P IF receive data bit 2 | 1 | 0 | 9300 |
| | 03 | P2P IF receive data bit 3 | 1 | 0 | 9300 |
| | 04 | P2P IF receive data bit 4 | 1 | 0 | 9300 |
| | 05 | P2P IF receive data bit 5 | 1 | 0 | 9300 |
| | 06 | P2P IF receive data bit 6 | 1 | 0 | 9300 |
| | 07 | P2P IF receive data bit 7 | 1 | 0 | 9300 |
| | 08 | P2P IF receive data bit 8 | 1 | 0 | 9300 |
| | 09 | P2P IF receive data bit 9 | 1 | 0 | 9300 |
| | 10 | P2P IF receive data bit 10 | 1 | 0 | 9300 |
| | 11 | P2P IF receive data bit 11 | 1 | 0 | 9300 |
| | 12 | P2P IF receive data bit 12 | 1 | 0 | 9300 |
| | 13 | P2P IF receive data bit 13 | 1 | 0 | 9300 |
| | 14 | P2P IF receive data bit 14 | 1 | 0 | 9300 |
| | 15 | P2P IF receive data bit 15 | 1 | 0 | 9300 |
| Dependency: | Refer to: r52604 | | | | |

| r52610.0...15 | | CO/BO: P2P IF receive data word 5 bit by bit / P2P rcv 5 bbb | | | |
|----------------------|--|---|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Binector output for the bit-by-bit interconnection of word 5 of the receive data on the peer-to-peer interface (P2P IF). | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | P2P IF receive data bit 0 | 1 | 0 | 9300 |
| | 01 | P2P IF receive data bit 1 | 1 | 0 | 9300 |
| | 02 | P2P IF receive data bit 2 | 1 | 0 | 9300 |
| | 03 | P2P IF receive data bit 3 | 1 | 0 | 9300 |
| | 04 | P2P IF receive data bit 4 | 1 | 0 | 9300 |
| | 05 | P2P IF receive data bit 5 | 1 | 0 | 9300 |
| | 06 | P2P IF receive data bit 6 | 1 | 0 | 9300 |
| | 07 | P2P IF receive data bit 7 | 1 | 0 | 9300 |
| | 08 | P2P IF receive data bit 8 | 1 | 0 | 9300 |
| | 09 | P2P IF receive data bit 9 | 1 | 0 | 9300 |
| | 10 | P2P IF receive data bit 10 | 1 | 0 | 9300 |
| | 11 | P2P IF receive data bit 11 | 1 | 0 | 9300 |
| | 12 | P2P IF receive data bit 12 | 1 | 0 | 9300 |
| | 13 | P2P IF receive data bit 13 | 1 | 0 | 9300 |
| | 14 | P2P IF receive data bit 14 | 1 | 0 | 9300 |
| | 15 | P2P IF receive data bit 15 | 1 | 0 | 9300 |
| Dependency: | Refer to: r52605 | | | | |

| r52620.0...15 | | CO/BO: Binector-connector converter output / Bin/con outp | | | |
|----------------------|--|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output on the binector-connector converter. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | P2P binector-connector converter bit 0 | 1 | 0 | 9300 |
| | 01 | P2P binector-connector converter bit 1 | 1 | 0 | 9300 |
| | 02 | P2P binector-connector converter bit 2 | 1 | 0 | 9300 |
| | 03 | P2P binector-connector converter bit 3 | 1 | 0 | 9300 |
| | 04 | P2P binector-connector converter bit 4 | 1 | 0 | 9300 |
| | 05 | P2P binector-connector converter bit 5 | 1 | 0 | 9300 |
| | 06 | P2P binector-connector converter bit 6 | 1 | 0 | 9300 |
| | 07 | P2P binector-connector converter bit 7 | 1 | 0 | 9300 |
| | 08 | P2P binector-connector converter bit 8 | 1 | 0 | 9300 |
| | 09 | P2P binector-connector converter bit 9 | 1 | 0 | 9300 |
| | 10 | P2P binector-connector converter bit 10 | 1 | 0 | 9300 |
| | 11 | P2P binector-connector converter bit 11 | 1 | 0 | 9300 |
| | 12 | P2P binector-connector converter bit 12 | 1 | 0 | 9300 |
| | 13 | P2P binector-connector converter bit 13 | 1 | 0 | 9300 |
| | 14 | P2P binector-connector converter bit 14 | 1 | 0 | 9300 |
| | 15 | P2P binector-connector converter bit 15 | 1 | 0 | 9300 |
| Dependency: | Refer to: p51117 | | | | |
| Note: | The individual signals supplied via binector input p51117[0 to 15] are combined to form connector output r52620. | | | | |

| r52700[0...15] | | CO: Parallel interface master receive data word by word / Master rcv wbw | | |
|-----------------------|---|---|----------------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output of the word-by-word receive data from the master on the parallel interface. | | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | | |
| Dependency: | Refer to: r52720 | | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52701[0...15] | CO: Parallel interface slave 1 receive data word by word / Slave1 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 1 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52721 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52702[0...15] | CO: Parallel interface slave 2 receive data word by word / Slave2 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 2 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52722 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52703[0...15] | CO: Parallel interface slave 3 receive data word by word / Slave3 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 3 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52723 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52704[0...15] | CO: Parallel interface slave 4 receive data word by word / Slave4 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 4 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52724 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52705[0...15] | CO: Parallel interface slave 5 receive data word by word / Slave5 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 5 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52725 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52706[0...15] | CO: Parallel interface slave 6 receive data word by word / Slave6 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 6 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52726 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52707[0...15] | CO: Parallel interface slave 7 receive data word by word / Slave7 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 7 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52727 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52708[0...15] | CO: Parallel interface slave 8 receive data word by word / Slave8 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 8 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52728 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52709[0...15] | CO: Parallel interface slave 9 receive data word by word / Slave9 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 9 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52729 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| | | | |
|-----------------------|---|-------------------------|----------------------------|
| r52710[0...15] | CO: Parallel interface slave 10 receive data word by word / Slave10 recv wbw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 10 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52730 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

r52711[0...15] CO: Parallel interface slave 11 receive data word by word / Slave11 recv wbw

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output of the word-by-word receive data from slave 11 on the parallel interface.

Index:
 [0] = Word 1
 [1] = Word 2
 [2] = Word 3
 [3] = Word 4
 [4] = Word 5
 [5] = Word 6
 [6] = Word 7
 [7] = Word 8
 [8] = Word 9
 [9] = Word 10
 [10] = Word 11
 [11] = Word 12
 [12] = Word 13
 [13] = Word 14
 [14] = Word 15
 [15] = Word 16

Dependency: Refer to: r52731

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52712[0...15] CO: Parallel interface slave 12 receive data word by word / Slave12 recv wbw

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output of the word-by-word receive data from slave 12 on the parallel interface.

Index:
 [0] = Word 1
 [1] = Word 2
 [2] = Word 3
 [3] = Word 4
 [4] = Word 5
 [5] = Word 6
 [6] = Word 7
 [7] = Word 8
 [8] = Word 9
 [9] = Word 10
 [10] = Word 11
 [11] = Word 12
 [12] = Word 13
 [13] = Word 14
 [14] = Word 15
 [15] = Word 16

Dependency: Refer to: r52732

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52713[0...15] CO: Parallel interface slave 13 receive data word by word / Slave13 recv wbw

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output of the word-by-word receive data from slave 13 on the parallel interface.

Index:
 [0] = Word 1
 [1] = Word 2
 [2] = Word 3
 [3] = Word 4
 [4] = Word 5
 [5] = Word 6
 [6] = Word 7
 [7] = Word 8
 [8] = Word 9
 [9] = Word 10
 [10] = Word 11
 [11] = Word 12
 [12] = Word 13
 [13] = Word 14
 [14] = Word 15
 [15] = Word 16

Dependency: Refer to: r52733

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52714[0...15] CO: Parallel interface slave 14 receive data word by word / Slave14 recv wbw

| | | | |
|---------|-----------------------------------|-------------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |

Description: Display and connector output of the word-by-word receive data from slave 14 on the parallel interface.

Index:
 [0] = Word 1
 [1] = Word 2
 [2] = Word 3
 [3] = Word 4
 [4] = Word 5
 [5] = Word 6
 [6] = Word 7
 [7] = Word 8
 [8] = Word 9
 [9] = Word 10
 [10] = Word 11
 [11] = Word 12
 [12] = Word 13
 [13] = Word 14
 [14] = Word 15
 [15] = Word 16

Dependency: Refer to: r52734

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

| r52715[0...15] | | CO: Parallel interface slave 15 receive data word by word / Slave15 recv wbw | |
|-----------------------|---|---|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 15 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52735 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

| r52716[0...15] | | CO: Parallel interface slave 16 receive data word by word / Slave16 recv wbw | |
|-----------------------|---|---|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of the word-by-word receive data from slave 16 on the parallel interface. | | |
| Index: | [0] = Word 1 [1] = Word 2 [2] = Word 3 [3] = Word 4 [4] = Word 5 [5] = Word 6 [6] = Word 7 [7] = Word 8 [8] = Word 9 [9] = Word 10 [10] = Word 11 [11] = Word 12 [12] = Word 13 [13] = Word 14 [14] = Word 15 [15] = Word 16 | | |
| Dependency: | Refer to: r52736 | | |
| Note: | The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection. | | |

r52720.0...15 CO/BO: Parallel interface master receive word 1 bit by bit / Master rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from the master on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52700

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52721.0...15 CO/BO: Parallel interface slave 1 receive word 1 bit by bit / Slave1 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 1 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52701

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52722.0...15 CO/BO: Parallel interface slave 2 receive word 1 bit by bit / Slave2 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 2 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52702

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52723.0...15 CO/BO: Parallel interface slave 3 receive word 1 bit by bit / Slave3 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 3 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52703

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52724.0...15 CO/BO: Parallel interface slave 4 receive word 1 bit by bit / Slave4 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 4 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52704

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52725.0...15 CO/BO: Parallel interface slave 5 receive word 1 bit by bit / Slave5 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 5 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52705

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52726.0...15 CO/BO: Parallel interface slave 6 receive word 1 bit by bit / Slave6 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 6 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52706

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52727.0...15 CO/BO: Parallel interface slave 7 receive word 1 bit by bit / Slave7 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 7 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52707

Note: Receive word 1 is also available scaled word by word for further interconnection.

2 Parameters

2.2 List of parameters

| r52728.0...15 | | CO/BO: Parallel interface slave 8 receive word 1 bit by bit / Slave8 rcv1 bbb | | | |
|----------------------|--|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and binector/connector output for receive word 1 from slave 8 on the parallel interface. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |
| Dependency: | Refer to: r52708 | | | | |
| Note: | Receive word 1 is also available scaled word by word for further interconnection. | | | | |

| r52729.0...15 | | CO/BO: Parallel interface slave 9 receive word 1 bit by bit / Slave9 rcv1 bbb | | | |
|----------------------|--|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and binector/connector output for receive word 1 from slave 9 on the parallel interface. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |
| Dependency: | Refer to: r52709 | | | | |
| Note: | Receive word 1 is also available scaled word by word for further interconnection. | | | | |

r52730.0...15 CO/BO: Parallel interface slave 10 receive word 1 bit by bit / Slave10 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 10 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52710

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52731.0...15 CO/BO: Parallel interface slave 11 receive word 1 bit by bit / Slave11 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 11 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|-------------------|------------|--------------------|-----------------|-----------------|-----------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52711

Note: Receive word 1 is also available scaled word by word for further interconnection.

2 Parameters

2.2 List of parameters

| r52732.0...15 | | CO/BO: Parallel interface slave 12 receive word 1 bit by bit / Slave12 rcv1 bbb | | | |
|----------------------|---|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and binector/connector output for receive word 1 from slave 12 on the parallel interface. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |
| Dependency: | Refer to: r52712 | | | | |
| Note: | Receive word 1 is also available scaled word by word for further interconnection. | | | | |

| r52733.0...15 | | CO/BO: Parallel interface slave 13 receive word 1 bit by bit / Slave12 rcv1 bbb | | | |
|----------------------|---|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and binector/connector output for receive word 1 from slave 13 on the parallel interface. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |
| Dependency: | Refer to: r52713 | | | | |
| Note: | Receive word 1 is also available scaled word by word for further interconnection. | | | | |

r52734.0...15 CO/BO: Parallel interface slave 14 receive word 1 bit by bit / Slave14 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 14 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52714

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52735.0...15 CO/BO: Parallel interface slave 15 receive word 1 bit by bit / Slave15 rcv1 bbb

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and binector/connector output for receive word 1 from slave 15 on the parallel interface.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|------|
| | 00 | Bit 0 | Yes | No | 9352 |
| | 01 | Bit 1 | Yes | No | 9352 |
| | 02 | Bit 2 | Yes | No | 9352 |
| | 03 | Bit 3 | Yes | No | 9352 |
| | 04 | Bit 4 | Yes | No | 9352 |
| | 05 | Bit 5 | Yes | No | 9352 |
| | 06 | Bit 6 | Yes | No | 9352 |
| | 07 | Bit 7 | Yes | No | 9352 |
| | 08 | Bit 8 | Yes | No | 9352 |
| | 09 | Bit 9 | Yes | No | 9352 |
| | 10 | Bit 10 | Yes | No | 9352 |
| | 11 | Bit 11 | Yes | No | 9352 |
| | 12 | Bit 12 | Yes | No | 9352 |
| | 13 | Bit 13 | Yes | No | 9352 |
| | 14 | Bit 14 | Yes | No | 9352 |
| | 15 | Bit 15 | Yes | No | 9352 |

Dependency: Refer to: r52715

Note: Receive word 1 is also available scaled word by word for further interconnection.

| | | | | |
|----------------------|---|----------------------|----------------------------|-----------------|
| r52736.0...15 | CO/BO: Parallel interface slave 16 receive word 1 bit by bit / Slave16 rcv1 bbb | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9352 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and binector/connector output for receive word 1 from slave 16 on the parallel interface. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Bit 0 | Yes | No |
| | 01 | Bit 1 | Yes | No |
| | 02 | Bit 2 | Yes | No |
| | 03 | Bit 3 | Yes | No |
| | 04 | Bit 4 | Yes | No |
| | 05 | Bit 5 | Yes | No |
| | 06 | Bit 6 | Yes | No |
| | 07 | Bit 7 | Yes | No |
| | 08 | Bit 8 | Yes | No |
| | 09 | Bit 9 | Yes | No |
| | 10 | Bit 10 | Yes | No |
| | 11 | Bit 11 | Yes | No |
| | 12 | Bit 12 | Yes | No |
| | 13 | Bit 13 | Yes | No |
| | 14 | Bit 14 | Yes | No |
| | 15 | Bit 15 | Yes | No |
| Dependency: | Refer to: r52716 | | | |
| Note: | Receive word 1 is also available scaled word by word for further interconnection. | | | |

| | | | | |
|---------------------|--|----------------------|----------------------------|--|
| r52800 | CO: Sequence control operating state / S ctr op state | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2651 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output for the sequence control operating state. | | | |
| Note: | The values correspond to the operating state of the drive (r0002 (DC_CTRL)). | | | |

| | | | | |
|---------------------|---|-------------------------|----------------------------|--|
| r52900 | CO: Optimization run output 0 / Opt run outp 0 | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - [%] | - [%] | - [%] | |
| Description: | Display and connector output of output 0 during the optimization run. | | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52901 | CO: Optimization run output 1 / Opt run outp 1 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of output 1 during the optimization run. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52902 | CO: Optimization run output 2 / Opt run outp 2 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of output 2 during the optimization run. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52903 | CO: Optimization run output 3 / Opt run outp 3 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of output 3 during the optimization run. | | |

| | | | |
|---------------------|---|-------------------------|----------------------------|
| r52904 | CO: Optimization run output 4 / Opt run outp 4 | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 2660 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: PERCENT | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [%] | - [%] | - [%] |
| Description: | Display and connector output of output 4 during the optimization run. | | |

| | | | |
|----------------------|---|----------------------|----------------------------|
| r52921[0...4] | CO: Measurement results ASIC 1 raw values / Meas res ASIC1 raw | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Display and connector output for the raw values from the measurements of Power Stack ASIC 1. For devices with 480 V: - 0 corresponds to -825.0 V - 32767 corresponds to 0 V - 65535 corresponds to +825.0 V | | |

2 Parameters

2.2 List of parameters

For devices with 575 V:
- 0 corresponds to -1036.2 V
- 32767 corresponds to 0 V
- 65535 corresponds to +1036.2 V

For devices with 1000 V:
- 0 corresponds to -1795.2 V
- 32767 corresponds to 0 V
- 65535 corresponds to +1795.2 V

Index:
[0] = Phase VU
[1] = Phase VW
[2] = Voltage CV
[3] = Voltage CD
[4] = Voltage S13V

Dependency: Refer to: r52922, r52923

Note: This parameter is used solely for internal diagnostics.

r52922[0...2] **CO: Measurement results ASIC 2 raw values / Meas res ASIC2 raw**

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and connector output for the raw values from the measurements of Power Stack ASIC 2.

For voltage channels:
- 0 corresponds to -825.0 V
- 32767 corresponds to 0 V
- 65535 corresponds to +825.0 V

For the current channel:
- 49151 corresponds to 0 A

For devices with rated field current = 3A:
- 8218 corresponds to 3 A

For devices with rated field current = 5 A:
- 9065 corresponds to 5 A

For devices with rated field current = 10 A:
- 9065 corresponds to 10 A

For devices with rated field current = 15 A:
- 29108 corresponds to 15 A

For devices with rated field current = 25 A:
- 15746 corresponds to 25 A

For devices with rated field current = 30 A & A7115:
- 9065 corresponds to 30 A

For devices with rated field current = 30 A & A7116:
- 24608 corresponds to 30 A

For devices with rated field current = 40 A:
- 16427 corresponds to 40 A

For devices with rated field current = 85 A:
- 14382 corresponds to 85 A

Index:
[0] = Raw value voltage 3U3W
[1] = Raw value voltage 3C3D
[2] = Raw value field current

Dependency: Refer to: r52921, r52923

Note: This parameter is used solely for internal diagnostics.

r52923[0...1] CO: Measurement results current actual values raw values / Meas res I_act raw

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and connector output for raw values when measuring current actual values.

The following applies:

- 0 corresponds to approx. 3 x device rated current in negative direction
- 32767 corresponds to 0 A
- 65535 corresponds to approx. 3 x device rated current in positive direction

Index: [0] = Armature current 1
[1] = Armature current 2

Dependency: Refer to: r52921, r52922

Note: This parameter is used solely for internal diagnostics.

r52950[0...3] CO: Line voltages scan values / V_line sc values

| | | | |
|---------|-----------------------------------|-----------------------|----------------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950, 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2001 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |

Description: Display and connector output for the scan values of line voltages UV, VW, WU.

Index: [0] = Line voltage UV
[1] = Line voltage VW
[2] = Line voltage WU
[3] = Field line voltage

r52951[0...1] CO: Armature voltage/field voltage scan values / Ua/Uf scan_values

| | | | |
|---------|-----------------------------------|-----------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6902, 6950, 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2001 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |

Description: Display and connector output for the armature voltage/field voltage scan values.

Index: [0] = Scan values of Ua
[1] = Scan values of Uf

r52952[0...3] CO: Armature current/field current scan values / Ia/If sc_values

| | | | |
|---------|-----------------------------------|-----------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6850, 6851, 6912 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2002 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [A] | - [A] | - [A] |

Description: Display and connector output for the armature current and field current scan values.

2 Parameters

2.2 List of parameters

Index:
 [0] = Armature current Ia
 [1] = Field current If
 [2] = Armature current Ia current transformer I
 [3] = Armature current Ia current transformer II

r52953[0...11] CO: Thyristor blocking voltages scan values / V_thyr scan_values

| | | | |
|---------|-----------------------------------|-----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: p2001 | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |

Description: Display and connector output for the scan values of the thyristor blocking voltages.

Index:
 [0] = Blocking voltage thyristor X11
 [1] = Blocking voltage thyristor X12
 [2] = Blocking voltage thyristor X13
 [3] = Blocking voltage thyristor X14
 [4] = Blocking voltage thyristor X15
 [5] = Blocking voltage thyristor X16
 [6] = Blocking voltage thyristor X21
 [7] = Blocking voltage thyristor X22
 [8] = Blocking voltage thyristor X23
 [9] = Blocking voltage thyristor X24
 [10] = Blocking voltage thyristor X25
 [11] = Blocking voltage thyristor X26

r52960 Armature line zero crossings deviation / Arm line zero dev

| | | | |
|---------|-----------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [µs] | - [µs] | - [µs] |

Description: Displays the deviation of the last point in time on the averaged time grid from the last point in time on an original time grid (armature).

r52961 Field line zero crossings deviation / Field line zero dv

| | | | |
|---------|-----------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [µs] | - [µs] | - [µs] |

Description: Displays the deviation of the last point in time on the averaged time grid from the last point in time on an original time grid (field).

r52965[0...1] Line analysis armature line phase offset / Arm line ph offs

| | | | |
|---------|-----------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |

Description: Displays the DC offset (= direct-current component) of the armature line phases in volts.

Index:
 [0] = Armature phase UV
 [1] = Armature phase VW

| | | | |
|--|---|----------------------|----------------------------|
| r52966 | | | |
| Line analysis field line phase offset / Field line ph offs | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: FloatingPoint32 | Dyn. index: - | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - [V] | - [V] | - [V] |
| Description: | Displays the DC offset (= direct-current component) of the field line phases in volts. | | |
| r52970 | | | |
| CO: Line analysis armature line zero crossing positive phase UV / Arm zero pos UV | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the point in time (timer value) of the last positive zero crossing of armature phase UV. | | |
| Note: | The value is displayed in [10 ns] unit. | | |
| r52971 | | | |
| CO: Line analysis armature line zero crossing negative phase UV / Arm zero neg UV | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the point in time (timer value) of the last negative zero crossing of armature phase UV. | | |
| Note: | The value is displayed in [10 ns] unit. | | |
| r52972 | | | |
| CO: Line analysis armature line zero crossing positive phase VW / Arm zero pos VW | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the point in time (timer value) of the last positive zero crossing of armature phase VW. | | |
| Note: | The value is displayed in [10 ns] unit. | | |
| r52973 | | | |
| CO: Line analysis armature line zero crossing negative phase VW / Arm zero neg VW | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |
| Description: | Displays the point in time (timer value) of the last negative zero crossing of armature phase UV. | | |
| Note: | The value is displayed in [10 ns] unit. | | |

| | | | |
|---------------|--|----------------------|----------------------------|
| r52974 | CO: Line analysis armature line zero crossing positive phase WU / Arm zero pos WU | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the point in time (timer value) of the last positive zero crossing of armature phase WU.

Note: The value is displayed in [10 ns] unit.

| | | | |
|---------------|--|----------------------|----------------------------|
| r52975 | CO: Line analysis armature line zero crossing negative phase WU / Arm zero neg WU | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the point in time (timer value) of the last negative zero crossing of armature phase WU.

Note: The value is displayed in [10 ns] unit.

| | | | |
|---------------|---|----------------------|----------------------------|
| r52976 | CO: Line analysis field line zero crossing positive phase F / Field zero pos F | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the point in time (timer value) of the last positive zero crossing of the field phase.

Note: The value is displayed in [10 ns] unit.

| | | | |
|---------------|---|----------------------|----------------------------|
| r52977 | CO: Line analysis field line zero crossing negative phase F / Field zero neg F | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned32 | Dyn. index: - | Func. diagram: 6952 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the point in time (timer value) of the last negative zero crossing of the field phase.

Note: The value is displayed in [10 ns] unit.

| | | | |
|---------------|--|----------------------|----------------------------|
| r52980 | Cause of the armature firing pulse / Cause arm fir plus | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the cause of the armature firing pulse.

1: firing angle = firing angle specified by the armature current control (after Alpha G/W limiting).

2: firing angle = Alpha-W (= p50151, as $I_a < 0$ or $I_a = 0$ for less than 125 μ s).

3: firing angle = Alpha-W (= 165 °, as $I_a = 0$ for more than 125 μ s).

- 4: The firing angle received from the parallel switching master was issued.
 5: The firing angle received from the parallel switching master was no longer able to be realized, as this point in time has already been passed.
 6: For a 12-pulse series circuit, a firing pulse delayed by 30 ° was output.
 7: The firing angle specified by the thyristor check function was realized.
 8: The master firing angle specified by the sequential phase control was realized.
 9: The slave firing angle specified by the sequential phase control was realized.
 1x:
 firing angle = next possible point in time: firing angle update was not able to be realized.
 2x:
 firing angle = next possible point in time: new firing angle was not able to be realized.
 3x:
 firing angle = next possible point in time: calculated firing angle was not able to be realized.

Note: This parameter is only for internal SIEMENS troubleshooting.

| r52981 | | Cause of the torque direction / Cause M_dir | |
|---------------|------------------------------|--|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 4 |
| | Data type: Unsigned8 | Dyn. index: - | Func. diagram: 8054 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description:

Displays the cause of the torque direction.
 0: M0 no torque direction, as not in the operating mode.
 1: M0 no torque direction as a firing angle > 165 ° was specified.
 2: M0 no torque direction as the wait time according to p50160 is running.
 3: M0 no torque direction as the signal selected with p50165 does not permit the required torque direction.
 4: M0 no torque direction as the I=0 signal was 125 µs long but however was present for less than 625 µs. The torque-free interval is extended.
 5: M0 no torque direction as the thyristor blocking voltage monitoring signals "thyristor conductive". The torque-free interval is extended.
 6: M0 no torque direction as the immediate pulse inhibit according to p50177 has been selected.
 7: M0 no torque direction, as an emergency stop is present.
 8: M0 no torque direction, as the line supply is not OK.
 9: M0 no torque direction, as a valid firing instant was not found (for example, this can occur in the slave connected in parallel if the master is lost).
 10, 11, 12:
 M0, M1, MII torque direction = r52106.
 15: M0 no torque direction as the selected thyristor pair is inhibited during the thyristor check.
 16: M0 no torque direction, as the slave connected in parallel is not in the operating state.
 17: M0 no torque direction, as an immediate pulse inhibit was executed, because either an emergency stop is present or the CCP was triggered.
 21, 22:
 M1, MII Alpha-W pulse with second pulse in the old torque direction.
 Cause: Ia was still not 625 µs long = 0.
 23, 24:
 M1, MII Alpha-W pulse with second pulse in the old torque direction.
 Cause: thyristor blocking voltage monitoring signals "Thyristor conductive"
 31, 32:
 M1, MII Alpha-W pulse without second pulse in the old torque direction.
 Cause: Ia was still not 625 µs long = 0.
 33, 34:
 M1, MII Alpha-W pulse without second pulse in the old torque direction.
 Cause: thyristor blocking voltage monitoring signals "Thyristor conductive"

2 Parameters

2.2 List of parameters

41, 42:

MI, MII Alpha-W pulse with second pulse in the old torque direction.

Cause: additional Alpha-W pulses according to p50179.

51, 52:

MI, MII Alpha-W pulse without second pulse in the old torque direction.

Cause: additional Alpha-W pulses according to p50161.

60, 61, 62:

M0, MI, MII torque direction according to p51840 (simulation operation).

71: MI the command "simultaneously fire all thyristors" (according to p50176) was performed.

81: MI the torque direction specified by the thyristor check was realized.

82: MII the torque direction specified by the thyristor check was realized.

95, 96, 97:

M0, MI, MII the torque direction of the parallel switching master was realized.

Note: This parameter is only for internal SIEMENS troubleshooting.

r52982

Armature current zero current signal / Ia I=0 signal

DC_CTRL

Can be changed: -

Calculated: -

Access level: 4

Data type: Unsigned8

Dyn. index: -

Func. diagram: 8054

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the number of zero current signals of the armature current.
For scan values below the threshold $I = 0$, the counter is incremented.
The counter is reset in the following cases:
- firing pulse.
- scan value above the threshold for $I = 0$.

Note:

This parameter is only for internal SIEMENS troubleshooting.
The scan values are every 62.5 μ s.
The threshold for $I = 0$ is 1 % of the rated unit current.

r52983

Thyristor code / Thyr_code

DC_CTRL

Can be changed: -

Calculated: -

Access level: 4

Data type: Unsigned8

Dyn. index: -

Func. diagram: 8054

P-Group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description:

Displays the thyristor code.
Bit 0 = 1: Thyristor 1 was fired
...
Bit 5 = 1: Thyristor 6 was fired
Bit 6 = 1: thyristors were fired for torque direction 1
Bit 7 = 1: thyristors were fired for torque direction 2

Note:

This parameter is only for internal SIEMENS troubleshooting.

| r53010.0...15 | | CO/BO: CUD digital inputs, status / CUD DI status | | | |
|----------------------|---|--|--|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2050, 2060, 2065, 2580 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the CUD's digital inputs. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | DI 0 (X177.11) | High | Low | 2050 |
| | 01 | DI 0 inverted (X177.11) | High | Low | 2050 |
| | 02 | DI 1 (X177.12) | High | Low | 2050 |
| | 03 | DI 1 inverted (X177.12) | High | Low | 2050 |
| | 04 | DI 2 (X177.13) | High | Low | 2050 |
| | 05 | DI 2 inverted (X177.13) | High | Low | 2050 |
| | 06 | DI 3 (X177.14) | High | Low | 2050 |
| | 07 | DI 3 inverted (X177.14) | High | Low | 2050 |
| | 08 | DI/DO 4 (X177.15) | High | Low | 2060 |
| | 09 | DI/DO 4 inverted (X177.15) | High | Low | 2060 |
| | 10 | DI/DO 5 (X177.16) | High | Low | 2060 |
| | 11 | DI/DO 5 inverted (X177.16) | High | Low | 2060 |
| | 12 | DI/DO 6 (X177.17) | High | Low | 2065 |
| | 13 | DI/DO 6 inverted (X177.17) | High | Low | 2065 |
| | 14 | DI/DO 7 (X177.18) | High | Low | 2065 |
| | 15 | DI/DO 7 inverted (X177.18) | High | Low | 2065 |
| Dependency: | For bits 08 to 15: The terminal must be set as an input (p50789[0...3] = 0). | | | | |
| Note: | DI: Digital Input DI/DO: Bidirectional Digital Input/Output | | | | |

| r53020.0...7 | | CO/BO: CUD digital outputs status / CUD DO status | | | |
|---------------------|--|--|--|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2055, 2060, 2065 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the CUD's digital outputs. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | DO 0 (X177.19) | High | Low | 2055 |
| | 01 | DO 1 (X177.20) | High | Low | 2055 |
| | 02 | DO 2 (X177.21) | High | Low | 2055 |
| | 03 | DO 3 (X177.22) | High | Low | 2055 |
| | 04 | DI/DO 4 (X177.15) | High | Low | 2060 |
| | 05 | DI/DO 5 (X177.16) | High | Low | 2060 |
| | 06 | DI/DO 6 (X177.17) | High | Low | 2065 |
| | 07 | DI/DO 7 (X177.18) | High | Low | 2065 |
| Dependency: | For bits 04 to 07: The terminal must be set as an output (p50789[0...3] = 1). | | | | |
| Note: | DO: Digital Output DI/DO: Bidirectional Digital Input/Output | | | | |

2 Parameters

2.2 List of parameters

| r53021.0...7 | | CO/BO: CUD digital outputs overload monitoring / CUD DO overload | | | |
|---------------------|--|---|--|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2055, 2060, 2065 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the overload monitoring of the digital outputs. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | DO 0 (X177.19) overload present | Yes | No | 2055 |
| | 01 | DO 1 (X177.20) overload present | Yes | No | 2055 |
| | 02 | DO 2 (X177.21) overload present | Yes | No | 2055 |
| | 03 | DO 3 (X177.22) overload present | Yes | No | 2055 |
| | 04 | DI/DO 4 (X177.15) overload present | Yes | No | 2060 |
| | 05 | DI/DO 5 (X177.16) overload present | Yes | No | 2060 |
| | 06 | DI/DO 6 (X177.17) overload present | Yes | No | 2065 |
| | 07 | DI/DO 7 (X177.18) overload present | Yes | No | 2065 |
| Dependency: | For bits 04 to 07: The terminal must be set as an output (p50789[0...3] = 1). | | | | |
| Note: | DO: Digital Output DI/DO: Bidirectional Digital Input/Output | | | | |

| r53025.0...13 | | CO/BO: Speed messages / n messages | | | |
|----------------------|--|--|----------------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8020, 8025 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the state of the messages for speed comparisons and limits. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Setpoint/actual value deviation 1 less than threshold | Yes | No | 8020 |
| | 01 | Setpoint/actual value deviation 1 less than threshold inverted | Yes | No | 8020 |
| | 02 | Setpoint/actual value deviation 2 less than threshold | Yes | No | 8020 |
| | 03 | Setpoint/actual value deviation 2 less than threshold inverted | Yes | No | 8020 |
| | 04 | Comparison setpoint reached | Yes | No | 8020 |
| | 05 | Comparison setpoint reached inverted | Yes | No | 8020 |
| | 06 | Deceleration speed reached | Yes | No | 8020 |
| | 07 | Deceleration speed reached inverted | Yes | No | 8020 |
| | 08 | Positive speed setpoint | Yes | No | 8025 |
| | 09 | Positive speed setpoint inverted | Yes | No | 8025 |
| | 10 | Overspeed | Yes | No | 8025 |
| | 11 | Overspeed inverted | Yes | No | 8025 |
| | 12 | Positive speed actual value | Yes | No | 8025 |
| | 13 | Positive speed actual value inverted | Yes | No | 8025 |

| | | | | |
|---------------------|---|---|----------------------------------|-----------------|
| r53026.0...1 | CO/BO: Field current messages / If messages | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8025 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Control word for field current thresholds. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Field current less than minimum field current threshold | Yes | No |
| | 01 | Field current actual value less than field current setpoint x | Yes | No |
| | | | | FP |
| | | | | - |
| | | | | - |
| r53030.0...1 | CO/BO: CUD analog inputs wire break message / CUD AI wire brk | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2075, 2080 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output for the "Wire break" message in the case of the CUD analog inputs. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | AI "Main setpoint" wire-break monitoring responded | Yes | No |
| | 01 | AI 1 (X177.27/28) Wire-break monitoring responded | Yes | No |
| | | | | FP |
| | | | | 2075 |
| | | | | 2080 |
| Dependency: | Refer to: F60046, F60047 | | | |
| r53081.0...1 | CO/BO: Sequence control line contactor control / Ctrl line cont | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2651 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output for the line contactor control. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Line contactor | ON | OFF |
| | 01 | Line contactor inverted | ON | OFF |
| | | | | FP |
| | | | | 2651 |
| | | | | 2651 |
| r53082.0 | CO/BO: Line contactor state / Line cont state | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2070 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the status of the line contactor control. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Line contactor ON | Yes | No |
| | | | | FP |
| | | | | 2070 |
| Dependency: | Refer to: p51619 | | | |

2 Parameters

2.2 List of parameters

Note: Re bit 00:
 1 signal: The relay output for the line contactor is activated via binector input p51619.
 0 signal: The relay output for the line contactor is de-activated via binector input p51619.

| r53100.0...1 | | CO/BO: E stop status / E stop stat | | | | | | | | | | | | | | | | | | |
|---------------------|--|--|--|------------|----------|----|----|-----------|-----|----|------------|----|---------------|-----|----|------|--|--|--|--|
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 2070, 2580 Unit selection: - Expert list: 1 Factory setting - | | | | | | | | | | | | | | | | | |
| Description: | Display and connector output for the status in the event of an E stop (emergency stop). | | | | | | | | | | | | | | | | | | | |
| Bit field: | <table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>No E stop</td> <td>Yes</td> <td>No</td> <td>2070, 2580</td> </tr> <tr> <td>01</td> <td>E stop active</td> <td>Yes</td> <td>No</td> <td>2070</td> </tr> </tbody> </table> | Bit | Signal name | 1 signal | 0 signal | FP | 00 | No E stop | Yes | No | 2070, 2580 | 01 | E stop active | Yes | No | 2070 | | | | |
| Bit | Signal name | 1 signal | 0 signal | FP | | | | | | | | | | | | | | | | |
| 00 | No E stop | Yes | No | 2070, 2580 | | | | | | | | | | | | | | | | |
| 01 | E stop active | Yes | No | 2070 | | | | | | | | | | | | | | | | |

| r53120.0...3 | | CO/BO: Motor control checks / Mot mon state | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|--|--|----------|----------|----|----|------------------------|-------------|----|---|----|------------------------|-------------|----|---|----|-----------------|-------------|----|---|----|----------------------------|-------------|----|---|--|--|--|--|
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8035 Unit selection: - Expert list: 1 Factory setting - | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description: | Displays the state of the motor interface. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit field: | <table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Brush length too short</td> <td>Yes (fault)</td> <td>No</td> <td>-</td> </tr> <tr> <td>01</td> <td>Poor bearing condition</td> <td>Yes (fault)</td> <td>No</td> <td>-</td> </tr> <tr> <td>02</td> <td>Motor fan fault</td> <td>Yes (fault)</td> <td>No</td> <td>-</td> </tr> <tr> <td>03</td> <td>Motor temperature too high</td> <td>Yes (fault)</td> <td>No</td> <td>-</td> </tr> </tbody> </table> | Bit | Signal name | 1 signal | 0 signal | FP | 00 | Brush length too short | Yes (fault) | No | - | 01 | Poor bearing condition | Yes (fault) | No | - | 02 | Motor fan fault | Yes (fault) | No | - | 03 | Motor temperature too high | Yes (fault) | No | - | | | | |
| Bit | Signal name | 1 signal | 0 signal | FP | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 | Brush length too short | Yes (fault) | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | Poor bearing condition | Yes (fault) | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 | Motor fan fault | Yes (fault) | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | Motor temperature too high | Yes (fault) | No | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dependency: | Refer to: p50486, p50487, p50488, p50489 Refer to: F60025, F60026, F60027, F60028 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| r53130.0...1 | | CO/BO: Motor interface temperature monitoring state / Mot temp_mon | | | | | | | | | | | | | | | | | | |
|---------------------|--|--|--|----------|----------|----|----|-------------------------|-----|----|---|----|-------------------------|-----|----|---|--|--|--|--|
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8030 Unit selection: - Expert list: 1 Factory setting - | | | | | | | | | | | | | | | | | |
| Description: | Displays the state of temperature monitoring on the motor interface. | | | | | | | | | | | | | | | | | | | |
| Bit field: | <table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Motor temperature alarm</td> <td>Yes</td> <td>No</td> <td>-</td> </tr> <tr> <td>01</td> <td>Motor temperature fault</td> <td>Yes</td> <td>No</td> <td>-</td> </tr> </tbody> </table> | Bit | Signal name | 1 signal | 0 signal | FP | 00 | Motor temperature alarm | Yes | No | - | 01 | Motor temperature fault | Yes | No | - | | | | |
| Bit | Signal name | 1 signal | 0 signal | FP | | | | | | | | | | | | | | | | |
| 00 | Motor temperature alarm | Yes | No | - | | | | | | | | | | | | | | | | |
| 01 | Motor temperature fault | Yes | No | - | | | | | | | | | | | | | | | | |
| Dependency: | Refer to: p50490, p50491, p50492 Refer to: F60029, A60032 | | | | | | | | | | | | | | | | | | | |

| r53135.0...12 | | CO/BO: Device fan state / Dev fan state | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|--|--|---|----------|----------|----|----|---------------|----|-----|------|----|------------------------|----|-----|------|----|----------------|-----|--------------|------|----|----------------|-----|--------------|------|----|----------------|-----|--------------|------|----|----------------|-----|--------------|------|----|-----------------------------|-----|----|------|--|--|--|
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description: | Display and connector output/binector output for the state of the device fan. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit field: | <table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Switch on fan</td> <td>ON</td> <td>OFF</td> <td>8047</td> </tr> <tr> <td>01</td> <td>Switch on fan inverted</td> <td>ON</td> <td>OFF</td> <td>8047</td> </tr> <tr> <td>08</td> <td>Fan 1 speed OK</td> <td>Yes</td> <td>No (too low)</td> <td>8047</td> </tr> <tr> <td>09</td> <td>Fan 2 speed OK</td> <td>Yes</td> <td>No (too low)</td> <td>8047</td> </tr> <tr> <td>10</td> <td>Fan 3 speed OK</td> <td>Yes</td> <td>No (too low)</td> <td>8047</td> </tr> <tr> <td>11</td> <td>Fan 4 speed OK</td> <td>Yes</td> <td>No (too low)</td> <td>8047</td> </tr> <tr> <td>12</td> <td>Control Module fan speed OK</td> <td>Yes</td> <td>No</td> <td>8049</td> </tr> </tbody> </table> | Bit | Signal name | 1 signal | 0 signal | FP | 00 | Switch on fan | ON | OFF | 8047 | 01 | Switch on fan inverted | ON | OFF | 8047 | 08 | Fan 1 speed OK | Yes | No (too low) | 8047 | 09 | Fan 2 speed OK | Yes | No (too low) | 8047 | 10 | Fan 3 speed OK | Yes | No (too low) | 8047 | 11 | Fan 4 speed OK | Yes | No (too low) | 8047 | 12 | Control Module fan speed OK | Yes | No | 8049 | | | |
| Bit | Signal name | 1 signal | 0 signal | FP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 | Switch on fan | ON | OFF | 8047 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | Switch on fan inverted | ON | OFF | 8047 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 | Fan 1 speed OK | Yes | No (too low) | 8047 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 09 | Fan 2 speed OK | Yes | No (too low) | 8047 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Fan 3 speed OK | Yes | No (too low) | 8047 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Fan 4 speed OK | Yes | No (too low) | 8047 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Control Module fan speed OK | Yes | No | 8049 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dependency: | Refer to: p50082, p50096 Refer to: F60167 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: | Dependent upon the order number (MLFB), the fan configuration may be as follows: - No fans - 2 DC fans - 1 AC fan Re bits 8 ... 11: These bits are not effective on the Control Module. Re bit 12: This bit is only effective on the Control Module. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| r53136 | | Device fan present / Device_fan pres | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|--|--|----------|----------|----|----|----------|-----------|-------------|------|----|----------|-----------|-------------|------|----|----------|-----------|-------------|------|----|----------|-----------|-------------|------|----|--------------------|-----------|-------------|------|--|--|--|
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 6960 Unit selection: - Expert list: 1 Factory setting - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description: | Displays the integrated device fan. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bit field: | <table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>DC fan 1</td> <td>Available</td> <td>Not present</td> <td>6960</td> </tr> <tr> <td>01</td> <td>DC fan 2</td> <td>Available</td> <td>Not present</td> <td>6960</td> </tr> <tr> <td>02</td> <td>AC fan 1</td> <td>Available</td> <td>Not present</td> <td>6960</td> </tr> <tr> <td>03</td> <td>AC fan 2</td> <td>Available</td> <td>Not present</td> <td>6960</td> </tr> <tr> <td>04</td> <td>Control Module fan</td> <td>Available</td> <td>Not present</td> <td>6960</td> </tr> </tbody> </table> | Bit | Signal name | 1 signal | 0 signal | FP | 00 | DC fan 1 | Available | Not present | 6960 | 01 | DC fan 2 | Available | Not present | 6960 | 02 | AC fan 1 | Available | Not present | 6960 | 03 | AC fan 2 | Available | Not present | 6960 | 04 | Control Module fan | Available | Not present | 6960 | | | |
| Bit | Signal name | 1 signal | 0 signal | FP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 | DC fan 1 | Available | Not present | 6960 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | DC fan 2 | Available | Not present | 6960 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 | AC fan 1 | Available | Not present | 6960 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | AC fan 2 | Available | Not present | 6960 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | Control Module fan | Available | Not present | 6960 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: | For the Control Module, fan "available" is always displayed as the Control Module only has one output to control the fan. The display is independent of the state of the fan and only indicates the desired state. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| r53140.0...4 | | CO/BO: Fan and external fault / Fan ext F | | |
|---------------------|--|--|--|--|
| DC_CTRL | Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 2 Func. diagram: 8049 Unit selection: - Expert list: 1 Factory setting - | |
| Description: | Display and connector output of the state of the fan and external fault for the Control Module. | | | |

2 Parameters

2.2 List of parameters

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------------------|-------------|--------------|----|
| | 00 | Fan ON | ON | OFF | - |
| | 01 | Fan ON inverted | ON | OFF | - |
| | 02 | Fan relay status | Switched on | Switched off | - |
| | 03 | External fault | Yes | No | - |
| | 04 | External fault inverted | Yes | No | - |

Dependency: Refer to: p51832, p51833, p51834, p51835
Refer to: A60266, F60267

r53145.0...13 CO/BO: Line state / Line state

| | | | |
|---------|------------------------------|----------------------|----------------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6950, 6954 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the state of the line for armature and field.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---------------------------------------|----------|----------|----|
| | 00 | Armature supply system overvoltage | Yes | No | - |
| | 01 | Armature supply system undervoltage | Yes | No | - |
| | 02 | Armature supply system overfrequency | Yes | No | - |
| | 03 | Armature supply system underfrequency | Yes | No | - |
| | 04 | Armature supply system phase failure | Yes | No | - |
| | 05 | Field supply system overvoltage | Yes | No | - |
| | 06 | Field supply system undervoltage | Yes | No | - |
| | 07 | Field supply system overfrequency | Yes | No | - |
| | 08 | Field supply system underfrequency | Yes | No | - |
| | 09 | Field supply system phase failure | Yes | No | - |
| | 10 | Armature supply system OK | Yes | No | - |
| | 11 | Field supply system OK | Yes | No | - |
| | 12 | Phase rotating clockwise | Yes | No | - |
| | 13 | Line symmetry | Yes | No | - |

r53146.0...13 CO/BO: Thyristor state / Thyr state

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6950 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and connector output for the state of the thyristors.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--------------------------|----------|----------|----|
| | 00 | Thyristor X11 conducting | Yes | No | - |
| | 01 | Thyristor X12 conducting | Yes | No | - |
| | 02 | Thyristor X13 conducting | Yes | No | - |
| | 03 | Thyristor X14 conducting | Yes | No | - |
| | 04 | Thyristor X15 conducting | Yes | No | - |
| | 05 | Thyristor X16 conducting | Yes | No | - |
| | 08 | Thyristor X21 conducting | Yes | No | - |
| | 09 | Thyristor X22 conducting | Yes | No | - |
| | 10 | Thyristor X23 conducting | Yes | No | - |
| | 11 | Thyristor X24 conducting | Yes | No | - |
| | 12 | Thyristor X25 conducting | Yes | No | - |
| | 13 | Thyristor X26 conducting | Yes | No | - |

| r53147.0...13 | | CO/BO: Thyristor blocking state / Thyr block state | | | |
|----------------------|---|---|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6950 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the blocked state of the thyristors. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Thyristor X11 | Blocking | Inhibited | - |
| | 01 | Thyristor X12 | Blocking | Inhibited | - |
| | 02 | Thyristor X13 | Blocking | Inhibited | - |
| | 03 | Thyristor X14 | Blocking | Inhibited | - |
| | 04 | Thyristor X15 | Blocking | Inhibited | - |
| | 05 | Thyristor X16 | Blocking | Inhibited | - |
| | 08 | Thyristor X21 | Blocking | Inhibited | - |
| | 09 | Thyristor X22 | Blocking | Inhibited | - |
| | 10 | Thyristor X23 | Blocking | Inhibited | - |
| | 11 | Thyristor X24 | Blocking | Inhibited | - |
| | 12 | Thyristor X25 | Blocking | Inhibited | - |
| | 13 | Thyristor X26 | Blocking | Inhibited | - |
| Note: | The blocked state is only relevant for the state "non-conducting" (r53146.x = 0). | | | | |

| r53148.0...1 | | CO/BO: Power unit I2t state / PU I2t state | | | |
|---------------------|---|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 8042 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the state of the I2t monitoring of the power unit. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | I2t power unit response threshold exceeded | Yes | No | 8042 |
| | 01 | I2t power unit response threshold exceeded and saved | Yes | No | 8042 |

| r53149.0 | | CO/BO: Power unit properties / PU properties | | | |
|---------------------|---|---|--|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 3 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6840, 6960, 6965 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output for properties of the power unit. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | 4Q power unit | Yes | No | 6960 |

2 Parameters

2.2 List of parameters

| | | | | | |
|----------------------|---|--|----------------------------------|-----------------|-----------|
| r53150.0...5 | CO/BO: Speed limiting controller/torque limiting state / n_lim/T lim state | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6830, 6835 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the state on the speed limiting controller and with regard to torque limiting. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Positive speed limit reached | Yes | No | 6835 |
| | 01 | Negative speed limit reached | Yes | No | 6835 |
| | 02 | Limiting controller active | Yes | No | 6835 |
| | 03 | Positive torque limit reached | Yes | No | 6830 |
| | 04 | Negative torque limit reached | Yes | No | 6830 |
| | 05 | Torque limiting active | Yes | No | 6830 |
| r53151.0...4 | CO/BO: Current limitation state / la lim state | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6845 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output for the state of armature current limitation. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Positive armature current limit reached | Yes | No | 6845 |
| | 01 | Negative armature current limit reached | Yes | No | 6845 |
| | 02 | Armature current limitation active | Yes | No | 6845 |
| | 04 | Torque limiting/Armature current limitation active | Yes | No | 6845 |
| r53160.0 | CO/BO: Speed controller enable / n_ctr ena | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6815 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output to enable the speed controller. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Speed controller enable present | Yes | No | 6815 |
| r53170.4...15 | CO/BO: Setpoint processing control word / Set proc STW | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2585 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Control word for setpoint processing. | | | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---|-----------|----------|------|
| | 04 | Direction of rotation enable | No enable | Enable | 3135 |
| | 08 | Jog ON command | ON | OFF | 3125 |
| | 09 | Creep ON command | ON | OFF | 3130 |
| | 10 | Fixed setpoint bypass ramp-function generator | ON | OFF | 3115 |
| | 11 | Jog setpoint bypass ramp-function generator | ON | OFF | 3125 |
| | 12 | Creep setpoint bypass ramp-function generator | ON | OFF | 3130 |
| | 13 | Fixed setpoint input active | Yes | No | 3115 |
| | 14 | Setpoint from AOP/PC active | Yes | No | 3113 |
| | 15 | Jog setpoint is zero | Yes | No | 3125 |

r53171.0...5**CO/BO: RFG state / RFG state**

| | | | |
|---------|------------------------------|----------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 3150, 3151, 3152, 3155 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the state of the ramp-function generator.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|---|----------|----------|------------|
| | 00 | Limiting active after ramp-function generator | Yes | No | 3155 |
| | 01 | RFG output equals zero | Yes | No | 3152 |
| | 02 | RFG ramping up | Yes | No | 3150, 3152 |
| | 03 | RFG ramping down | Yes | No | 3150, 3152 |
| | 04 | RFG setpoint enable present | Yes | No | 3151 |
| | 05 | RFG active | Yes | No | 3150 |

r53190.0...12**CO/BO: Armature auto-reversing stage state / Arm stage state**

| | | | |
|---------|------------------------------|----------------------|--|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6815, 6855, 6860, 6862, 8046 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Displays the state of the auto-reversing stage.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|--|----------|-----------|----|
| | 00 | Torque direction enabled | M0 or M1 | M0 or M11 | - |
| | 01 | Torque direction I active | Yes | No | - |
| | 02 | Torque direction II active | Yes | No | - |
| | 03 | Torque direction 0 requested | Yes | No | - |
| | 04 | Torque direction I requested | Yes | No | - |
| | 05 | Torque direction II requested | Yes | No | - |
| | 06 | Torque direction change in progress | Yes | No | - |
| | 07 | Alpha G limit reached | Yes | No | - |
| | 08 | Alpha W limit reached | Yes | No | - |
| | 09 | Alpha G limit or Alpha W limit reached | Yes | No | - |
| | 10 | Positive limit of n, M, I, Alpha reached | Yes | No | - |
| | 11 | Negative limit of n, M, I, Alpha reached | Yes | No | - |
| | 12 | Alpha W shift active | Yes | No | - |

2 Parameters

2.2 List of parameters

| | | | | | |
|---------------------|---|---|----------------------------------|-----------------|------------|
| r53191.0...2 | CO/BO: Field auto-reversing stage state / Field stage state | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6910, 6915 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the state of the auto-reversing stage for field control. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Alpha G limit reached | Yes | No | 6910, 6915 |
| | 01 | Alpha W limit reached | Yes | No | 6910, 6915 |
| | 02 | Alpha G/Alpha W limit reached | Yes | No | 6915 |
| | | | | | 6915 |
| r53192.0 | CO/BO: Armature current state / I_a state | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6850 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the state of the armature current. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Armature current not pulsating | Yes | No | 6850 |
| r53193.0...3 | CO/BO: Field current setpoint limiting state / If lim state | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6900, 6905 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Control word for field current setpoint limiting. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Positive field current setpoint limit reached | Yes | No | - |
| | 01 | Negative field current setpoint limit reached | Yes | No | - |
| | 02 | Standstill field switched in | Yes | No | - |
| | 03 | Field current setpoint withdrawn | Yes | No | - |
| r53195.0...2 | CO/BO: Field reversal contactor signals / Field rev cont sig | | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6920 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Control word to control the field contactors for field reversal. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Field direction positive | ON | OFF | - |
| | 01 | Field direction negative | ON | OFF | - |
| | 02 | Invert speed actual value | Yes | No | - |
| Dependency: | Refer to: p50092, p50580, p50581, p50583 | | | | |

| r53200.0...1 | | CO/BO: Motorized potentiometer state / MotP state | | | |
|---------------------|--|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 3110 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Displays the state on the motorized potentiometer. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Output is zero (y = 0) | Yes | No | - |
| | 01 | Ramp-up/ramp-down complete (y = x) | Yes | No | - |

| r53210.0...5 | | CO/BO: Sequence control output signals / Seq_ctrl outp_sig | | | |
|---------------------|--|---|--|-----------------|------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 2585, 2651, 2750 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and BICO output for the sequence control output signals. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Close brake | Yes | No | 2585, 2750 |
| | 01 | Close brake inverted | Yes | No | 2750 |
| | 02 | Switch on auxiliaries | Yes | No | 2651 |
| | 03 | Switch on auxiliaries inverted | Yes | No | 2651 |
| | 04 | Automatic restart active | Yes | No | 2651, 2750 |
| | 05 | Automatic restart active inverted | Yes | No | 2651, 2750 |

| r53220.0...5 | | CO/BO: Fuses at X23B state / Fuses X23B | | | |
|---------------------|--|--|----------------------------|-----------------|-----------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6957 | | |
| | P-Group: - | Unit group: - | Unit selection: - | | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | | |
| | Min | Max | Factory setting | | |
| | - | - | - | | |
| Description: | Display and connector output/binector output for the state of the fuses at X23B. The fuses are monitored via connection A7109:X23B or A7112:X23B. | | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
| | 00 | Fuse XS1 | Okay | Ruptured | - |
| | 01 | Fuse XS2 | Okay | Ruptured | - |
| | 02 | Fuse XS3 | Okay | Ruptured | - |
| | 03 | Fuse XS4 | Okay | Ruptured | - |
| | 04 | Fuse XS5 | Okay | Ruptured | - |
| | 05 | Fuse XS6 | Okay | Ruptured | - |
| Dependency: | Refer to: p51831 Refer to: F60204 | | | | |
| Note: | The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states. The parameter is only relevant for the Control Module. | | | | |

| | | | | |
|---------------------|--|--|----------------------------|-----------------|
| r53221.0...5 | | CO/BO: Fuses at X23C state / Fuses X23C | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6957 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output/binector output for the state of the fuses at X23C. The fuses are monitored via connection A7112:X23C. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Fuse XS1 | Okay | Ruptured |
| | 01 | Fuse XS2 | Okay | Ruptured |
| | 02 | Fuse XS3 | Okay | Ruptured |
| | 03 | Fuse XS4 | Okay | Ruptured |
| | 04 | Fuse XS5 | Okay | Ruptured |
| | 05 | Fuse XS6 | Okay | Ruptured |
| | | | | FP |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| Dependency: | Refer to: p51831 Refer to: F60204 | | | |
| Note: | The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states. The parameter is only relevant for the Control Module. | | | |

| | | | | |
|---------------------|--|--|----------------------------|-----------------|
| r53222.0...5 | | CO/BO: Fuses at X23D state / Fuses X23D | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6957 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output/binector output for the state of the fuses at X23D. The fuses are monitored via connection A7112:X23D. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Fuse XS1 | Okay | Ruptured |
| | 01 | Fuse XS2 | Okay | Ruptured |
| | 02 | Fuse XS3 | Okay | Ruptured |
| | 03 | Fuse XS4 | Okay | Ruptured |
| | 04 | Fuse XS5 | Okay | Ruptured |
| | 05 | Fuse XS6 | Okay | Ruptured |
| | | | | FP |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| | | | | - |
| Dependency: | Refer to: p51831 Refer to: F60204 | | | |
| Note: | The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states. The parameter is only relevant for the Control Module. | | | |

| | | | | |
|---------------------|--|--|----------------------------|--|
| r53223.0...5 | | CO/BO: Fuses at X23E state / Fuses X23E | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6957 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and connector output/binector output for the state of the fuses at X23E. The fuses are monitored via connection A7112:X23E. | | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Fuse XS1 | Okay | Ruptured | - |
| | 01 | Fuse XS2 | Okay | Ruptured | - |
| | 02 | Fuse XS3 | Okay | Ruptured | - |
| | 03 | Fuse XS4 | Okay | Ruptured | - |
| | 04 | Fuse XS5 | Okay | Ruptured | - |
| | 05 | Fuse XS6 | Okay | Ruptured | - |

Dependency: Refer to: p51831
Refer to: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states. The parameter is only relevant for the Control Module.

r53224.0...5 CO/BO: Fuses at X23F state / Fuses X23F

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 6957 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Display and connector output/binector output for the state of the fuses at X23F. The fuses are monitored via connection A7112:X23F.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-------------|----------|----------|----|
| | 00 | Fuse XS1 | Okay | Ruptured | - |
| | 01 | Fuse XS2 | Okay | Ruptured | - |
| | 02 | Fuse XS3 | Okay | Ruptured | - |
| | 03 | Fuse XS4 | Okay | Ruptured | - |
| | 04 | Fuse XS5 | Okay | Ruptured | - |
| | 05 | Fuse XS6 | Okay | Ruptured | - |

Dependency: Refer to: p51831
Refer to: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states. The parameter is only relevant for the Control Module.

r53230.0...7 CO/BO: Fixed bit 0 ... 7 / Fix bit 0...7

| | | | |
|---------|------------------------------|----------------------|----------------------------|
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 3100 |
| | P-Group: - | Unit group: - | Unit selection: - |
| | Not for motor type: - | Scaling: - | Expert list: 1 |
| | Min | Max | Factory setting |
| | - | - | - |

Description: Connector/binector output for fixed bit 0 ... 7.

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|----------------------|----------|----------|----|
| | 00 | Fixed bit 0 (p50421) | High | Low | - |
| | 01 | Fixed bit 1 (p50422) | High | Low | - |
| | 02 | Fixed bit 2 (p50423) | High | Low | - |
| | 03 | Fixed bit 3 (p50424) | High | Low | - |
| | 04 | Fixed bit 4 (p50425) | High | Low | - |
| | 05 | Fixed bit 5 (p50426) | High | Low | - |
| | 06 | Fixed bit 6 (p50427) | High | Low | - |
| | 07 | Fixed bit 7 (p50428) | High | Low | - |

Dependency: Refer to: p50421, p50422, p50423, p50424, p50425, p50426, p50427, p50428

2 Parameters

2.2 List of parameters

| | | | | |
|---------------------|---|---|----------------------------|-----------------|
| r53300.0...1 | CO/BO: P2P IF telegram monitoring state / P2P telegr mon | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9300 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the state of telegram monitoring on the peer-to-peer interface (P2P IF). | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Telegram monitoring timeout | Yes | No |
| | 01 | Telegram monitoring timeout and 1 s pulse pending | Yes | No |
| | | | | FP |
| | | | | 9300 |
| | | | | 9300 |
| Note: | The "Telegram monitoring timeout" signal is triggered: | | | |
| | - With binector output r53300.0 as a continuous signal | | | |
| | - With binector output r53300.1 as a one-off pulse with a duration of 1 s | | | |
| r53310.0...1 | CO/BO: Parallel interface telegram monitoring state / Par IF mon state | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9350 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the state of telegram monitoring on the parallel interface. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Telegram monitoring timeout - continuous signal | Yes | No |
| | 01 | Telegram monitoring timeout - pulse | Yes | No |
| | | | | FP |
| | | | | 9350 |
| | | | | 9350 |
| Dependency: | Refer to: p50099, p51807 | | | |
| | Refer to: F60014 | | | |
| r53311.0 | CO/BO: Parallel interface master/slave state / Par IF ma/sl state | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9350 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Displays the state of the parallel interface. | | | |
| Bit field: | Bit | Signal name | 1 signal | 0 signal |
| | 00 | Active master | Master | Slave |
| | | | | FP |
| | | | | 9350 |
| Dependency: | Refer to: p51800 | | | |
| r53312.0...1 | CO/BO: Topology switchover command / Top_sw command | | | |
| DC_CTRL | Can be changed: - | Calculated: - | Access level: 2 | |
| | Data type: Unsigned16 | Dyn. index: - | Func. diagram: 9360 | |
| | P-Group: - | Unit group: - | Unit selection: - | |
| | Not for motor type: - | Scaling: - | Expert list: 1 | |
| | Min | Max | Factory setting | |
| | - | - | - | |
| Description: | Display and BICO output to control the contactors to switch over the power unit topology. | | | |

| Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
|------------|-----|-----------------------|-----------|---------------|------|
| | 00 | Power unit topology 1 | Requested | Not requested | 9360 |
| | 01 | Power unit topology 2 | Requested | Not requested | 9360 |

Dependency: Refer to: p51790

r61000[0...239] PROFINET Name of Station / PN Name of Station

| | | | |
|--|---|--|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting - |
|--|---|--|--|

Description: Displays PROFINET Name of Station.

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r61001[0...3] PROFINET IP of Station / PN IP of Station

| | | | |
|--|---|--|--|
| CU_DC (PROFINET CBE20), CU_DC_R (PROFINET CBE20), CU_DC_R_S (PROFINET CBE20), CU_DC_S (PROFINET CBE20) | Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: - Min - | Calculated: - Dyn. index: - Unit group: - Scaling: - Max - | Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1 Factory setting - |
|--|---|--|--|

Description: Displays PROFINET IP of Station.

2.3 Parameters for data sets

2.3.1 Parameters for command data sets (CDS)

Note:

References: SINAMICS DC MASTER operating instructions
"Data sets" Chapter

The following list contains the parameters that are dependent on the command data sets.

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng, Type: CDS
Product: SINAMICS DC MASTER OA, Version: 1401800, Language: eng, Type: CDS

| | |
|--------------|--|
| p0700[0...n] | Macro Binector Input (BI) / Macro BI |
| p0820[0...n] | BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0 |
| p0821[0...n] | BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1 |
| p0840[0...n] | BI: ON / OFF (OFF1) / ON / OFF (OFF1) |
| p0844[0...n] | BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1 |
| p0845[0...n] | BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2 |
| p0848[0...n] | BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1 |
| p0849[0...n] | BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2 |
| p0852[0...n] | BI: Enable operation/inhibit operation / Operation enable |
| p0854[0...n] | BI: Control by PLC/no control by PLC / Master ctrl by PLC |
| p0855[0...n] | BI: Unconditionally release holding brake / Uncond open brake |
| p0856[0...n] | BI: Speed controller enable / n_ctrl enable |
| p0858[0...n] | BI: Unconditionally close holding brake / Uncond close brake |
| p1000[0...n] | Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set |
| p1035[0...n] | BI: Motorized potentiometer setpoint raise / Mop raise |
| p1036[0...n] | BI: Motorized potentiometer lower setpoint / Mop lower |
| p1055[0...n] | BI: Jog bit 0 / Jog bit 0 |
| p1056[0...n] | BI: Jog bit 1 / Jog bit 1 |
| p1070[0...n] | CI: Main setpoint / Main setpoint |
| p1113[0...n] | BI: Setpoint inversion / Setp inv |
| p1140[0...n] | BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable |
| p1141[0...n] | BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG |
| p1142[0...n] | BI: Enable setpoint/inhibit setpoint / Setpoint enable |
| p1500[0...n] | Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set |
| p2103[0...n] | BI: 1. Acknowledge faults / 1. Acknowledge |
| p2104[0...n] | BI: 2. Acknowledge faults / 2. Acknowledge |
| p2105[0...n] | BI: 3. Acknowledge faults / 3. Acknowledge |
| p2106[0...n] | BI: External fault 1 / External fault 1 |
| p2107[0...n] | BI: External fault 2 / External fault 2 |
| p2108[0...n] | BI: External fault 3 / External fault 3 |
| p2112[0...n] | BI: External alarm 1 / External alarm 1 |
| p2116[0...n] | BI: External alarm 2 / External alarm 2 |
| p2117[0...n] | BI: External alarm 3 / External alarm 3 |
| p2200[0...n] | BI: Technology controller enable / Tec_ctrl enable |
| p2253[0...n] | CI: Technology controller setpoint 1 / Tec_ctrl setp 1 |
| p2254[0...n] | CI: Technology controller setpoint 2 / Tec_ctrl setp 2 |
| p2264[0...n] | CI: Technology controller actual value / Tec_ctrl act val |
| p2286[0...n] | BI: Hold technology controller integrator / Tec_ctr integ hold |
| p2289[0...n] | CI: Technology controller pre-control signal / Tec_ctr prectr_sig |
| p2296[0...n] | CI: Technology controller output scaling / Tec_ctrl outp scal |
| p2297[0...n] | CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src |

| | |
|---------------|--|
| p2298[0...n] | Cl: Technology controller minimum limit signal source / Tec_ctrl min_l s_s |
| p2299[0...n] | Cl: Technology controller limit offset / Tech_ctrl lim offs |
| p3111[0...n] | Bl: External fault 3 enable / Ext fault 3 enab |
| p3112[0...n] | Bl: External fault 3 enable negated / Ext flt 3 enab neg |
| p50165[0...n] | Bl: Signal source for change in torque direction enable / Torq dir en sig s |
| p50173[0...n] | Bl: Signal source for closed-loop current/torque control ctr type / Ctr l/tq ctr sig s |
| p50175[0...n] | Cl: Signal source for closed-loop armature current control P gain / Ia ctr Kp sig s |
| p50176[0...n] | Cl: Signal source for closed-loop armature current ctr integr time / Ia ctr Tn sig s |
| p50177[0...n] | Bl: Signal source for the "No immediate pulse inhibit" command / No pulse inh sig s |
| p50178[0...n] | Bl: Sig source for the "Fire all thyristors simultaneously" command / All thy fire sig s |
| p50265[0...n] | Bl: Signal source for field current monitoring / I_field mon sig s |
| p50266[0...n] | Cl: Field current controller Tn factor signal source / If_ctrTnFact sig s |
| p50267[0...n] | Cl: Field current controller Kp factor signal source / If_ctrKpFact sig s |
| p50289[0...n] | Bl: EMF setpoint reduction activation signal source / EMF set act sig s |
| p50322[0...n] | Cl: Setpoint processing signal source for main setpoint factor / M set factor sig s |
| p50323[0...n] | Cl: Setpoint processing signal source for additional setpoint factor / Add set fac sig s |
| p50433[0...n] | Cl: Signal source for default setpoint / Def set sig s |
| p50438[0...n] | Cl: Jog signal source for default setpoint / Jog def set sig s |
| p50443[0...n] | Cl: Creep signal source for default setpoint / Cr def set sig s |
| p50444[0...n] | Bl: Creep signal source for shutdown / Cr shutdn sig s |
| p50461[0...n] | Cl: Motorized potentiometer signal source for automatic setpoint / MotP aut s sig s |
| p50466[0...n] | Cl: Motor potentiometer setting value signal source / MotP s val sig s |
| p50470[0...n] | Bl: Motorized potentiometer signal source for CW/CCW / MotP CW/CCW sig s |
| p50471[0...n] | Bl: Motorized potentiometer signal source for manual/automatic / MotP man/aut sig s |
| p50472[0...n] | Bl: Motorized potentiometer accept setting value / MotP acc set val |
| p50484[0...n] | Cl: Oscillation signal source for default setpoint / Oscill def set |
| p50485[0...n] | Bl: Oscillation selection of signal source / Oscill sel sig s |
| p50500[0...n] | Cl: Torque limiting signal source for t_set in slave mode / T_set s mode sig s |
| p50501[0...n] | Cl: Torque limiting signal source for torque additional setpoint / T_lim add s sig s |
| p50553[0...n] | Cl: Speed controller adaptation Kp signal source / Adapt Kp sig s |
| p50554[0...n] | Cl: Speed controller adaptation Tn signal source / Adapt Tn sig s |
| p50555[0...n] | Cl: Speed controller adaptation droop signal source / Adapt droop sig s |
| p50580[0...n] | Bl: Field reversal direction of rotation signal source / Field rev sig s |
| p50581[0...n] | Bl: Field reversal braking signal source / Field rev br sig s |
| p50583[0...n] | Cl: Field reversal speed actual value signal source / FldRev n_act sig s |
| p50594[0...n] | Cl: Messages polarity speed setpoint signal source / MsgPol n_set S_src |
| p50598[0...n] | Cl: Messages polarity speed actual value signal source / MsgPol n_act S_src |
| p50607[0...n] | Cl: Torque limiting signal source for master drive t_set / Mst tq set sig s |
| p50609[0...n] | Cl: Signal source for speed controller actual value / n_ctr act sig s |
| p50625[0...n] | Cl: Signal source for speed controller setpoint / n_ctr set sig s |
| p50626[0...n] | Cl: Signal source for speed controller actual value smoothing / Act v smoo sig s |
| p50635[0...n] | Cl: Setpoint processing signal source for RFG setpoint / RFG set sig s |
| p50637[0...n] | Bl: RFG parameter set 2 selection signal source / RFG par s 2 sig s |
| p50638[0...n] | Bl: RFG parameter set 3 selection signal source / RFG par s 3 sig s |
| p50640[0...n] | Bl: RFG signal source for accepting setting value / RFG accept set v |
| p50641[0...n] | Bl: Bypass ramp-function generator signal source / Bypass RFG sig s |
| p50644[0...n] | Cl: Setpoint processing signal source for main setpoint / M set sig s |
| p50645[0...n] | Cl: Setpoint processing signal source for additional setpoint / A set sig s |
| p50646[0...n] | Bl: RFG signal source for ramp-up integrator enable / R-up int ena sig s |
| p50647[0...n] | Bl: RFG tracking activation signal source / RFG trck act sig s |
| p50671[0...n] | Bl: Setpoint processing sig source to enable neg dir of rotation / Ena n dir r sig s |
| p50672[0...n] | Bl: Setpoint processing signal source to enable pos dir of rotation / Ena p dir r sig s |
| p50673[0...n] | Bl: Motorized potentiometer signal source to increase setpoint / MotP incr sig s |
| p50674[0...n] | Bl: Motorized potentiometer signal source to lower setpoint / MotP lower sig s |
| p50680[0...n] | Bl: Fixed setpoint signal source for connector selection 0 / Fix set con0 sig s |

| | |
|---------------|--|
| p50681[0...n] | BI: Fixed setpoint signal source for connector selection 1 / Fix set con1 sig s |
| p50684[0...n] | BI: Speed controller droop enable / Droop enable |
| p50687[0...n] | BI: Speed controller signal source for master/slave drive / Mast/sl sig s |
| p50691[0...n] | BI: Sequence control line contactor feedback / Line cont feedb |
| p50692[0...n] | BI: CI-loop field curr ctrl sig source for inject of standst field / If_ctr stst sig s |
| p50693[0...n] | BI: EMF controller enable signal source / EMF ctr ena sig s |
| p50694[0...n] | BI: Torque limiting signal source to enable changeover / T lim ch ena sig s |
| p50695[0...n] | BI: Signal source for setting speed controller integral component / Set I_co sig s |
| p50696[0...n] | BI: Signal source for stop speed controller integral component / Stop I_co sig s |
| p50697[0...n] | BI: Enable for inertia compensation / Inert comp ena |
| p50698[0...n] | BI: Signal source for speed controller PI/P controller changeover / n_ctr PI/P sig s |
| p51607[0...n] | BI: Setpoint processing reduction signal source / Red sig s |
| p51619[0...n] | BI: Signal source for switching on line contactor / Line cont ON sig s |
| p51657[0...n] | BI: Speed controller start pulse pos/neg changeover signal source / Start p ch sig s |

2.3.2 Parameters for drive data sets (DDS)

Note:

References: SINAMICS DC MASTER operating instructions
 “Data sets” Chapter

The following list contains the parameters that are dependent on the drive data sets.

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng, Type: DDS
Product: SINAMICS DC MASTER OA, Version: 1401800, Language: eng, Type: DDS

| | |
|---------------|--|
| p0187[0...n] | Encoder 1 encoder data set number / Enc 1 EDS number |
| p0188[0...n] | Encoder 2 encoder data set number / Enc 2 EDS number |
| p0340[0...n] | Automatic calculation motor/control parameters / Calc auto par |
| p1441[0...n] | Actual speed smoothing time / n_act T_smooth |
| p1821[0...n] | Dir of rot / Dir of rot |
| p2504[0...n] | LR motor/load motor revolutions / Mot/load motor rev |
| p2505[0...n] | LR motor/load load revolutions / Mot/load load rev |
| p2720[0...n] | Load gear configuration / Load gear config |
| p2721[0...n] | Load gear rotary absolute encoder revolutions virtual / Abs rot rev |
| p2722[0...n] | Load gear position tracking tolerance window / Pos track tol |
| r2723[0...n] | CO: Load gear absolute value / Load gear abs_val |
| r2724[0...n] | CO: Load gear position difference / Load gear pos diff |
| p2900[0...n] | CO: Fixed value 1 [%] / Fixed value 1 [%] |
| p2901[0...n] | CO: Fixed value 2 [%] / Fixed value 2 [%] |
| p2930[0...n] | CO: Fixed value M [Nm] / Fixed value M [Nm] |
| p50083[0...n] | Speed controller actual value selection / n_ctr act sel |
| p50100[0...n] | Motor rated armature current / Mot rated I_armat |
| p50101[0...n] | Motor rated armature voltage / Mot rated V_armat |
| p50102[0...n] | Motor rated excitation current / Mot rated I_exc |
| p50103[0...n] | Minimum motor excitation current / Mot I_exc min |
| p50104[0...n] | Speed-dependent current limitation speed n1 / I_lim n_dep n1 |
| p50105[0...n] | Speed-dependent current limitation armature current I1 / I_lim n_dep I1 |
| p50106[0...n] | Speed-dependent current limitation speed n2 / I_lim n_dep n2 |
| p50107[0...n] | Speed-dependent current limitation armature current I2 / I_lim n_dep I2 |
| p50108[0...n] | Speed-dependent current limitation maximum operating speed n3 / I_lim n_dep n3 |
| p50109[0...n] | Speed-dependent current limitation activation / I_lim n_dep act |
| p50110[0...n] | Armature circuit resistance / Ra |
| p50111[0...n] | Armature circuit inductance / La |

| | |
|---------------|---|
| p50112[0...n] | Field circuit resistance / R_field circuit |
| p50113[0...n] | Motor I2t monitoring continuous current factor / Mot I2t I_cont |
| p50114[0...n] | Motor thermal time constant / Mot T therm |
| p50115[0...n] | Speed controller EMF at maximum speed / EMF at n_max |
| p50116[0...n] | Field circuit inductance / L_field circuit |
| p50117[0...n] | Field characteristic status / Field char stat |
| p50118[0...n] | EMF rated value / EMF rated |
| p50119[0...n] | Rated speed / n_rated |
| p50120[0...n] | Field current for motor flux 0 % / I_field flux 0% |
| p50121[0...n] | Field current for motor flux 5 % / I_field flux 5% |
| p50122[0...n] | Field current for motor flux 10 % / I_field flux 10% |
| p50123[0...n] | Field current for motor flux 15 % / I_field flux 15% |
| p50124[0...n] | Field current for motor flux 20 % / I_field flux 20% |
| p50125[0...n] | Field current for motor flux 25 % / I_field flux 25% |
| p50126[0...n] | Field current for motor flux 30 % / I_field flux 30% |
| p50127[0...n] | Field current for motor flux 35 % / I_field flux 35% |
| p50128[0...n] | Field current for motor flux 40 % / I_field flux 40% |
| p50129[0...n] | Field current for motor flux 45 % / I_field flux 45% |
| p50130[0...n] | Field current for motor flux 50 % / I_field flux 50% |
| p50131[0...n] | Field current for motor flux 55 % / I_field flux 55% |
| p50132[0...n] | Field current for motor flux 60 % / I_field flux 60% |
| p50133[0...n] | Field current for motor flux 65 % / I_field flux 65% |
| p50134[0...n] | Field current for motor flux 70 % / I_field flux 70% |
| p50135[0...n] | Field current for motor flux 75 % / I_field flux 75% |
| p50136[0...n] | Field current for motor flux 80 % / I_field flux 80% |
| p50137[0...n] | Field current for motor flux 85 % / I_field flux 85% |
| p50138[0...n] | Field current for motor flux 90 % / I_field flux 90% |
| p50139[0...n] | Field current for motor flux 95% / I_field flux 95% |
| p50148[0...n] | Armature converter Alpha W limit (single-phase operation) / A Alpha W lim 1-ph |
| p50149[0...n] | Armature converter correction angle Alpha W limit / Arm corr Alpha W |
| p50150[0...n] | Armature converter Alpha G limit / Arm Alpha G lim |
| p50151[0...n] | Armature converter Alpha W limit / Arm Alpha W lim |
| p50152[0...n] | Armature average number of line periods / Arm line per no. |
| p50153[0...n] | Control word for armature pre-control / A prec STW |
| p50154[0...n] | Closed-loop armature current control integral comp activation / Ia ctr I comp act |
| p50155[0...n] | Closed-loop armature current control P gain / Ia ctr Kp |
| p50156[0...n] | Closed-loop armature current control integral time / Ia ctr Tn |
| p50157[0...n] | Current limitation setpoint integrator selection / I_set integ sel |
| p50158[0...n] | Current limitation setpoint integrator ramp-up time / Set integ t_r-up |
| p50159[0...n] | Auto-reversing stage changeover threshold / Auto-rev thresh |
| p50160[0...n] | Auto-reversing stage additional torque-free interval / Auto-rev interval |
| p50161[0...n] | Auto-reversing stage Alpha W pulses second pulse inhibited / Auto-rev Alpha W1 |
| p50162[0...n] | EMF selection / EMF sel |
| p50163[0...n] | EMF smoothing selection / EMF smoothing sel |
| p50164[0...n] | Closed-loop armature current ctr proportional comp activation / Ia ctr Kp act |
| p50169[0...n] | Torque limiting selection torque limiting/current limitation / T lim sel T/I_lim |
| p50170[0...n] | Selection of control type for closed-loop current/torque control / Ctrl type I/tq sel |
| p50171[0...n] | Current limitation armature current limit torque dir I factor / Ia lim t d I fact |
| p50172[0...n] | Current limitation armature current limit torque dir II factor / Ia lim t d II fact |
| p50179[0...n] | Auto-reversing stage Alpha W pluses second pulse enabled / Auto-rev Alpha W2 |
| p50180[0...n] | Torque limiting torque limit 1 positive / T lim 1 pos |
| p50181[0...n] | Torque limiting torque limit 1 negative / T lim 1 neg |
| p50182[0...n] | Torque limiting torque limit 2 positive / T lim 2 pos |
| p50183[0...n] | Torque limiting torque limit 2 negative / T lim 2 neg |
| p50184[0...n] | Torque limiting changeover speed / T lim n_chng |

2 Parameters

2.3 Parameters for data sets

| | |
|---------------|---|
| p50190[0...n] | CI-loop arm current ctr prectr setpoint smoothing time constant / la prec set T |
| p50191[0...n] | CI-loop arm current ctr curr controller setp sm time constant / la ctr set T |
| p50192[0...n] | Armature Alpha W limit control word / A Alpha W lim STW |
| p50200[0...n] | Speed controller speed actual value smoothing time constant / n_ctr n_act T |
| p50201[0...n] | Band-stop 1 resonant frequency / Band-st 1 f_n |
| p50202[0...n] | Band-stop 1 quality / Band-st 1 quality |
| p50203[0...n] | Band-stop 2 resonant frequency / Band-st 2 f_n |
| p50204[0...n] | Band-stop 2 quality / Band-st 2 quality |
| p50205[0...n] | Derivative-action element derivative-action time / D-act el t_d-act |
| p50206[0...n] | Derivative-action element smoothing time / Der-act el t_DAE |
| p50208[0...n] | Lead/lag element rate time / Lead/lag t_rate |
| p50209[0...n] | Lead/lag element filter time / Lead/lag t_filter |
| p50220[0...n] | Speed controller changeover PI/P speed setpoint threshold / PI/P n_set thresh |
| p50221[0...n] | Speed controller changeover PI/P hysteresis / PI/P hyst |
| p50222[0...n] | Speed controller changeover PI/P speed actual value threshold / PI/P n_act thresh |
| p50223[0...n] | Speed controller pre-control enable / n_ctr prec ena |
| p50224[0...n] | Speed controller integral component configuration / n_ctr I comp conf |
| p50225[0...n] | Speed controller adaptation Kp y coordinate 2 / Adapt Kp y2 |
| p50226[0...n] | Speed controller adaptation Tn y coordinate 2 / Adapt Tn y2 |
| p50228[0...n] | Speed controller speed setpoint smoothing time constant / n_ctr n_set T |
| p50229[0...n] | Mast/Sl drive ctr speed controller tracking I component / M/S drve ctr track |
| p50230[0...n] | Set speed controller integral component duration / Set I_comp dur |
| p50234[0...n] | Speed controller proportional component enable / n_ctr P_comp ena |
| p50237[0...n] | Speed controller reference model natural frequency / n_ctrl ref_m fn |
| p50238[0...n] | Speed controller reference model damping / n_ctrl ref_m d |
| p50239[0...n] | Speed controller reference model dead time / n_ctrl ref_m t_dead |
| p50240[0...n] | Speed controller reference model activation / n_ctrl ref_m act |
| p50250[0...n] | Field converter Alpha G limit / Field Alpha G lim |
| p50251[0...n] | Field converter Alpha W limit / Field Alpha W lim |
| p50252[0...n] | Field average number of line periods / Field line per no. |
| p50253[0...n] | Field pre-control activation / Field prec act |
| p50254[0...n] | Field current controller integral component activation / I_field_ctr I comp |
| p50255[0...n] | Field current controller P gain / I_field ctr Kp |
| p50256[0...n] | Field current controller integral time / I_field ctr Tn |
| p50257[0...n] | Closed-loop field current control standstill field / If_ctr stst_field |
| p50258[0...n] | CI-loop field current control field current reduction delay time / If_ctr I_red t_del |
| p50260[0...n] | Field current pre-control setpoint smoothing time constant / Field_prec set T |
| p50261[0...n] | Field current controller setpoint smoothing time constant / I_field_ctr set T |
| p50263[0...n] | Selection of motor flux input variable / Mot fl input sel |
| p50264[0...n] | Field current controller proportional component activation / I_field_ctr P comp |
| p50273[0...n] | EMF controller pre-control activation / EMF ctr prec act |
| p50274[0...n] | EMF controller integral component activation / EMF ctr I comp act |
| p50275[0...n] | EMF controller P gain / EMF ctr Kp |
| p50276[0...n] | EMF controller integral time / EMF ctr Tn |
| p50277[0...n] | EMF controller droop / EMF ctr droop |
| p50280[0...n] | EMF controller pre-control setpoint smoothing time constant / EMF prec set T |
| p50281[0...n] | EMF controller setpoint smoothing time constant / EMF ctr set T |
| p50282[0...n] | EMF controller actual value smoothing time constant / EMF ctr act T |
| p50283[0...n] | EMF controller pre-control actual value smoothing time constant / EMF prec act T |
| p50284[0...n] | EMF controller proportional component activation / EMF ctr P comp act |
| p50285[0...n] | EMF setpoint reduction line voltage smoothing time / EMF set line t_sm |
| p50286[0...n] | EMF setpoint reduction line voltage upper limit / EMF set line upper |
| p50287[0...n] | EMF setpoint reduction line voltage lower limit / EMF set line lower |
| p50288[0...n] | EMF setpoint reduction evaluation factor / EMF set eval_fact |
| p50295[0...n] | Transition rounding operating mode / RFG rounding mode |

| | |
|---------------|---|
| p50296[0...n] | RFG quick stop (OFF3) ramp-down time / RFG OFF3 t_ramp-dn |
| p50297[0...n] | RFG quick stop (OFF3) initial rounding / RFG OFF3 init rndg |
| p50298[0...n] | RFG quick stop (OFF3) final rounding / RFG OFF3 fin rndg |
| p50300[0...n] | RFG positive setpoint limit after ramp-function generator / RFG pos after RFG |
| p50301[0...n] | RFG negative setpoint limit after ramp-function generator / RFG neg after RFG |
| p50302[0...n] | RFG ramp-up integrator operating mode / RFG integ op mode |
| p50303[0...n] | RFG ramp-up time 1 / RFG t_ramp-up 1 |
| p50304[0...n] | RFG ramp-down time 1 / RFG t_ramp-dn 1 |
| p50305[0...n] | RFG initial rounding 1 / RFG init rndg 1 |
| p50306[0...n] | RFG final rounding 1 / RFG fin rndg 1 |
| p50307[0...n] | RFG ramp-up time 2 / RFG t_ramp-up 2 |
| p50308[0...n] | RFG ramp-down time 2 / RFG ramp-dn time 2 |
| p50309[0...n] | RFG initial rounding 2 / RFG init rndg 2 |
| p50310[0...n] | RFG final rounding 2 / RFG fin rndg 2 |
| p50311[0...n] | RFG ramp-up time 3 / RFG t_ramp-up 3 |
| p50312[0...n] | RFG ramp-down time 3 / RFG t_ramp-dn 3 |
| p50313[0...n] | RFG initial rounding 3 / RFG init rndg 3 |
| p50314[0...n] | RFG final rounding 3 / RFG fin rndg 3 |
| p50317[0...n] | RFG tracking enable / RFG track ena |
| p50318[0...n] | RFG setting value selection / RFG set val sel |
| p50319[0...n] | RFG setpoint enable delay time / RFG set_ena i_del |
| p50320[0...n] | Setpoint processing main setpoint factor / m_set_factor |
| p50321[0...n] | Setpoint processing additional setpoint factor / Add_set_factor |
| p50330[0...n] | RFG time unit / RFG time unit |
| p50351[0...n] | Line undervoltage threshold / Line V_und thresh |
| p50352[0...n] | Line overvoltage threshold / Line V_over thresh |
| p50353[0...n] | Line monitoring phase failure threshold / Ph_fail thresh |
| p50355[0...n] | Stall protection monitoring time / Stall t_mon |
| p50356[0...n] | Stall protection threshold / Stall prot thresh |
| p50357[0...n] | Tachometer interruption monitoring threshold / Tacho_mon thresh |
| p50361[0...n] | Line monitoring undervoltage delay time / V_under t_del |
| p50362[0...n] | Line monitoring overvoltage delay time / Line V_over t_del |
| p50363[0...n] | Line frequency minimum threshold / f_line min thresh |
| p50364[0...n] | Line frequency maximum threshold / f_line max thresh |
| p50370[0...n] | Messages for speed less than minimum speed threshold / n < n_min thresh |
| p50371[0...n] | Messages for speed less than minimum speed hysteresis / n < n_min hyst |
| p50372[0...n] | Messages speed positive hysteresis / Msg n > 0 hyst |
| p50373[0...n] | Messages for reference speed threshold / Ref_speed thresh |
| p50374[0...n] | Messages for reference speed hysteresis / Ref_speed hyst |
| p50375[0...n] | Messages for reference speed OFF delay / Ref_speed t_OFF |
| p50376[0...n] | Messages for setpoint/actual value deviation 2 threshold / Set/act 2 thresh |
| p50377[0...n] | Messages for setpoint/actual value deviation 2 hysteresis / Set/act 2 hyst |
| p50378[0...n] | Messages for setpoint/actual value deviation 2 OFF delay / Set/act 2 t_OFF |
| p50380[0...n] | Messages for overspeed threshold positive direction of rotation / Msg n_over pos |
| p50381[0...n] | Messages for overspeed threshold negative direction of rotation / Msg n_over neg |
| p50388[0...n] | Messages for setpoint/actual value deviation 1 threshold / Set/act 1 thresh |
| p50389[0...n] | Messages for setpoint/actual value deviation 1 hysteresis / Set/act 1 hyst |
| p50390[0...n] | Messages for setpoint/actual value deviation 1 OFF delay / Set/act t_OFF |
| p50394[0...n] | Messages for field current threshold minimum threshold / Msg If min thresh |
| p50395[0...n] | Messages for field current threshold minimum hysteresis / Msg If min hyst |
| p50396[0...n] | Field current monitoring setpoint factor / If_mon set_fact |
| p50397[0...n] | Field current monitoring fault delay time / If_mon F t_del |
| p50398[0...n] | Messages for field current actual value less than setpoint fact / Msg If<set fact |
| p50399[0...n] | Messages for field current actual value less than setpoint hyst / Msg If<set hyst |
| p50401[0...n] | Fixed value 1 / Fix val 1 |

| | |
|---------------|--|
| p50402[0...n] | Fixed value 2 / Fix val 2 |
| p50403[0...n] | Fixed value 3 / Fix val 3 |
| p50404[0...n] | Fixed value 4 / Fix val 4 |
| p50405[0...n] | Fixed value 5 / Fix val 5 |
| p50406[0...n] | Fixed value 6 / Fix val 6 |
| p50407[0...n] | Fixed value 7 / Fix val 7 |
| p50408[0...n] | Fixed value 8 / Fix val 8 |
| p50409[0...n] | Fixed value 9 / Fix val 9 |
| p50410[0...n] | Fixed value 10 / Fix val 10 |
| p50411[0...n] | Fixed value 11 / Fix val 11 |
| p50412[0...n] | Fixed value 12 / Fix val 12 |
| p50413[0...n] | Fixed value 13 / Fix val 13 |
| p50414[0...n] | Fixed value 14 / Fix val 14 |
| p50415[0...n] | Fixed value 15 / Fix val 15 |
| p50416[0...n] | Fixed value 16 / Fix val 16 |
| p50421[0...n] | Fixed bit 0 / Fixed bit 0 |
| p50422[0...n] | Fixed bit 1 / Fixed bit 1 |
| p50423[0...n] | Fixed bit 2 / Fixed bit 2 |
| p50424[0...n] | Fixed bit 3 / Fixed bit 3 |
| p50425[0...n] | Fixed bit 4 / Fixed bit 4 |
| p50426[0...n] | Fixed bit 5 / Fixed bit 5 |
| p50427[0...n] | Fixed bit 6 / Fixed bit 6 |
| p50428[0...n] | Fixed bit 7 / Fixed bit 7 |
| p50460[0...n] | Motorized potentiometer activate ramp-function generator / Mot pot act RFG |
| p50462[0...n] | Motorized potentiometer ramp-up time / MotP t _{r-up} |
| p50463[0...n] | Motorized potentiometer ramp-down time / MotP t _{r-dn} |
| p50464[0...n] | Motorized potentiometer time difference for dy/dt / MotP t _{dif} dy/dt |
| p50465[0...n] | Motorized potentiometer expansion factor / MotP exp fact |
| p50467[0...n] | Motorized potentiometer starting value / MotP start value |
| p50468[0...n] | Motorized potentiometer maximum speed / MotP n _{max} |
| p50469[0...n] | Motorized potentiometer minimum speed / MotP n _{min} |
| p50473[0...n] | Motorized potentiometer save output value / MotP save outp val |
| p50480[0...n] | Oscillation setpoint 1 / Oscillation set 1 |
| p50481[0...n] | Oscillation setpoint 1 time / Oscill set 1 t |
| p50482[0...n] | Oscillation setpoint 2 / Oscillation set 2 |
| p50483[0...n] | Oscillation setpoint 2 time / Oscill set 2 t |
| p50491[0...n] | Motor interface alarm threshold for temperature monitoring / Mot _{temp} al thr |
| p50492[0...n] | Motor interface fault threshold for temperature monitoring / Mot _{temp} fit thr |
| p50503[0...n] | Torque limiting t _{set} factor in slave mode / T _{set} fact sl mode |
| p50512[0...n] | Speed limiting controller max speed pos direction of rotation / n _{max} pos dir rot |
| p50513[0...n] | Speed limiting controller max speed neg direction of rotation / n _{max} neg dir |
| p50515[0...n] | Speed limiting controller P gain / n _{lim} Kp |
| p50520[0...n] | Friction compensation 0 % speed / Fric comp n 0% |
| p50521[0...n] | Friction compensation 10 % speed / Fric comp n 10% |
| p50522[0...n] | Friction compensation 20 % speed / Fric comp n 20% |
| p50523[0...n] | Friction compensation 30 % speed / Fric comp n 30% |
| p50524[0...n] | Friction compensation 40 % speed / Fric comp n 40% |
| p50525[0...n] | Friction compensation 50 % speed / Fric comp n 50% |
| p50526[0...n] | Friction compensation 60 % speed / Fric comp n 60% |
| p50527[0...n] | Friction compensation 70 % speed / Fric comp n 70% |
| p50528[0...n] | Friction compensation 80 % speed / Fric comp n 80% |
| p50529[0...n] | Friction compensation 90 % speed / Fric comp n 90% |
| p50530[0...n] | Friction compensation 100% speed / Fric comp n 100% |
| p50540[0...n] | Speed controller acceleration time / n _{ctr} t _{accel} |
| p50542[0...n] | RFG dy/dt time difference / RFG dy/dt t _{dif} |

| | |
|---------------|--|
| p50543[0...n] | Speed controller setpoint/actual value difference threshold / Set/act dif thresh |
| p50546[0...n] | Smoothing time constant for inertia compensation / Comp inert T |
| p50550[0...n] | Speed controller adaptation Kp y coordinate 1 / Adapt Kp y1 |
| p50551[0...n] | Speed controller adaptation Tn y coordinate 1 / Adapt Tn y1 |
| p50556[0...n] | Speed controller adaptation Kp x coordinate 1 / Adapt Kp x1 |
| p50557[0...n] | Speed controller adaptation Tn x coordinate 1 / Adapt Tn x1 |
| p50559[0...n] | Speed controller adaptation Kp x coordinate 2 / Adapt Kp x2 |
| p50560[0...n] | Speed controller adaptation Tn x coordinate 2 / Adapt Tn x2 |
| p50561[0...n] | Speed controller adaptation droop x coordinate 2 / Adapt droop x2 |
| p50562[0...n] | Speed controller droop positive limiting / Droop pos lim |
| p50563[0...n] | Speed controller droop negative limiting / Droop neg lim |
| p50570[0...n] | Adaptation armature current controller changeover input / Adapt Ia chgov inp |
| p50571[0...n] | Adaptation armature current controller non-linear L activation / Adapt N_lin L act |
| p50572[0...n] | Adapt arm curr controller intermittent adapt activation / Adapt Interm Act |
| p50573[0...n] | Adaptation armature current controller limiting / Adapt Ia_ctrl lim |
| p50574[0...n] | Adapt arm curr controller intermittent adapt Kp increase / Ad Interm Kp incr |
| p50575[0...n] | Adaptation field current controller changeover input / Adapt If chgov inp |
| p50576[0...n] | Adaptation field current controller non-linear L activation / Adapt n_lin act |
| p50577[0...n] | Adapt field curr controller non-linear gating unit activation / Adapt n_lin GU act |
| p50578[0...n] | Adaptation field current controller limiting / Adapt If_ctrl lim |
| p50701[0...n] | CUD analog input 0 scaling / CUD AI 0 scal |
| p50711[0...n] | CUD analog input 1 scaling / CUD AI 1 scal |
| p50721[0...n] | CUD analog input 2 scaling / CUD AI 2 scal |
| p50741[0...n] | Analog input main actual value scaling / AI m act scal |
| p51591[0...n] | Armature inductance reduction factor / L_armat red fact |
| p51592[0...n] | Armature commutating inductance / Arm Lk |
| p51594[0...n] | Interphase inductance in 12-pulse operation / L_intph 12-pulse |
| p51595[0...n] | Interphase inductance reduction factor / L_intph red fact |
| p51596[0...n] | Interphase resistance in 12-pulse operation / R_intph 12-pulse |
| p51597[0...n] | Field inductance reduction factor / L_field red fact |
| p51608[0...n] | Setpoint processing reduction factor / Red factor |
| p51651[0...n] | Speed controller start pulse positive setpoint / Start pul pos set |
| p51652[0...n] | Speed controller start pulse negative factor / Start pul neg fact |
| p51653[0...n] | Speed controller start pulse negative setpoint / Start pul neg set |
| p51861[0...n] | Capacitance of the DC link capacitor / Capac_DClink |

2.3.3 Parameters for encoder data sets (EDS)

Note:

References: SINAMICS DC MASTER operating instructions
"Data sets" Chapter

The following list contains the parameters that are dependent on the encoder data sets.

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng, Type: EDS

| | |
|--------------|---|
| p0141[0...n] | Encoder interface (Sensor Module) component number / Enc_interf comp_no |
| p0142[0...n] | Encoder component number / Encoder comp_no |
| p0144[0...n] | Sensor Module detection via LED / SM detection LED |
| p0145[0...n] | Activate/de-activate encoder interface / Enc_intf act/deact |
| r0146[0...n] | Encoder interface active/inactive / Enc_intf act/inact |
| r0147[0...n] | Sensor Module EEPROM data version / SM EEPROM version |
| r0148[0...n] | Sensor Module firmware version / SM FW version |
| p0400[0...n] | Encoder type selection / Enc_typ sel |
| p0401[0...n] | Encoder type OEM selection / Enc type OEM sel |
| p0402[0...n] | Gearbox type selection / Gearbox type sel |
| p0404[0...n] | Encoder configuration effective / Enc_config eff |
| p0405[0...n] | Square-wave encoder track A/B / Sq-wave enc A/B |
| p0407[0...n] | Linear encoder grid division / Enc grid div |
| p0408[0...n] | Rotary encoder pulse number / Rot enc pulse No. |
| p0410[0...n] | Encoder inversion actual value / Enc inv act value |
| p0411[0...n] | Measuring gear configuration / Meas gear config |
| p0412[0...n] | Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev |
| p0413[0...n] | Measuring gear position tracking tolerance window / Pos track window |
| p0414[0...n] | Redundant coarse position value relevant bits (identified) / Relevant bits |
| p0415[0...n] | Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB |
| p0416[0...n] | Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1 |
| p0417[0...n] | Encoder safety comparison algorithm (detected) / Safety comp_algo |
| p0418[0...n] | Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1 |
| p0419[0...n] | Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2 |
| p0420[0...n] | Encoder connection / Enc_connection |
| p0421[0...n] | Absolute encoder rotary multiturn resolution / Enc abs multiturn |
| p0422[0...n] | Absolute encoder linear measuring step resolution / Enc abs meas step |
| p0423[0...n] | Absolute encoder rotary singleturn resolution / Enc abs singleturn |
| p0424[0...n] | Encoder linear zero mark distance / Enc lin ZM_dist |
| p0425[0...n] | Encoder rotary zero mark distance / Enc rot dist ZM |
| p0426[0...n] | Encoder zero mark differential distance / Enc ZM Dif_dist |
| p0427[0...n] | Encoder SSI baud rate / Enc SSI baud rate |
| p0428[0...n] | Encoder SSI monoflop time / Enc SSI t_monoflop |
| p0429[0...n] | Encoder SSI configuration / Enc SSI config |
| p0430[0...n] | Sensor Module configuration / SM config |
| p0431[0...n] | Angular commutation offset / Ang_com offset |
| p0432[0...n] | Gearbox factor encoder revolutions / Grbx_fact enc_rev |
| p0433[0...n] | Gearbox factor motor/load revolutions / Grbx_fact mot_rev |
| p0434[0...n] | Encoder SSI error bit / Enc SSI error bit |
| p0435[0...n] | Encoder SSI alarm bit / Enc SSI alarm bit |
| p0436[0...n] | Encoder SSI parity bit / Enc SSI parity bit |
| p0437[0...n] | Sensor Module configuration extended / SM config ext |
| p0438[0...n] | Squarewave encoder filter time / Enc t_filt |
| p0439[0...n] | Encoder ramp-up time / Enc ramp-up time |
| p0440[0...n] | Copy encoder serial number / Copy enc ser_no |
| p0441[0...n] | Encoder commissioning serial number part 1 / Enc comm ser_no 1 |

| | |
|--------------|---|
| p0442[0...n] | Encoder commissioning serial number part 2 / Enc comm ser_no 2 |
| p0443[0...n] | Encoder commissioning serial number part 3 / Enc comm ser_no 3 |
| p0444[0...n] | Encoder commissioning serial number part 4 / Enc comm ser_no 4 |
| p0445[0...n] | Encoder commissioning serial number part 5 / Enc comm ser_no 5 |
| p0453[0...n] | Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas |
| p4678[0...n] | Analog sensor LVDT ratio / An_sens LVDT ratio |
| p4679[0...n] | Analog sensor LVDT phase / An_sens LVDT ph |
| p4680[0...n] | Zero mark monitoring tolerance permissible / ZM_monit tol perm |
| p4681[0...n] | Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos |
| p4682[0...n] | Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg |
| p4683[0...n] | Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos |
| p4684[0...n] | Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg |
| p4685[0...n] | Speed actual value mean value generation / n_act mean val |
| p4686[0...n] | Zero mark minimum length / ZM min length |

2.4 Parameters for write protection and know-how protection

2.4.1 Parameters with "WRITE_NO_LOCK"

The following list contains the parameters with the "WRITE_NO_LOCK" attribute.

These parameters are not affected by the write protection.

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng, Type: WRITE_NO_LOCK

| | |
|--------------|---|
| p0003 | BOP access level / BOP acc_level |
| p0009 | Device commissioning parameter filter / Dev comm par_filt |
| p0124[0...n] | Main component detection using LED / M_comp detect LED |
| p0144[0...n] | Sensor Module detection via LED / SM detection LED |
| p0154 | Terminal Module detection via LED / TM detection LED |
| p0972 | Drive unit reset / Drv_unit reset |
| p0976 | Reset and load all parameters / Reset load all par |
| p0977 | Save all parameters / Save all par |
| p2035 | Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no |
| p2102 | BI: Acknowledge all faults / Ackn all faults |
| p2111 | Alarm counter / Alarm counter |
| p3100 | RTC time stamp mode / RTC t_stamp mode |
| p3101[0...1] | RTC set UTC time / RTC set UTC |
| p3103 | RTC synchronization source / RTC sync_source |
| p3950 | Service parameter / Serv par |
| p3981 | Faults acknowledge drive object / Faults ackn DO |
| p3985 | Master control mode selection / PcCtrl mode select |
| p4700[0...1] | Trace control / Trace control |
| p4701 | Measuring function control / Meas fct ctrl |
| p4703[0...1] | Trace options / Trace options |
| p4707 | Measurement function configuration / Meas fct config |
| p4710[0...1] | Trace trigger condition / Trace Trig_cond |
| p4711[0...5] | Trace trigger signal / Trace trig_signal |
| p4712[0...1] | Trace trigger threshold / Trace trig_thresh |
| p4713[0...1] | Trace tolerance band trigger threshold 1 / Trace trig thr 1 |
| p4714[0...1] | Trace tolerance band trigger threshold 2 / Trace trig thr 2 |
| p4715[0...1] | Trace bit mask trigger, bit mask / Trace trig mask |
| p4716[0...1] | Trace bit mask trigger trigger condition / Trace Trig_cond |
| p4720[0...1] | Trace recording cycle / Trace record_cyc |
| p4721[0...1] | Trace recording time / Trace record_time |
| p4722[0...1] | Trace trigger delay / Trace trig_delay |
| p4723[0...1] | Trace time slice cycle / Trace cycle |
| p4724[0...1] | Trace average in the time range / Trace average |
| p4730[0...5] | Trace record signal 0 / Trace record sig 0 |
| p4731[0...5] | Trace record signal 1 / Trace record sig 1 |
| p4732[0...5] | Trace record signal 2 / Trace record sig 2 |
| p4733[0...5] | Trace record signal 3 / Trace record sig 3 |
| p4734[0...5] | Trace record signal 4 / Trace record sig 4 |
| p4735[0...5] | Trace record signal 5 / Trace record sig 5 |
| p4736[0...5] | Trace record signal 6 / Trace record sig 6 |
| p4737[0...5] | Trace record signal 7 / Trace record sig 7 |
| p4780[0...1] | Trace physical address signal 0 / Trace PhyAddr Sig0 |
| p4781[0...1] | Trace physical address signal 1 / Trace PhyAddr Sig1 |
| p4782[0...1] | Trace physical address signal 2 / Trace PhyAddr Sig2 |
| p4783[0...1] | Trace physical address signal 3 / Trace PhyAddr Sig3 |

2.4 Parameters for write protection and know-how protection

| | |
|---------------|--|
| p4784[0...1] | Trace physical address signal 4 / Trace PhyAddr Sig4 |
| p4785[0...1] | Trace physical address signal 5 / Trace PhyAddr Sig5 |
| p4786[0...1] | Trace physical address signal 6 / Trace PhyAddr Sig6 |
| p4787[0...1] | Trace physical address signal 7 / Trace PhyAddr Sig7 |
| p4789[0...1] | Trace physical address trigger signal / Trace PhyAddr Trig |
| p4795 | Trace memory bank changeover / Trace mem changeov |
| p4800 | Function generator control / FG control |
| p4810 | Function generator mode / FG operating mode |
| p4812 | Function generator physical address / FG phys address |
| p4813 | Function generator physical address reference value / FG phys addr ref |
| p4816 | Function generator output signal integer number scaling / FG outp integ scal |
| p4819 | BI: Function generator control / FG control |
| p4820 | Function generator signal shape / FG signal shape |
| p4821 | Function generator period / FG period duration |
| p4822 | Function generator pulse width / FG pulse width |
| p4823 | Function generator bandwidth / FG bandwidth |
| p4824 | Function generator amplitude / FG amplitude |
| p4825 | Function generator 2nd amplitude / FG 2nd amplitude |
| p4826 | Function generator offset / FG offset |
| p4827 | Function generator ramp-up time to offset / FG ramp-up offset |
| p4828 | Function generator lower limit / FG lower limit |
| p4829 | Function generator upper limit / FG upper limit |
| p4830 | Function generator time slice cycle / FG time slice |
| p4831 | Function generator amplitude scaling / FG amplitude scal |
| p4832[0...2] | Function generator amplitude scaling / FG amplitude scal |
| p4833[0...2] | Function generator offset scaling / FG offset scal |
| p4835[0...4] | Function generator free measurement function scaling / FG fr MeasFct scal |
| p4840[0...1] | MTrace cycle number setting / Cycle number |
| p7761 | Write protection / Write protection |
| p7770 | NVRAM action / NVRAM action |
| p8550 | AOP LOCAL/REMOTE / AOP LOCAL/REMOTE |
| p8805 | Identification and maintenance 4 configuration / I&M 4 config |
| p8806[0...53] | Identification and Maintenance 1 / I&M 1 |
| p8807[0...15] | Identification and Maintenance 2 / I&M 2 |
| p8808[0...53] | Identification and Maintenance 3 / I&M 3 |
| p8809[0...53] | Identification and Maintenance 4 / I&M 4 |
| p8829 | CBE2x remote controller number / CBE2x rem ctrl num |
| p9210 | Flashing component number / Flash comp_no |
| p9211 | Flash function / Flash fct. |
| p9400 | Safely remove memory card / Mem_card rem |
| p9484 | BICO interconnections search signal source / BICO S_src srch |

2.4.2 Parameters with "KHP_WRITE_NO_LOCK"

The following list contains the parameters with the "KHP_WRITE_NO_LOCK" attribute.

These parameters are not affected by the know-how protection.

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng, Type: KHP_WRITE_NO_LOCK

| | |
|---------------|---|
| p0003 | BOP access level / BOP acc_level |
| p0009 | Device commissioning parameter filter / Dev comm par_filt |
| p0124[0...n] | Main component detection using LED / M_comp detect LED |
| p0144[0...n] | Sensor Module detection via LED / SM detection LED |
| p0154 | Terminal Module detection via LED / TM detection LED |
| p0972 | Drive unit reset / Drv_unit reset |
| p0976 | Reset and load all parameters / Reset load all par |
| p0977 | Save all parameters / Save all par |
| p2035 | Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no |
| p2040 | Fieldbus interface monitoring time / Fieldbus t_monit |
| p2102 | BI: Acknowledge all faults / Ackn all faults |
| p2111 | Alarm counter / Alarm counter |
| p3100 | RTC time stamp mode / RTC t_stamp mode |
| p3101[0...1] | RTC set UTC time / RTC set UTC |
| p3103 | RTC synchronization source / RTC sync_source |
| p3950 | Service parameter / Serv par |
| p3981 | Faults acknowledge drive object / Faults ackn DO |
| p3985 | Master control mode selection / PcCtrl mode select |
| p7761 | Write protection / Write protection |
| p7770 | NVRAM action / NVRAM action |
| p8550 | AOP LOCAL/REMOTE / AOP LOCAL/REMOTE |
| p8805 | Identification and maintenance 4 configuration / I&M 4 config |
| p8806[0...53] | Identification and Maintenance 1 / I&M 1 |
| p8807[0...15] | Identification and Maintenance 2 / I&M 2 |
| p8808[0...53] | Identification and Maintenance 3 / I&M 3 |
| p8809[0...53] | Identification and Maintenance 4 / I&M 4 |
| p8829 | CBE2x remote controller number / CBE2x rem ctrl num |
| p8835 | CBE20 firmware selection / CBE20 FW sel |
| p8839[0...1] | PZD interface hardware assignment / PZD IF HW assign |
| p8840 | COMM BOARD monitoring time / CB t_monit |
| p9210 | Flashing component number / Flash comp_no |
| p9211 | Flash function / Flash fct. |
| p9400 | Safely remove memory card / Mem_card rem |
| p9484 | BICO interconnections search signal source / BICO S_src srch |

2.4.3 Parameters with "KHP_ACTIVE_READ"

The following list contains the parameters with the "KHP_ACTIVE_READ" attribute.

These parameters can also be read with activated know-how protection.

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng, Type: KHP_ACTIVE_READ

| | |
|---------------|---|
| p0015 | Macro drive unit / Macro drv unit |
| p0015 | Macro drive object / Macro DO |
| p0101[0...n] | Drive object numbers / DO numbers |
| p0103[0...n] | Application-specific view / Appl_spec view |
| p0105 | Activate/de-activate drive object / DO act/deact |
| p0107[0...n] | Drive object type / DO type |
| p0108[0...n] | Drive objects function module / DO fct_mod |
| p0121[0...n] | Power unit component number / PU comp_no |
| p0125[0...n] | Activate/de-activate power unit components / PU_comp act/deact |
| p0140 | Number of Encoder Data Sets (EDS) / EDS count |
| p0141[0...n] | Encoder interface (Sensor Module) component number / Enc_interf comp_no |
| p0142[0...n] | Encoder component number / Encoder comp_no |
| p0145[0...n] | Activate/de-activate encoder interface / Enc_intf act/deact |
| p0151 | Terminal Module component number / TM comp_no |
| p0170 | Number of Command Data Sets (CDS) / CDS count |
| p0180 | Number of Drive Data Sets (DDS) / DDS count |
| p0199[0...24] | Drive object name / DO name |
| p0400[0...n] | Encoder type selection / Enc_typ sel |
| p0595 | Technological unit selection / Tech unit select |
| p0806 | BI: Inhibit master control / PcCtrl inhibit |
| p0922 | IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr |
| p0978[0...n] | List of drive objects / List of the DO |
| p2000 | Reference speed / n_ref |
| p2001 | Reference voltage / Reference voltage |
| p2002 | Reference current / I_ref |
| p2003 | Reference torque / M_ref |
| p2005 | Reference angle / Reference angle |
| p2006 | Reference temp / Ref temp |
| p2007 | Reference acceleration / a_ref |
| p2030 | Field bus int protocol selection / Field bus protocol |
| p2038 | IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode |
| p2079 | IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext |
| p4956[0...n] | OA DO-specific activation / OA DO act |
| p7763 | KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764 |
| p7764[0...n] | KHP OEM exception list / KHP OEM excep list |
| p7852 | Number of indices for r7853 / Qty indices r7853 |
| p8836 | SINAMICS Link address / SINAMICS Link add |
| p8870[0...15] | SINAMICS Link receive telegram word PZD / Recv link word |
| p8871[0...15] | SINAMICS Link send telegram word PZD / Send link word |
| p8872[0...15] | SINAMICS Link address receive PZD / Link addr recv |
| p9902 | Target topology number of indices / TargetTopo indices |

Function diagrams

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | |
|---|---|---|---|---|---|---|---|--|--|--|--|---|--|
| <p>Parameter</p> <p>Symbol</p> <p>Parameter name [unit] rxxx [y...z]</p> <p>↑</p> <p>Parameter name [unit] Index name rxxx[y]</p> <p>↑</p> <p>[aaaa.b] Parameter name from ... to [unit] pxxx[y...z] (Def)</p> <p>↓</p> <p>[aaaa.b] Parameter name Index name from ... to [unit] pxxx[y] (Def)</p> <p>↓</p> <p>Meaning</p> <p>Display parameter (parameter may appear multiple times)</p> <p>Display parameter with index (parameter may appear multiple times)</p> <p>Adjustable parameter (if parameter appears multiple times, diagram references are specified).</p> <p>Adjustable parameter with index (if parameter appears multiple times, diagram references are specified).</p> | | <p>Connectors</p> <p>Symbol</p> <p>Parameter name pxxx[y...z]</p> <p>⊃ (xxx [y])</p> <p>Parameter name Index name pxxx[y]</p> <p>⊃ (xxx [x])</p> <p>Parameter name [unit] rxxx[y...z]</p> <p>Parameter name [unit] Index name rxxx[y]</p> <p>Meaning</p> <p>Connector input CI with index range [y...z]</p> <p>Connector input CI with index [y]</p> <p>Connector output CO with [unit] and index range [y...z] (parameter may appear multiple times)</p> <p>Connector output CO [unit] and with index [y] (parameter may appear multiple times)</p> | | <p>Binectors</p> <p>Symbol</p> <p>Parameter name pxxx[y...z]</p> <p>⊃ (Def.x)</p> <p>Parameter name Bit name pxxx[y]</p> <p>⊃ (Def.x)</p> <p>Parameter name rxxx</p> <p>Parameter name Bit name rxxx.yy</p> <p>Meaning</p> <p>Binector input BI with index range [y...z] and factory setting (Def.x) with bit x.</p> <p>Binector input BI with index [y] and factory setting (Def.x) with bit x.</p> <p>Binector output BO (parameter may appear multiple times)</p> <p>Binector output BO with bit yy (parameter may appear multiple times)</p> | | <p>Connectors/Binectors</p> <p>Symbol</p> <p>Parameter name rxxx</p> <p>⊃</p> <p>Meaning</p> <p>Connector/binector output CO/BO</p> <p>Cross-references between diagrams</p> <p>Symbol</p> <p>1 8</p> <p>Text → [aaaa.b]</p> <p>[cccc.d] ← Text</p> <p>To "Function diagram name" [aaaa.b] = For binectors</p> <p>Cross-references for control bits</p> <p>Symbol</p> <p>pxxx</p> <p>[aaaa.b]</p> <p>Meaning</p> <p>The function diagrams are divided into eight signal paths (signal path 1 ... 8) to enable quicker orientation.</p> <p>Text = Unique signal name aaaa = Signal goes to destination diagram aaaa = Signal goes to signal path b Text = Unique signal name cccc = Signal comes from source diagram cccc = Signal comes from signal path d</p> <p>pxxx = Original parameter of signal aaaa = Signal comes from source diagram b = Signal comes from signal path b</p> | | <p>Data sets</p> <p>Symbol</p> <p>pxxx[C]</p> <p>↓</p> <p>pxxx[D]</p> <p>↓</p> <p>pxxx[E]</p> <p>↓</p> <p>pxxx[M]</p> <p>↓</p> <p>pxxx[P]</p> <p>Meaning</p> <p>Parameter belongs to Command Data Set (CDS).</p> <p>Parameter belongs to Drive Data Set (DDS).</p> <p>Parameter belongs to Encoder Data Set (EDS).</p> <p>Parameter belongs to Motor Data Set (MDS).</p> <p>Parameter belongs to Power Unit Data Set (PDS).</p> | | <p>Explanations for parameters, binectors, connectors</p> <p>Symbol</p> <p>Parameter name</p> <p>[Unit]</p> <p>rxxx[y] or rxxx[y...z] or rxxx[y].ww or rxxx.ww</p> <p>pxxx[y] or pxxx[y...z] or pxxx[y].ww or pxxx.ww</p> <p>from ... to</p> <p>(xxx[y].ww)</p> <p>(Def)</p> <p>(Def.w)</p> <p>[aaaa.b]</p> <p>Meaning</p> <p>Name of parameter (max. 18 characters)</p> <p>[Unit]</p> <p>"r" = Display parameter. Parameters of this type are read-only. "xxxx" stands for the parameter number. "[y]" specifies the valid index, while "[y...z]" specifies the applicable index range. ".ww" specifies the bit number (e.g. 0...15).</p> <p>"p" = Adjustable parameter. Parameters of this type may be changed. "xxxx" stands for the parameter number. "[y]" specifies the applicable index, while "[y...z]" specifies the applicable index range. ".ww" specifies the bit number (e.g. 0...15).</p> <p>Value range.</p> <p>Parameter number (xxxx) with index number [y] and bit number .ww.</p> <p>Factory setting.</p> <p>Factory setting with default bit number.</p> <p>Diagram references for adjustable parameters that occur multiple times. [Function block diagram, signal path]</p> | | <p>Sampling times</p> <p>Symbol</p> <p>pxxx[Y] (ZZZ.ZZ μs)</p> <p>PROFdrive sampling time</p> <p>CAN bus sampling time</p> <p>Background</p> <p>[1020.7]</p> <p>Not relevant</p> <p>[1020.7]</p> <p>Meaning</p> <p>Adjustable parameter with factory setting for selecting time slice.</p> <p>Default in p2048.</p> <p>Time slice 4,000.00 μs.</p> <p>There is no fixed sampling time for this function. Processing takes place in the background. The cycle time depends on the Control Unit's computational load.</p> <p>A static state is represented here. The sampling time data is not relevant.</p> | |
| DO: All Objects | | | | SIEMENS | | fp_1020_96_VSD | | | | | | | |
| Explanations for the function diagrams - Explanation of the symbols (part 1) | | | | 2013-05-14 | | v 1.4.1 | | | | | | | |
| | | | | | | Function diagram | | | | | | | |
| | | | | | | - 1020 - | | | | | | | |

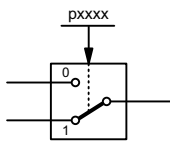
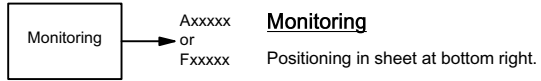
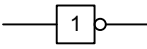
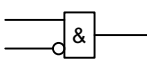
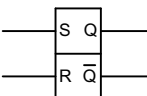
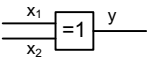
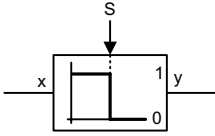
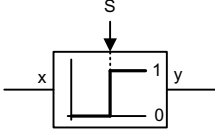
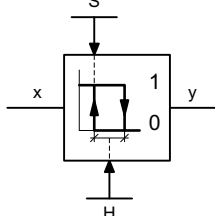
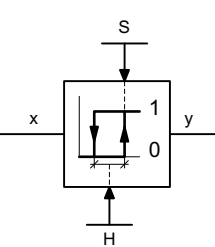
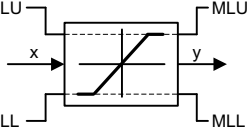

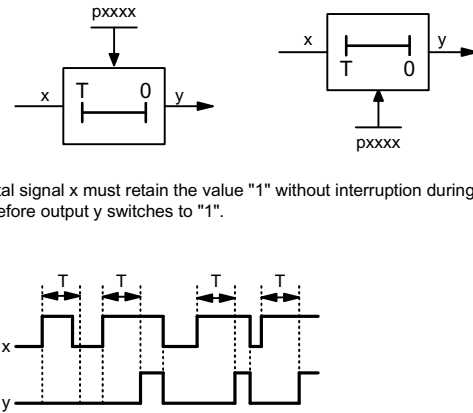
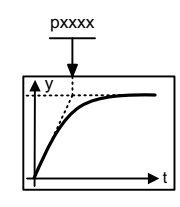
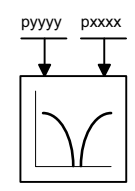
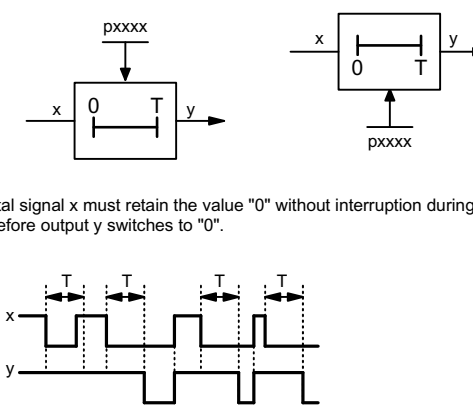
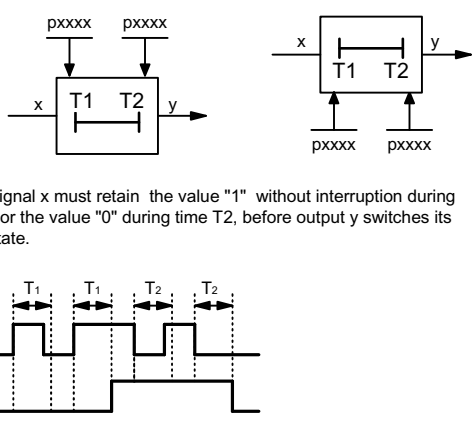
| | | | | | | | |
|--|---|--|---|---|----------------|----------------|------------------|
| <p>Symbol for switch</p>  <p>Simple change-over switch</p> <p>The factory setting for the switch position is displayed (in this case, the delivery state is switch position 1).</p> | <p>Symbol for monitoring</p>  | <p>Symbols for logic functions</p>  <p>Logical inversion</p>  <p>AND element with logical inversion of an input signal</p>  <p>R/S flip-flop S = Input for setting R = Input for resetting Q = Non-inverted output Q̄ = Inverted output</p>  <p>Exclusive OR/XOR y = 1 if x1 != x2.</p> | <p>Symbols for arithmetic and control functions</p>  <p>Threshold switch 1/0 Outputs a logical "1" at output y if x < S.</p>  <p>Threshold switch 0/1 Outputs a logical "1" at output y if x > S.</p>  <p>Threshold 1/0 with hysteresis Outputs a logical "1" at output y if x < S. If x >= S + H, y returns to 0.</p>  <p>Threshold 0/1 with hysteresis Outputs a logical "1" at output y if x > S. If x <= S - H, y returns to 0.</p>  <p>Limiter x is limited to the upper limit value LU and the lower limit value LL and is output at output y. The binary signals MLU and MLL have the value "1" if upper or lower limiting is active.</p>  <p>Sample & hold element Sample and hold element. y = x if SET = 1 (no retentive memory during POWER OFF)</p> | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: All Objects | | | | | SIEMENS | fp_1021_96_VSD | Function diagram |
| Explanations for the function diagrams - Explanation of the symbols (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |

Fig. 3-2 1021 – Explanation of the symbols (part 2)

Fig. 3-3 1022 – Explanation of the symbols (part 3)

| | | | | | | | | |
|---|---|---|--|---|----------------|---|------------------|--|
| <p>ON delay</p>  <p>Digital signal x must retain the value "1" without interruption during time T, before output y switches to "1".</p> | | | <p>PT1 element</p>  <p>First-order delay element. pxxxx = Time constant</p> | | | <p>Band-stop filter</p>  <p>pxxxx = Resonant frequency pyyyy = Filter quality</p> | | |
| <p>OFF delay</p>  <p>Digital signal x must retain the value "0" without interruption during time T, before output y switches to "0".</p> | | | <p>Delay (switching on and switching off)</p>  <p>Digital signal x must retain the value "1" without interruption during time T1 or the value "0" during time T2, before output y switches its signal state.</p> | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| DO: All Objects | | | | | SIEMENS | fp_1022_96_VSD | Function diagram | |
| Explanations for the function diagrams - Explanation of the symbols (part 3) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 1022 - | |

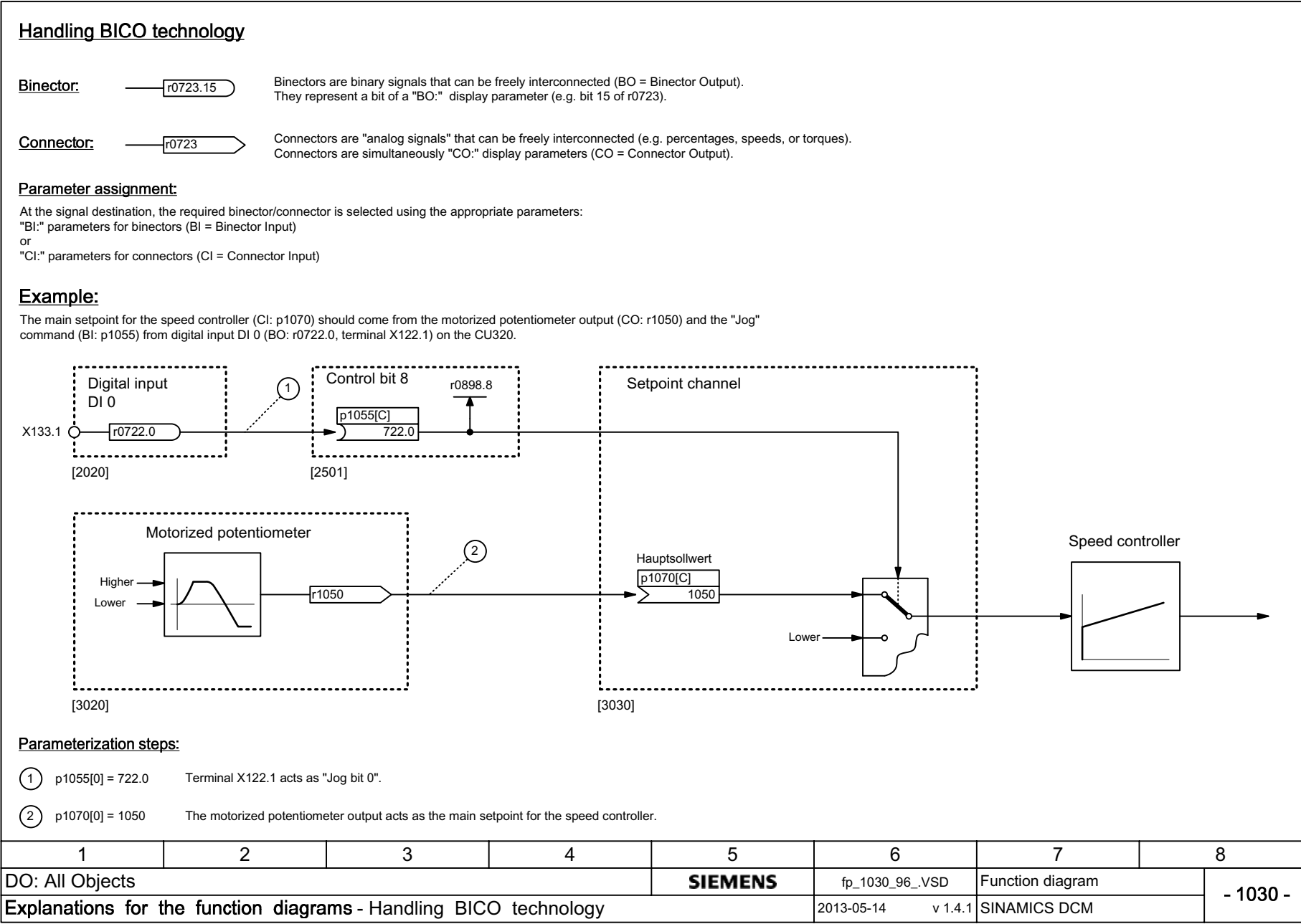
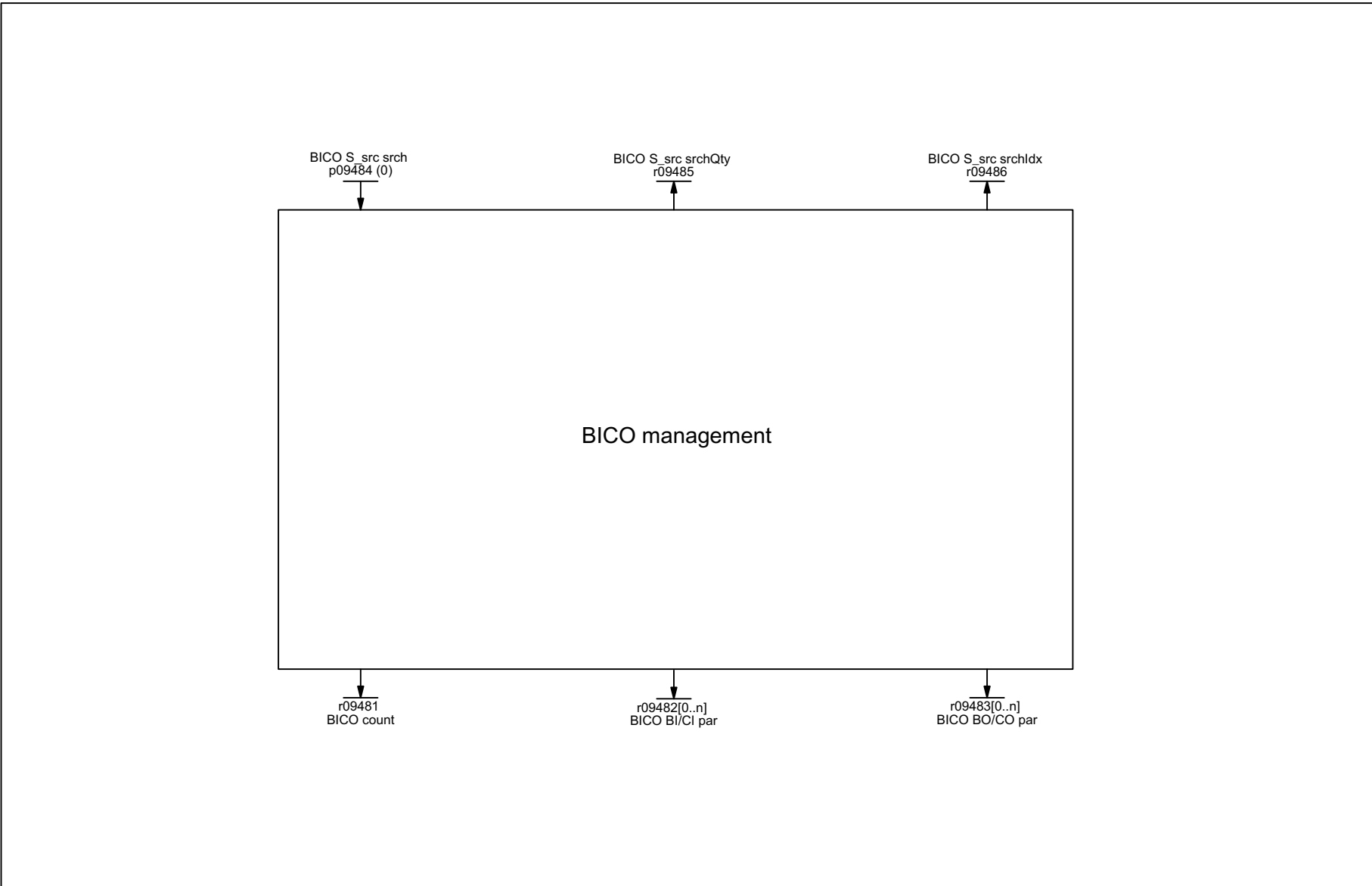


Fig. 3-4 1030 – Handling BICO technology



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: All Objects | | | | SIEMENS | fp_1032_96_VSD | Function diagram | |
| Explanation of the function diagrams - BICO management | | | | | 02.12.2014 | v 1.4.1 | SINAMICS DCM |

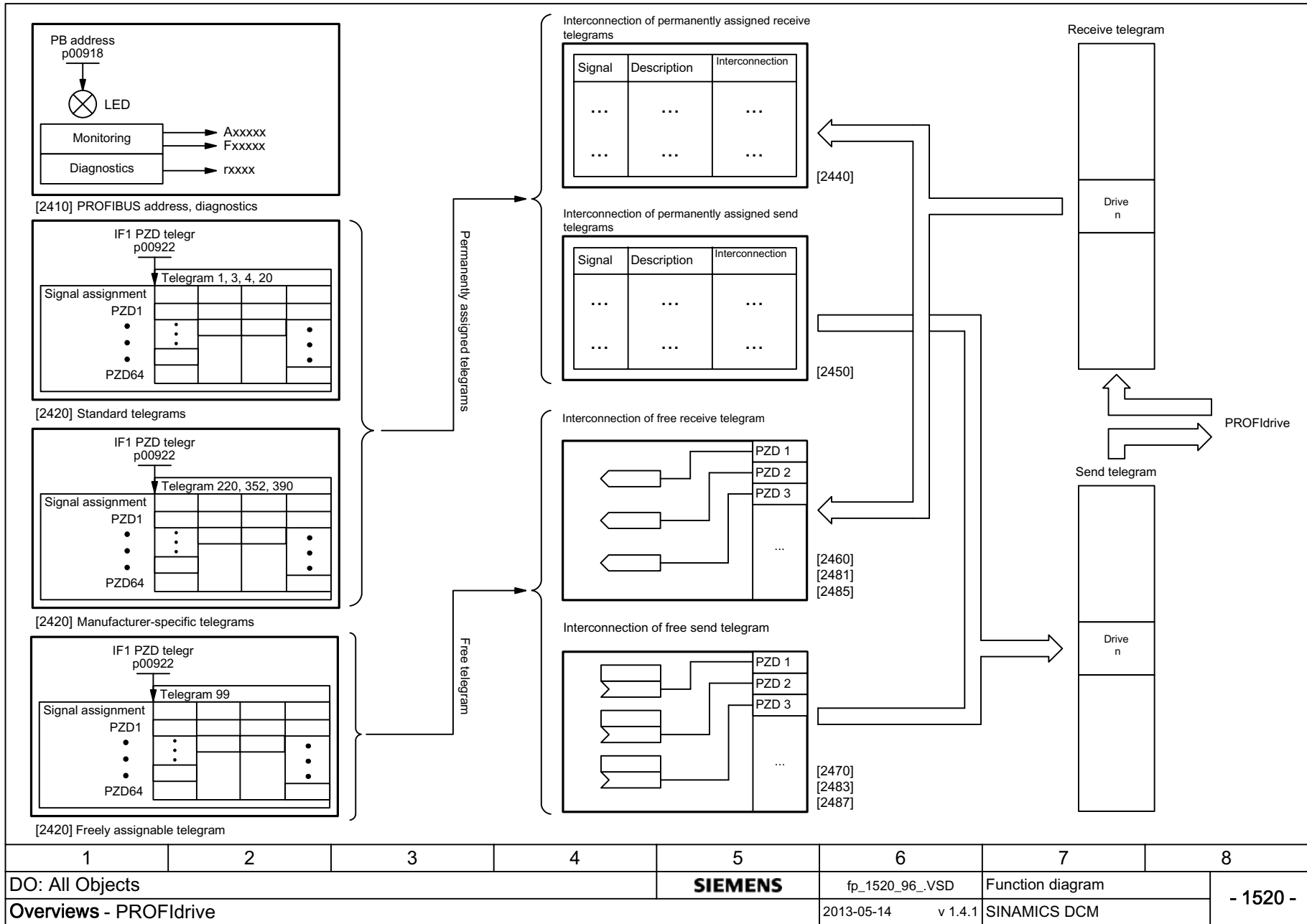
Fig. 3-5 1032 – BICO administration

3.3 Overviews

Function diagrams

| | |
|--|-----|
| 1520 – PROFIdrive | 675 |
| 1580 – Encoder evaluations (position, speed) | 676 |
| 1720 – Control | 677 |
| 1721 – Control functions activation/deactivation | 678 |
| 1722 – CUD left, CUD right | 679 |
| 1781 – Terminal Module 15 for SINAMICS (TM15DI/DO) | 680 |
| 1840 – Terminal Module 31 (TM31) | 681 |

Fig. 3-6 1520 – PROFIdrive



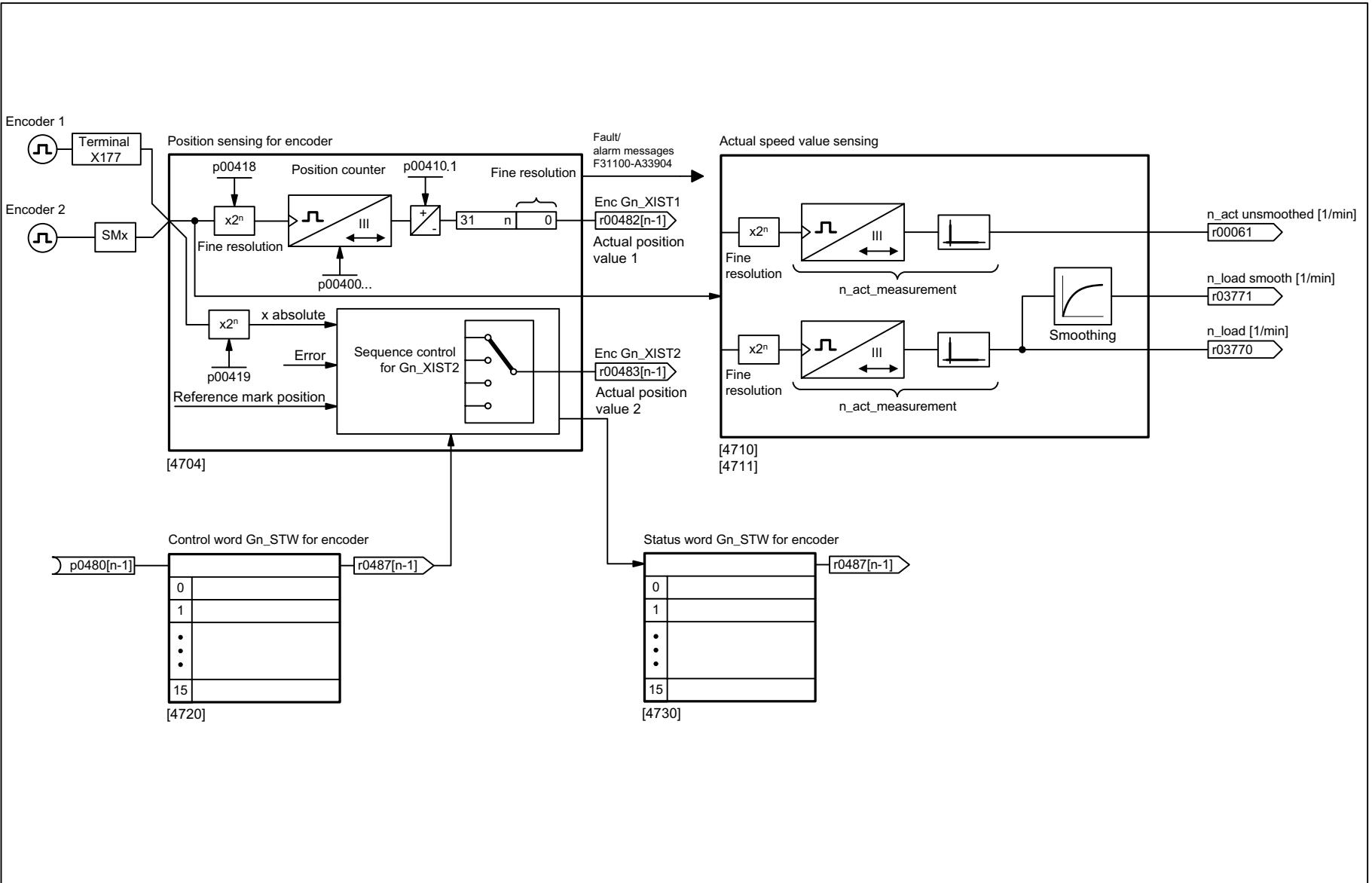


Fig. 3-7 1580 – Encoder evaluations (position, speed)

| | | | | | | | |
|--|---|---|---|----------------|-----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_1580_96_.VSD | Function diagram | |
| Overviews - Encoder evaluations (position, speed) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 1580 - |

Fig. 3-8 1720 – Control

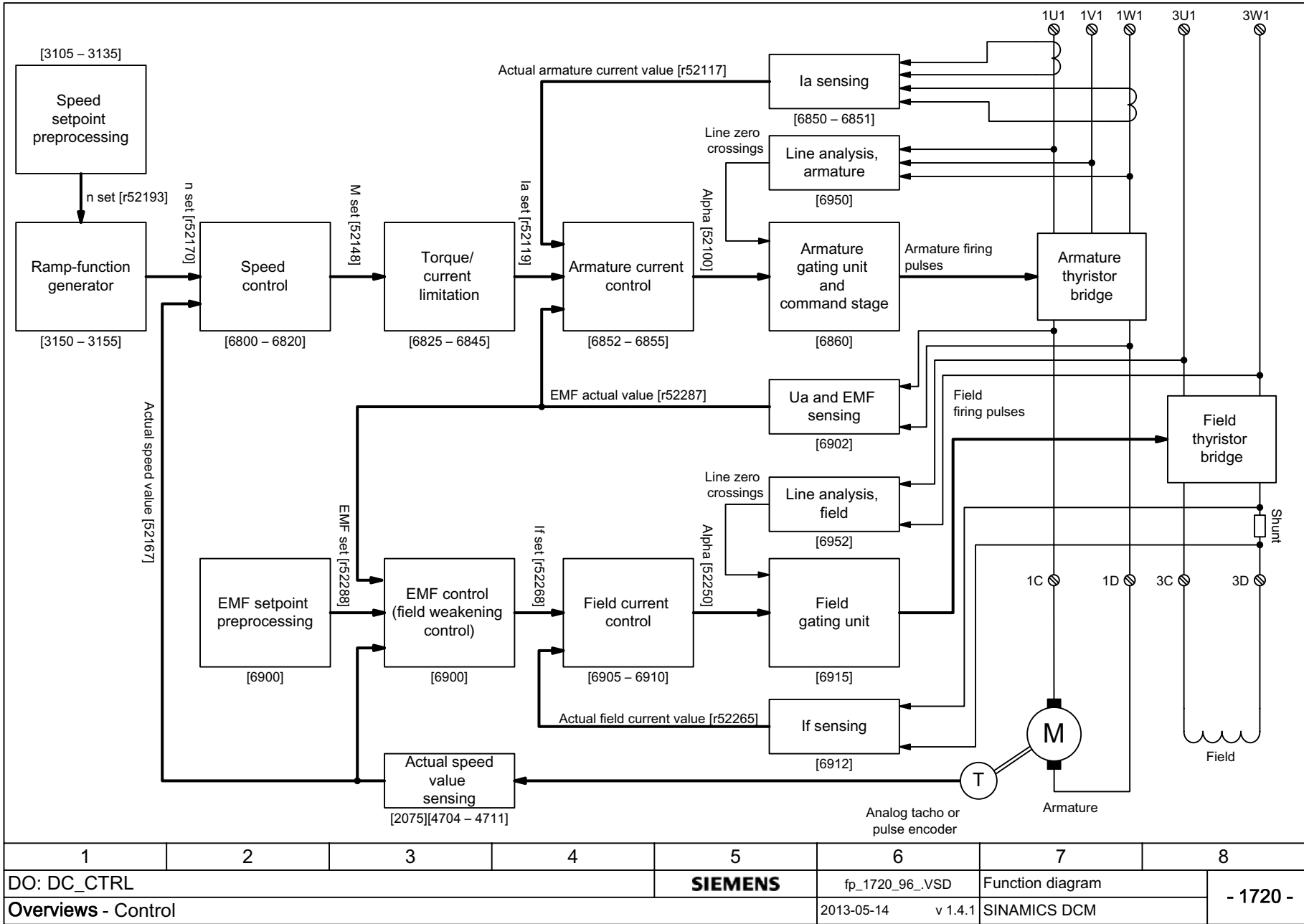


Fig. 3-9 1721 – Control functions activation/deactivation

The most important control blocks can be activated/deactivated using parameter p50899.

p50899[0...6] = 0: Block is deactivated
p50899[0...6] = 1: Block is activated

Note 1:

This parameter is evaluated only once during a ramp-up, meaning that a change only becomes effective after a POWER ON or after a ramp-up with saved parameters (p0976 = 11).

Note 2:

The ability to deactivate control function blocks is intended for all users who wish to configure their own control system using DCC, e.g. because they are using the SINAMICS DC MASTER to operate something other than a motor (such as the excitation winding of a synchronous generator). Deactivating control function blocks that are not required frees up CPU time for the DCC function blocks.

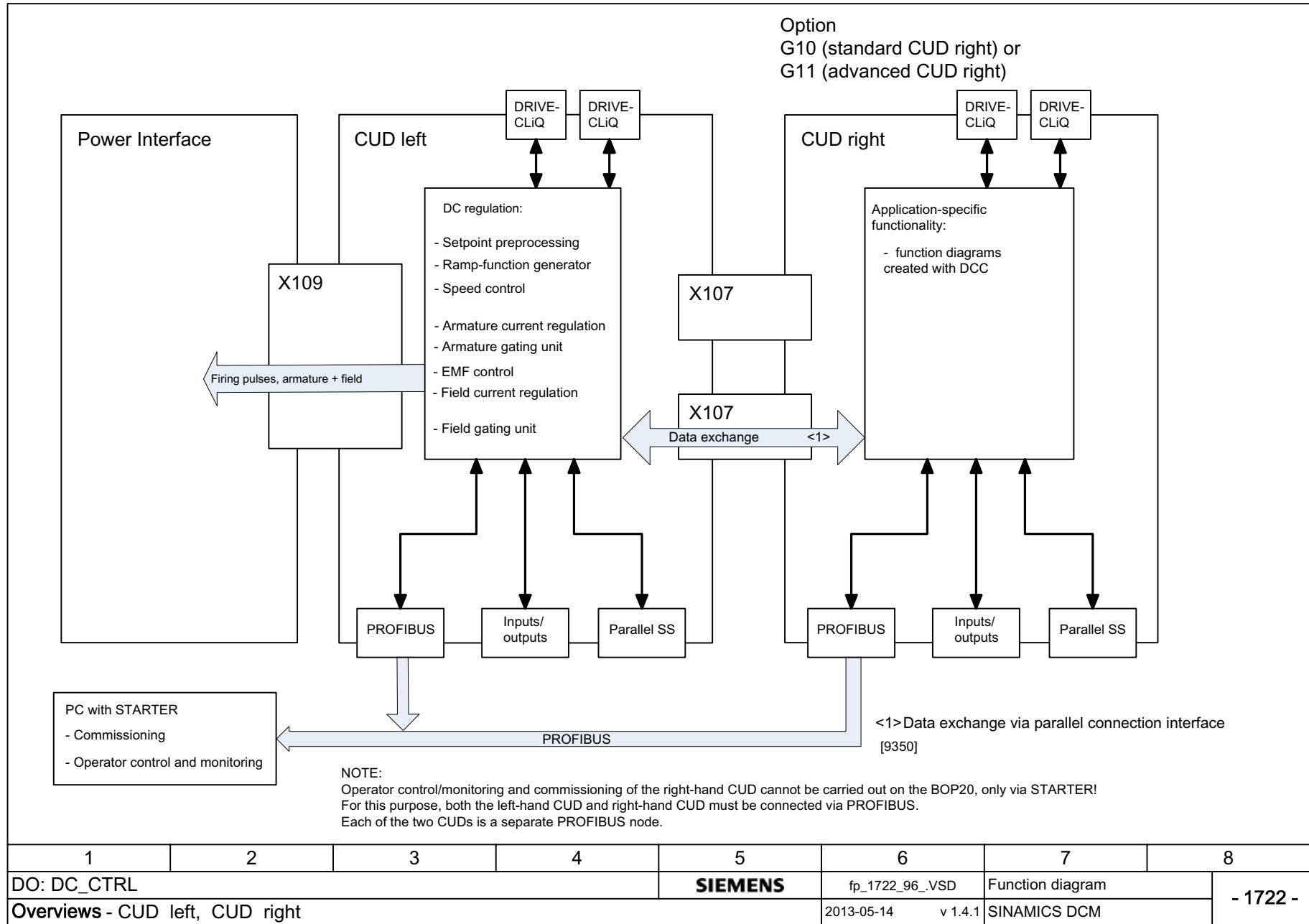
| Index | Meaning | |
|-------|--|-----|
| 0 | Speed setpoint preprocessing (FP3105 - FP3135) | <1> |
| 1 | Ramp-function generator (FP3150 - FP3155) | |
| 2 | Speed control (FP6800 - FP6820) | <2> |
| 3 | Torque limitation/current limitation (FP6825 - FP6845, FP8040) | |
| 4 | Armature current control (FP6852 - FP6855) | |
| 5 | EMF setpoint preprocessing and EMF control (FP6900) | |
| 6 | Field current control (FP6905 - FP6910) | |

<1> Exception:
FP3130: The switch-on command and the intervention of r0807.0 and r53010.2 are always active.

<2> Exception:
FP6810: The "Selection of the actual speed value" is always active.

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_1721_96_VSD | Function diagram | |
| Overviews - Control functions activation/deactivation | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 1721 - |

Fig. 3-10 1722 – CUD left, CUD right



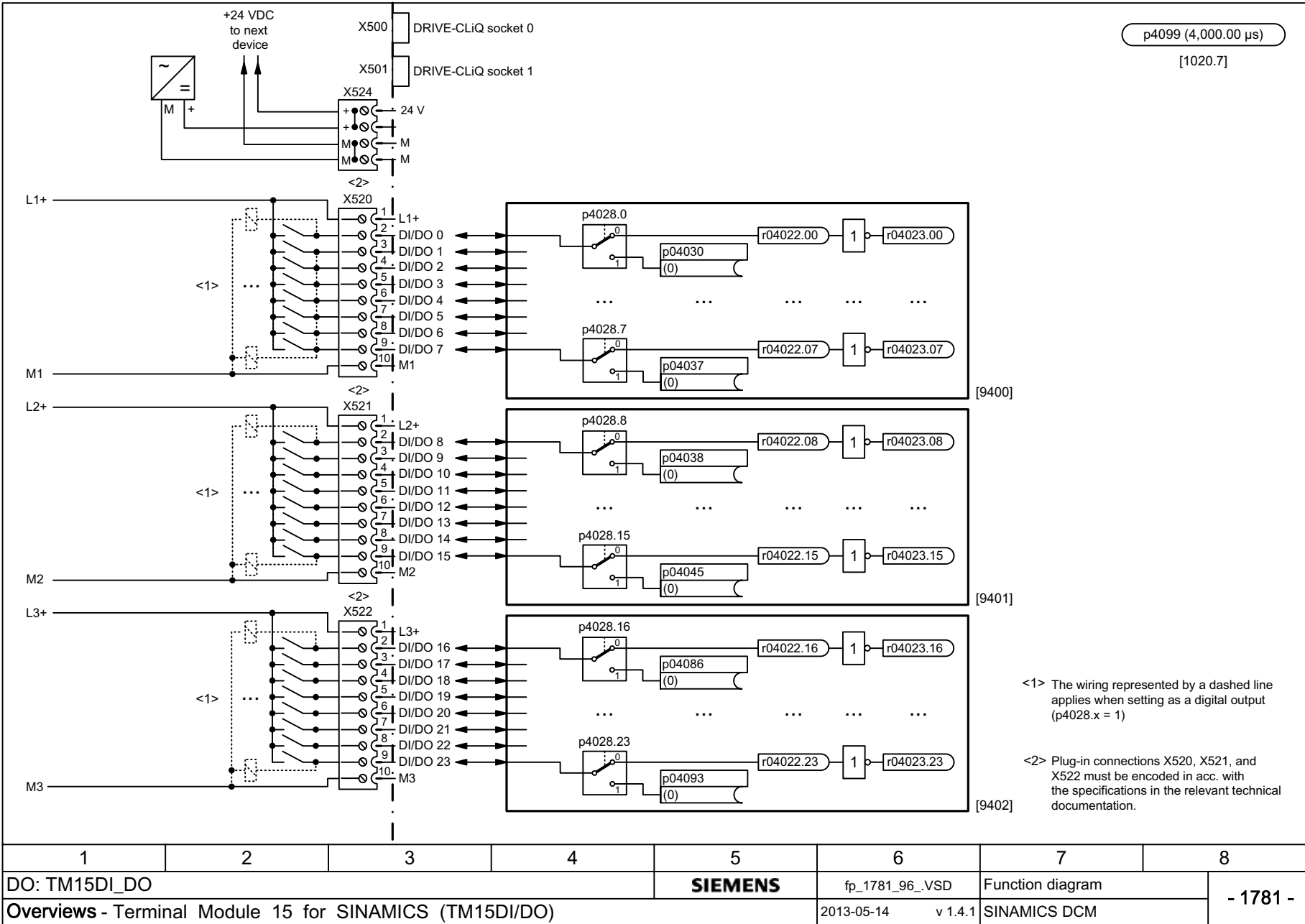
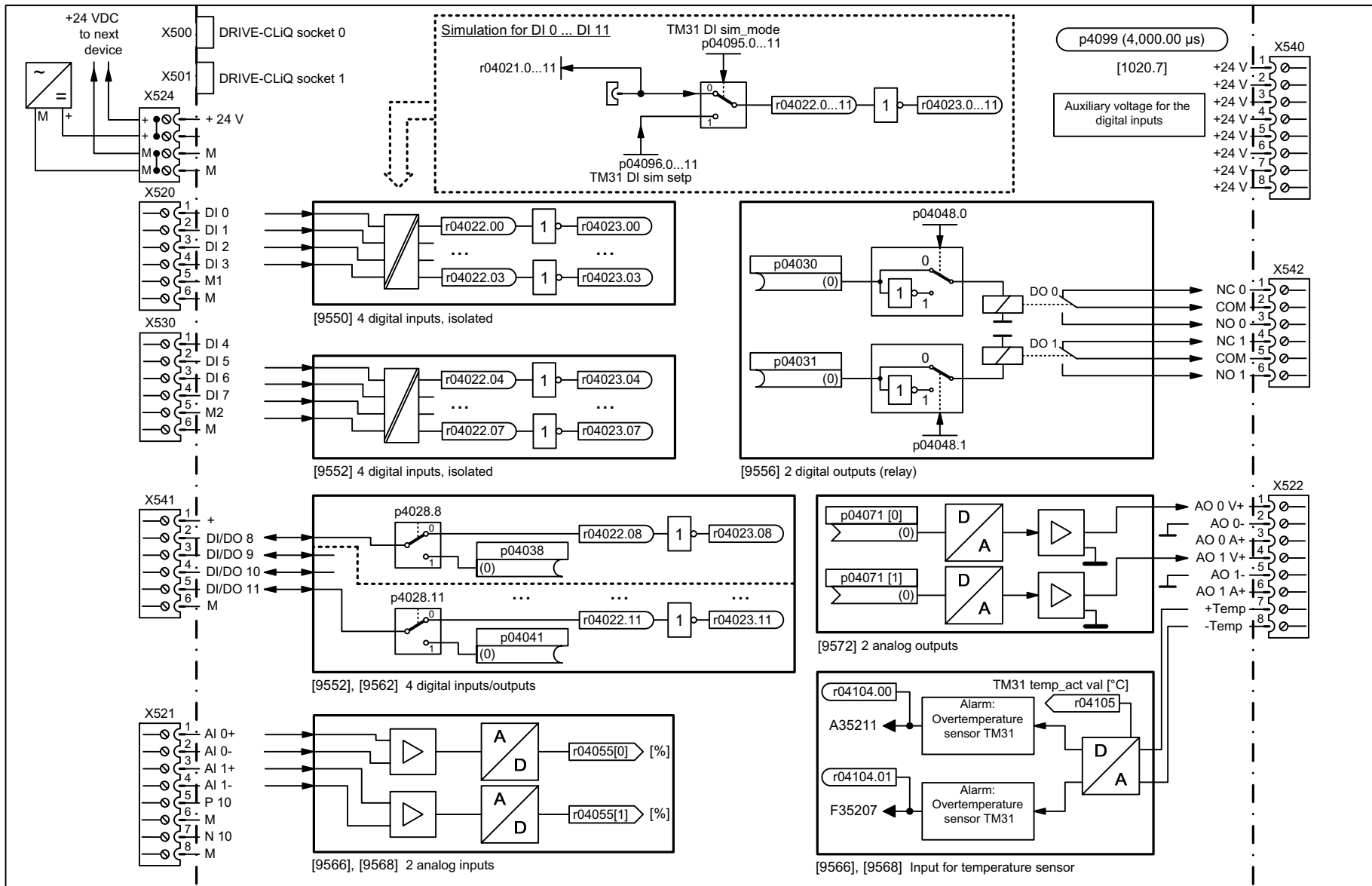


Fig. 3-11 1781 – Terminal Module 15 for SINAMICS (TM15DI/DO)



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_1840_96_VSD | Function diagram | |
| Overviews - Terminal Module 31 (TM31) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 1840 - |

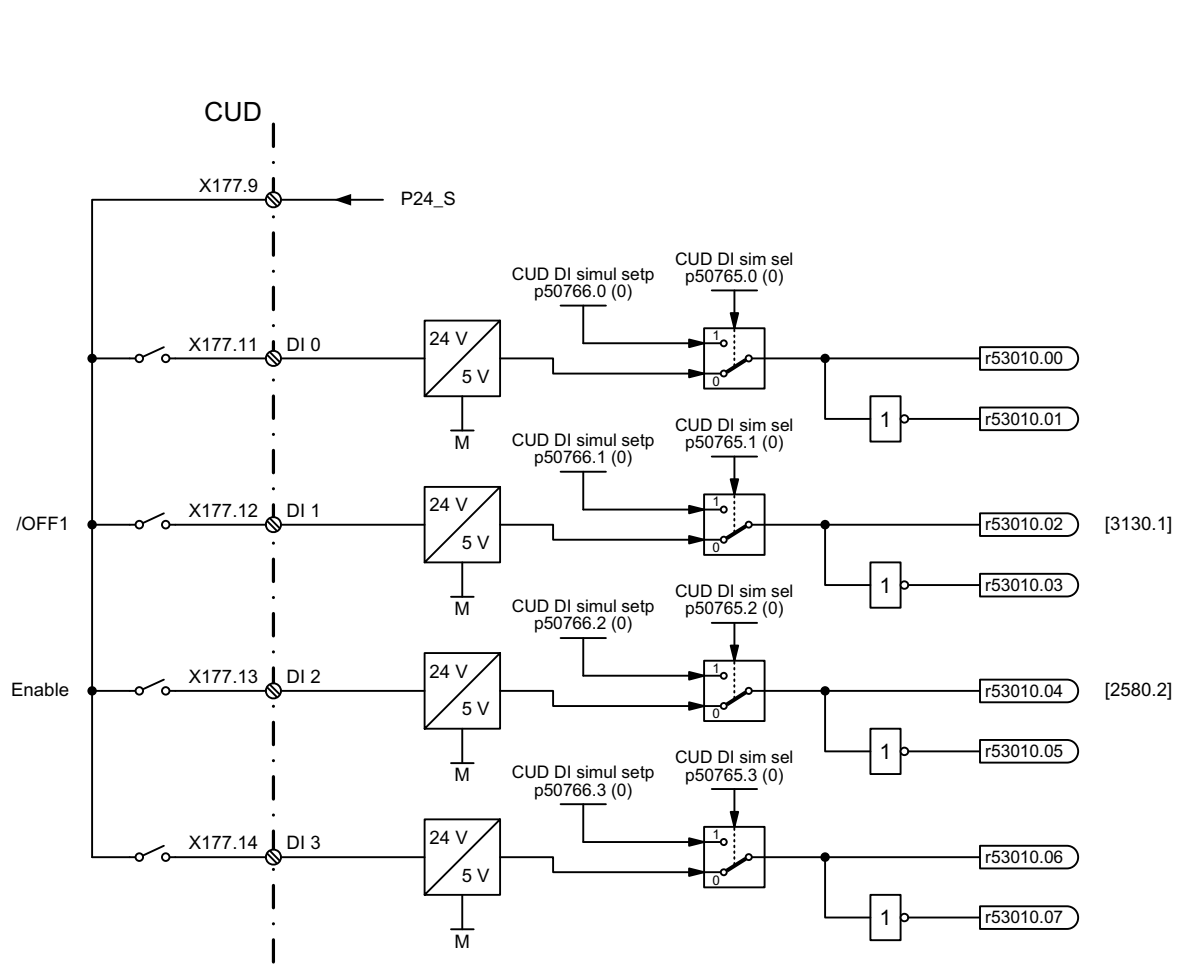
Fig. 3-12 1840 – Terminal Module 31 (TM31)

3.4 CUD input/output terminals

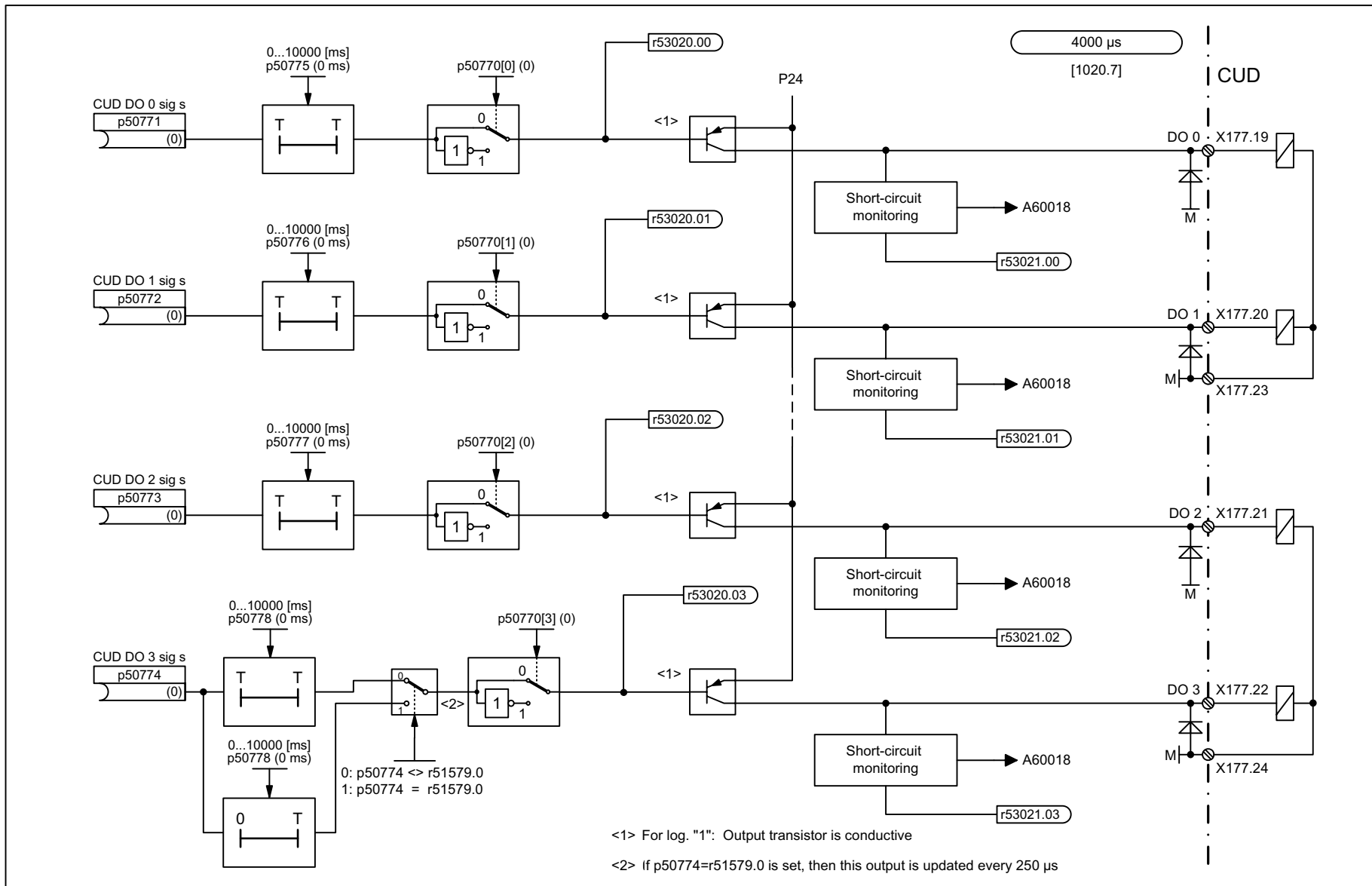
Function diagrams

| | |
|--|-----|
| 2050 – Digital inputs (DI 0 ... DI 3) | 683 |
| 2055 – Digital outputs (DO 0 ... DO 3) | 684 |
| 2060 – Digital inputs/outputs, bidirectional (DI/DO 4 ... DI/DO 5) | 685 |
| 2065 – Digital inputs/outputs, bidirectional (DI/DO 6 ... DI/DO 7) | 686 |
| 2070 – E stop (emergency stop), relay output main contactor | 687 |
| 2075 – Analog inputs (AI 0 and XT1.103/104) | 688 |
| 2080 – Analog inputs (AI 1 ... AI 2) | 689 |
| 2085 – Analog inputs (AI 3 ... AI 4) | 690 |
| 2090 – Analog inputs (AI 5 ... AI 6) | 691 |
| 2095 – Analog outputs (AO 0 ... AO 1) | 692 |

Fig. 3-13 2050 – Digital inputs (DI 0 ... DI 3)

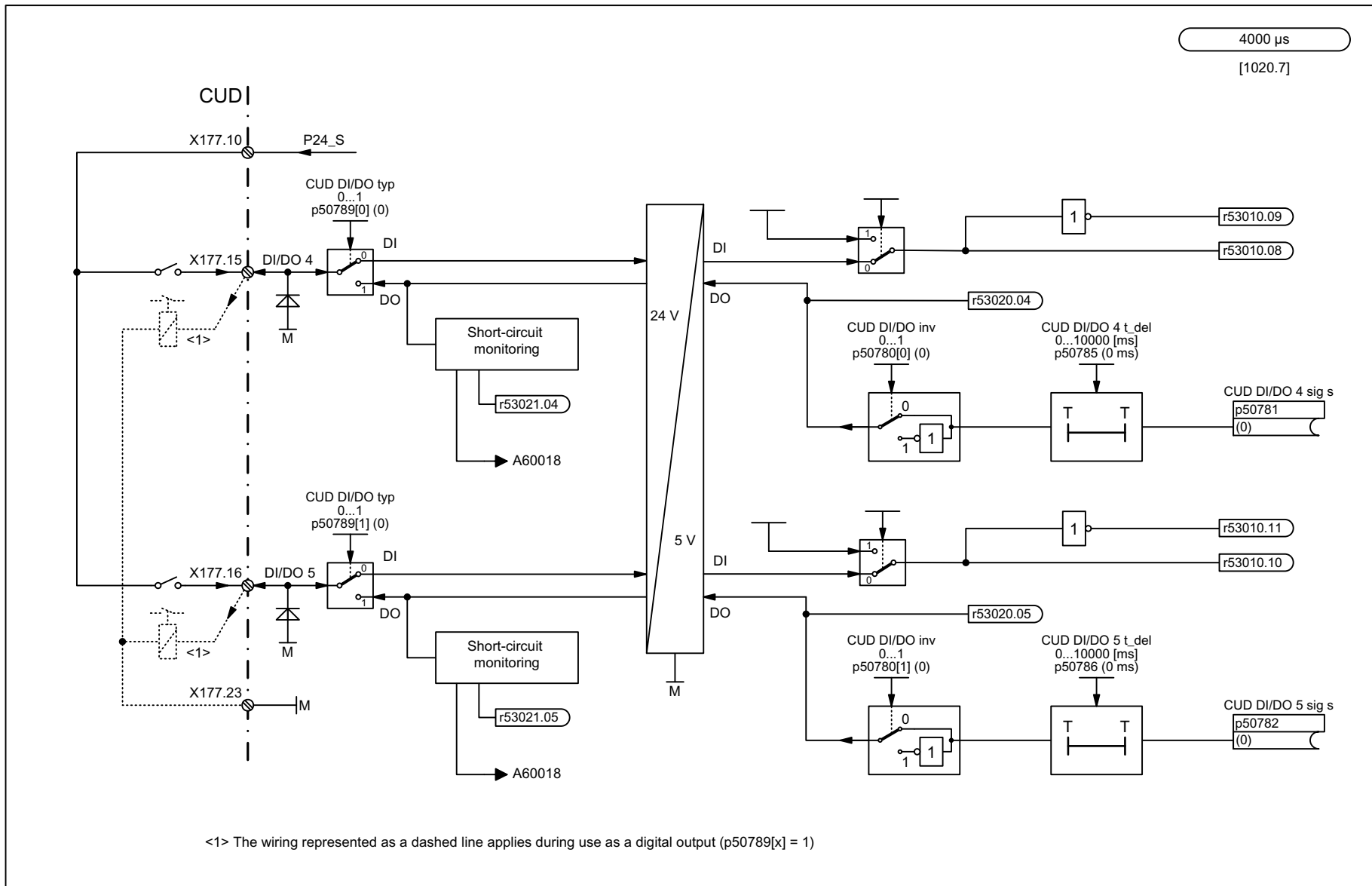


| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2050_96_VSD | Function diagram | |
| CUD input/output terminals - Digital inputs (DI 0 ... DI 3) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2050 - |



| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2055_96_VSD | Function diagram | |
| CUD input/output terminals - Digital outputs (DO 0 ... DO 3) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |

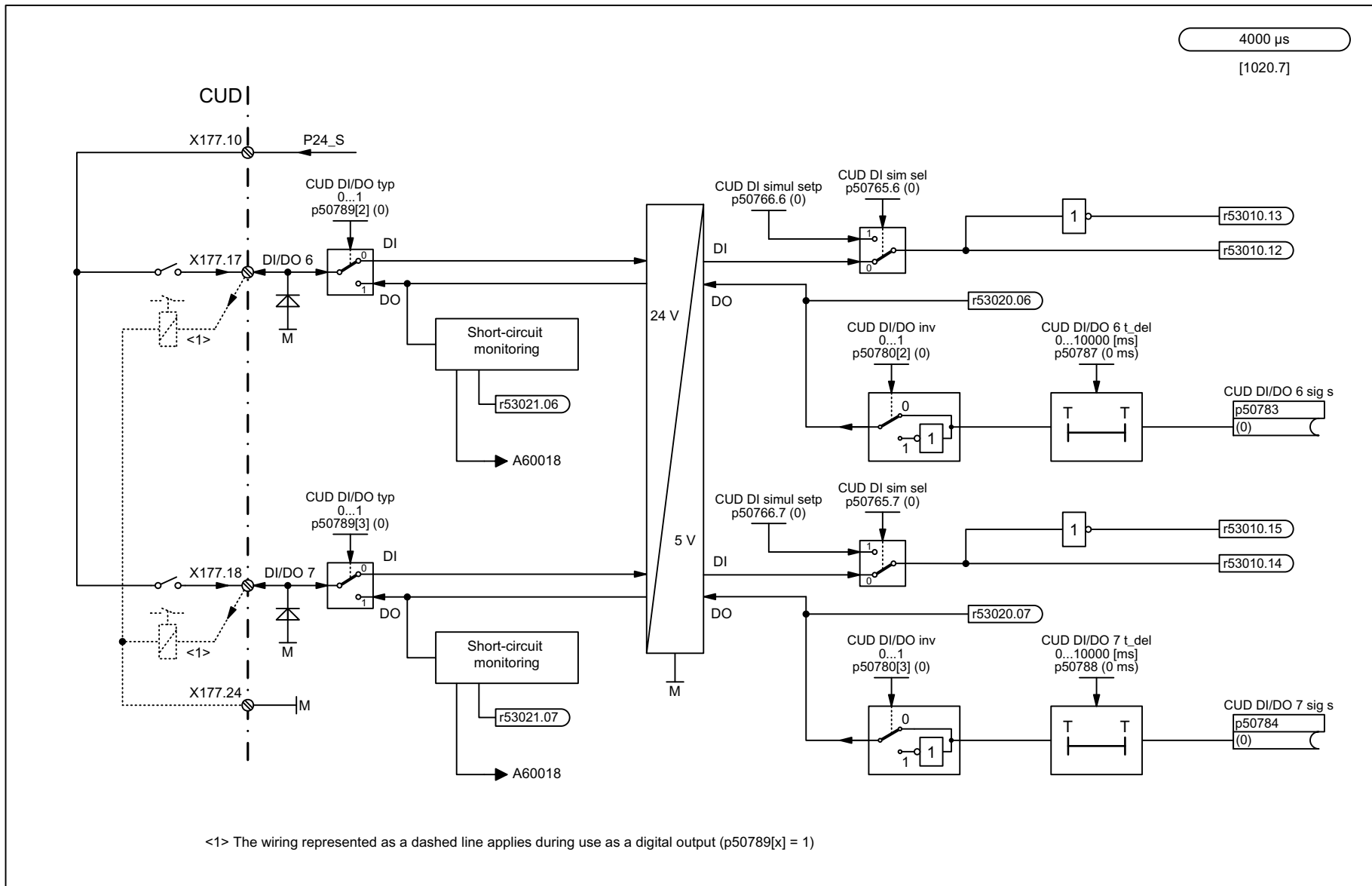
Fig. 3-14 2055 – Digital outputs (DO 0 ... DO 3)



<1> The wiring represented as a dashed line applies during use as a digital output (p50789[x] = 1)

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2060_96_VSD | Function diagram | |
| CUD input/output terminals - Digital inputs/outputs bidirectional (DI/DO 4 ... DI/DO 5) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2060 - |

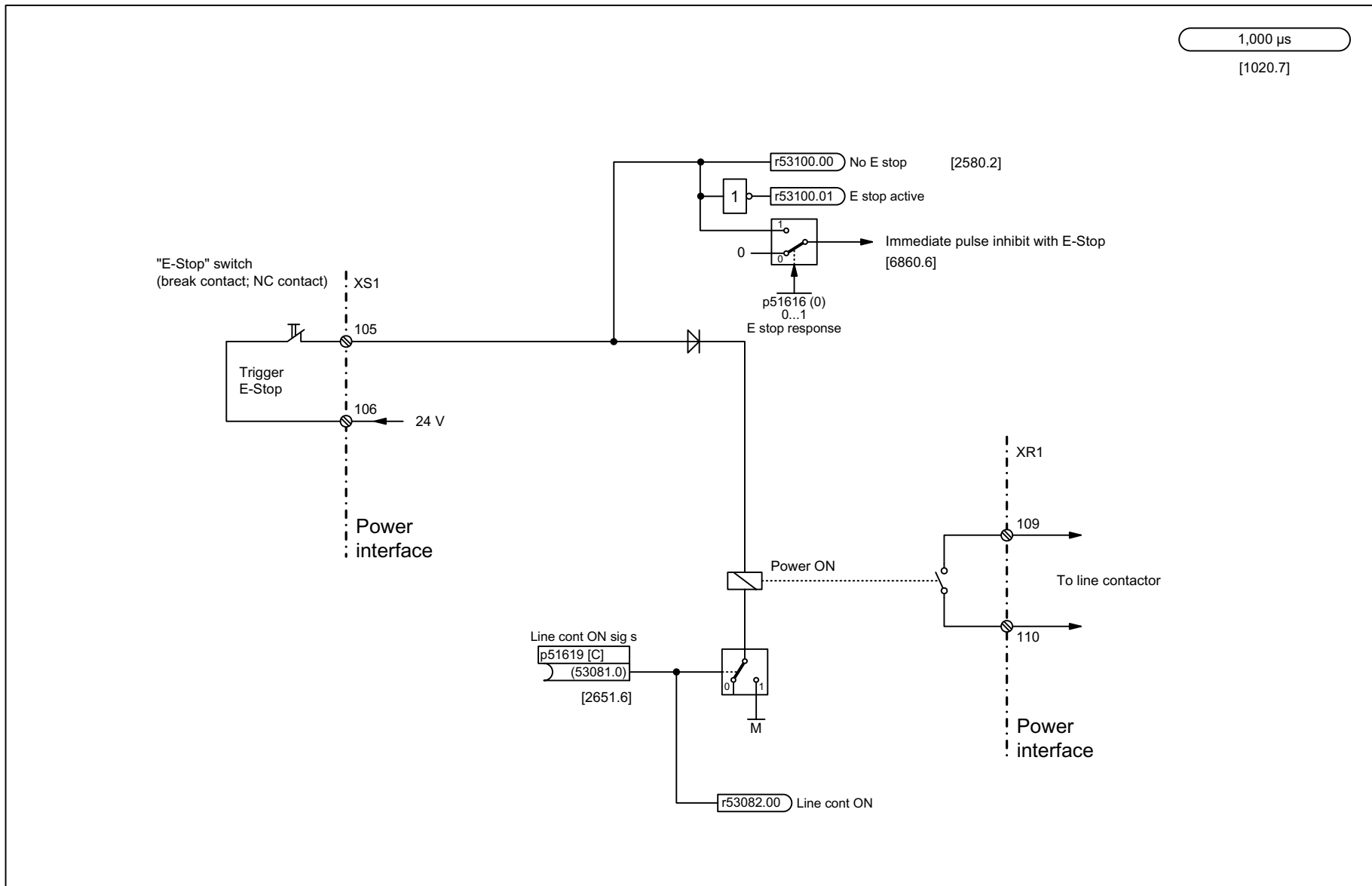
Fig. 3-15 2060 – Digital inputs/outputs, bidirectional (DI/DO 4 ... DI/DO 5)



<1> The wiring represented as a dashed line applies during use as a digital output (p50789[x] = 1)

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2065_96_VSD | Function diagram | |
| CUD input/output terminals - Digital inputs/outputs bidirectional (DI/DO 6 ... DI/DO 7) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2065 - |

Fig. 3-16 2065 – Digital inputs/outputs, bidirectional (DI/DO 6 ... DI/DO 7)



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2070_96_VSD | Function diagram | |
| CUD input/output terminals - E stop (emergency stop), relay output main contactor | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2070 - |

Fig. 3-17 2070 – E stop (emergency stop), relay output main contactor

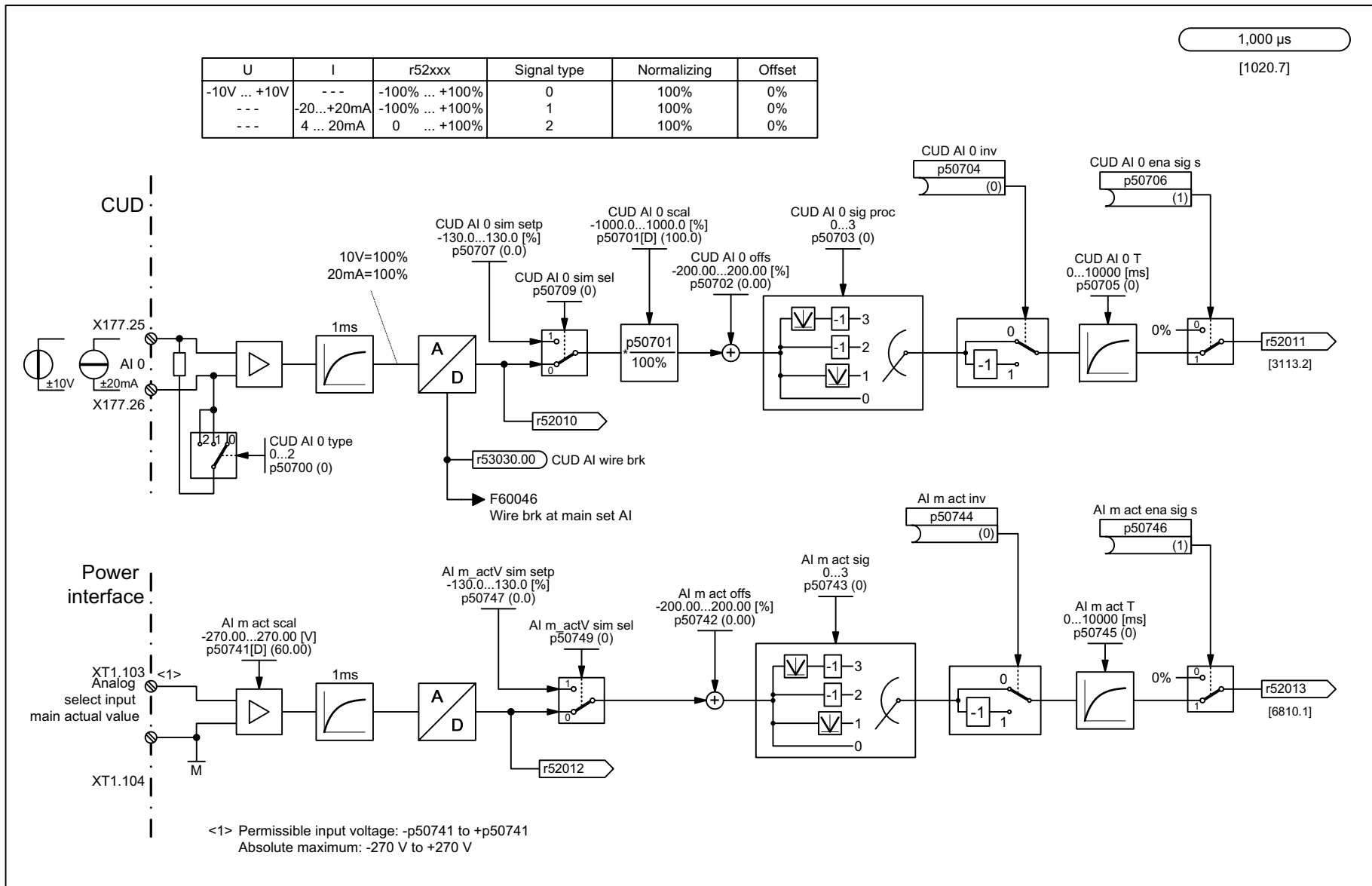
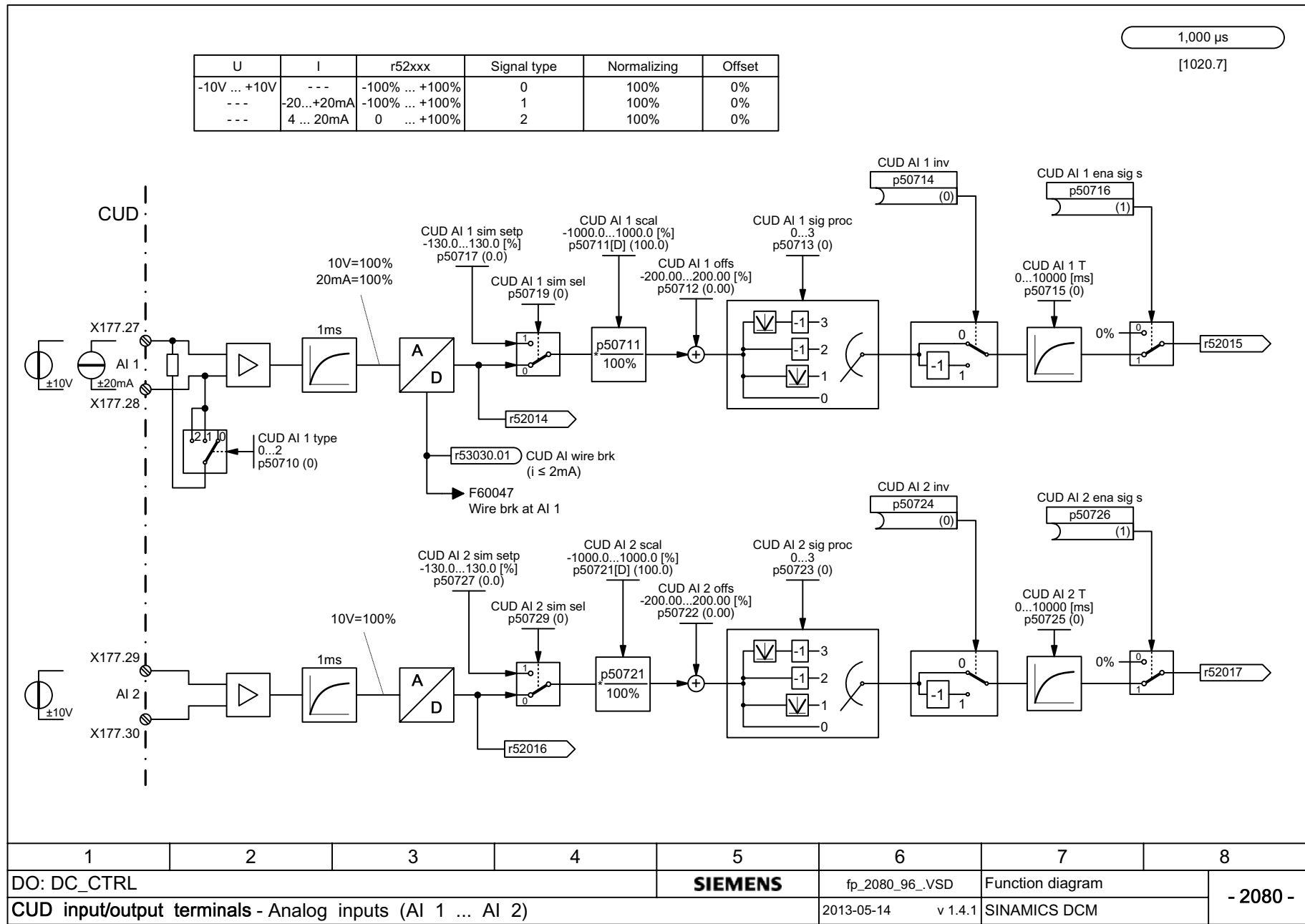


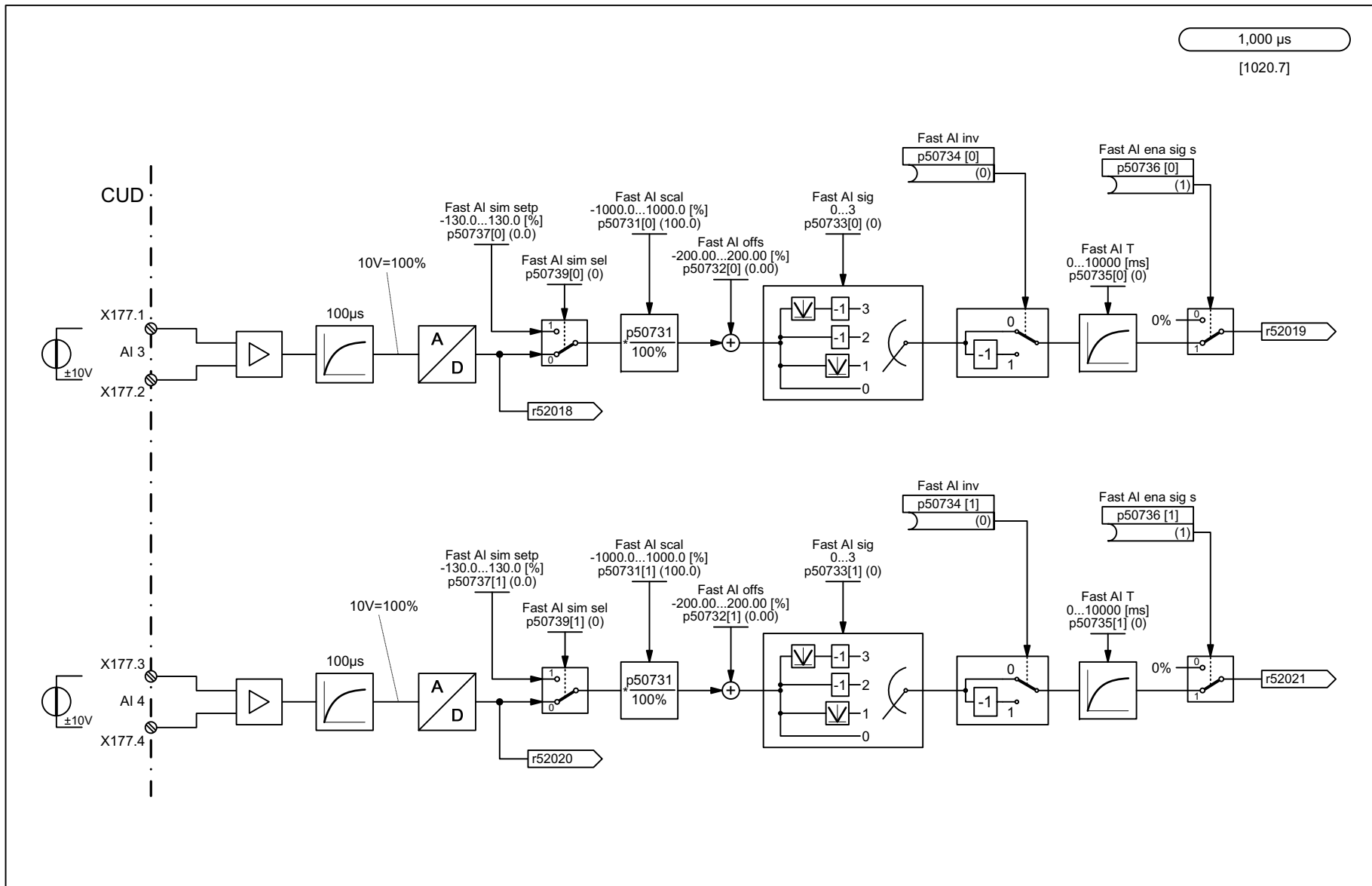
Fig. 3-18 2075 – Analog inputs (AI 0 and XT1.103/104)

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2075_96_VSD | Function diagram | |
| CUD input/output terminals - Analog inputs (AI 0 and XT1.103/104) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2075 - |

Fig. 3-19 2080 – Analog inputs (AI 1 ... AI 2)



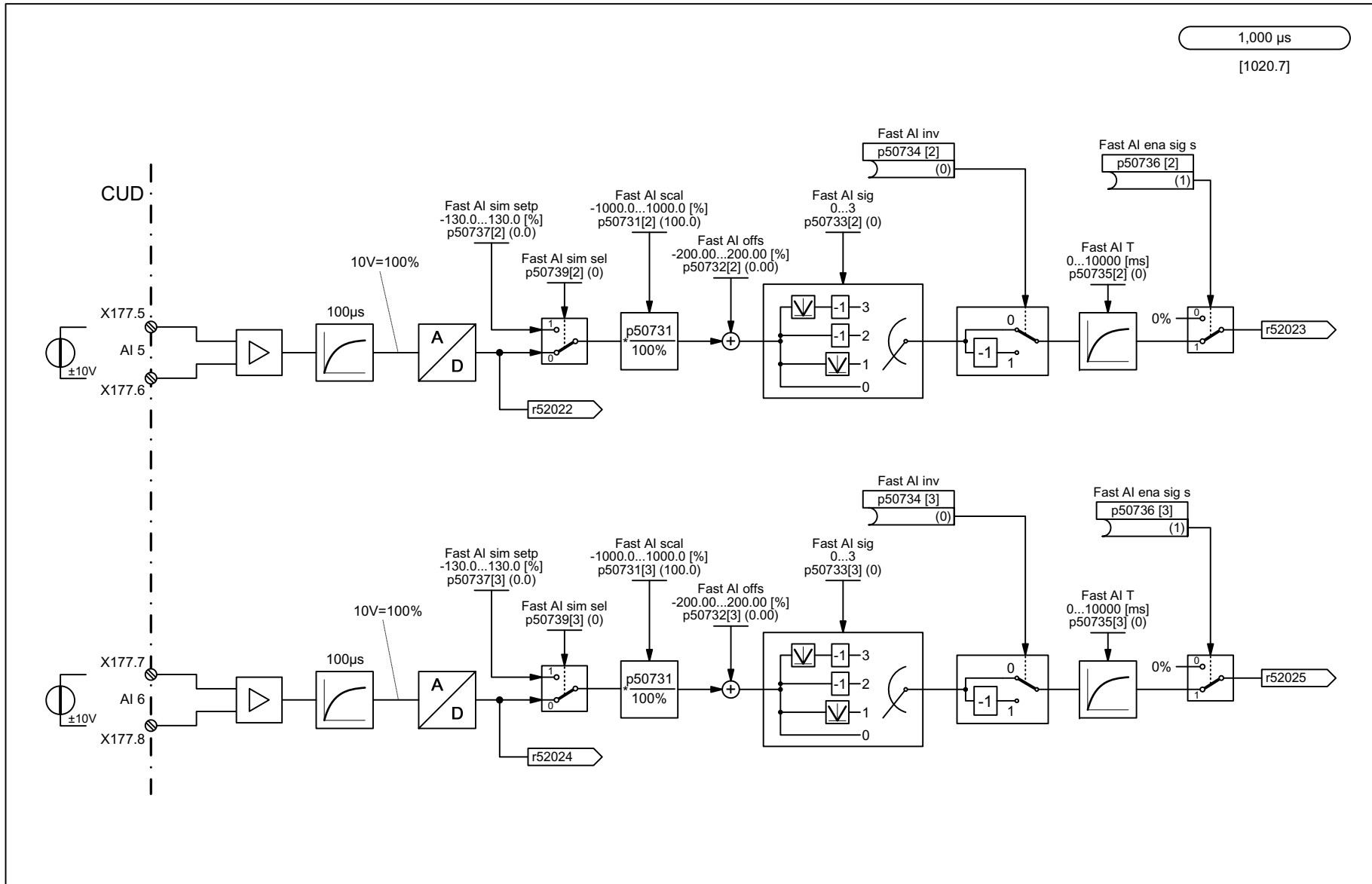
| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2080_96_VSD | Function diagram | |
| CUD input/output terminals - Analog inputs (AI 1 ... AI 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2080 - |



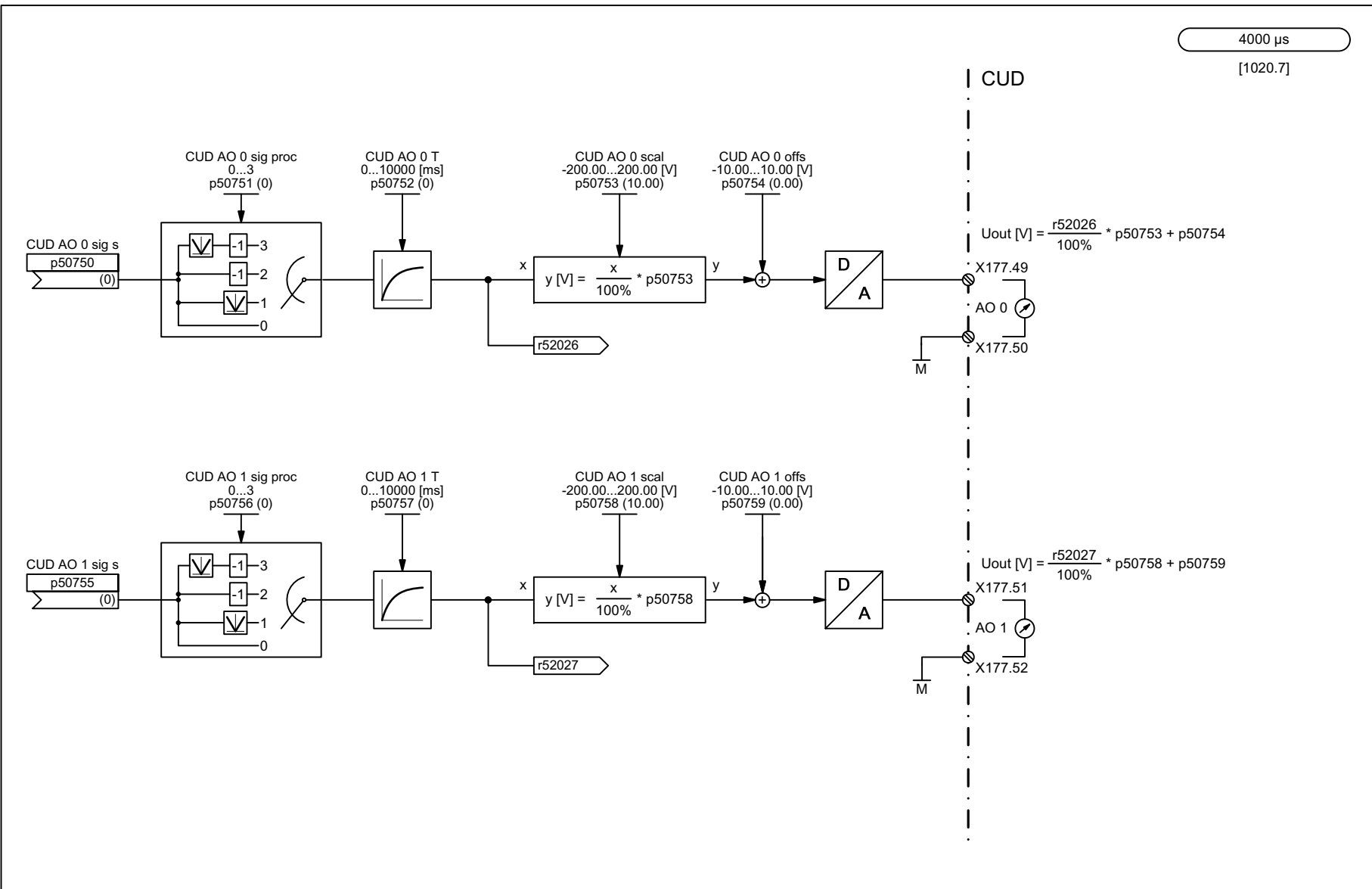
| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2085_96_VSD | Function diagram | |
| CUD input/output terminals - Analog inputs (AI 3 ... AI 4) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2085 - |

Fig. 3-20 2085 - Analog inputs (AI 3 ... AI 4)

Fig. 3-21 2090 – Analog inputs (AI 5 ... AI 6)



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2090_96_VSD | Function diagram | |
| CUD input/output terminals - Analog inputs (AI 5 ... AI 6) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2090 - |



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2095_96_VSD | Function diagram | |
| CUD input/output terminals - Analog outputs (AO 0 ... AO 1) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |

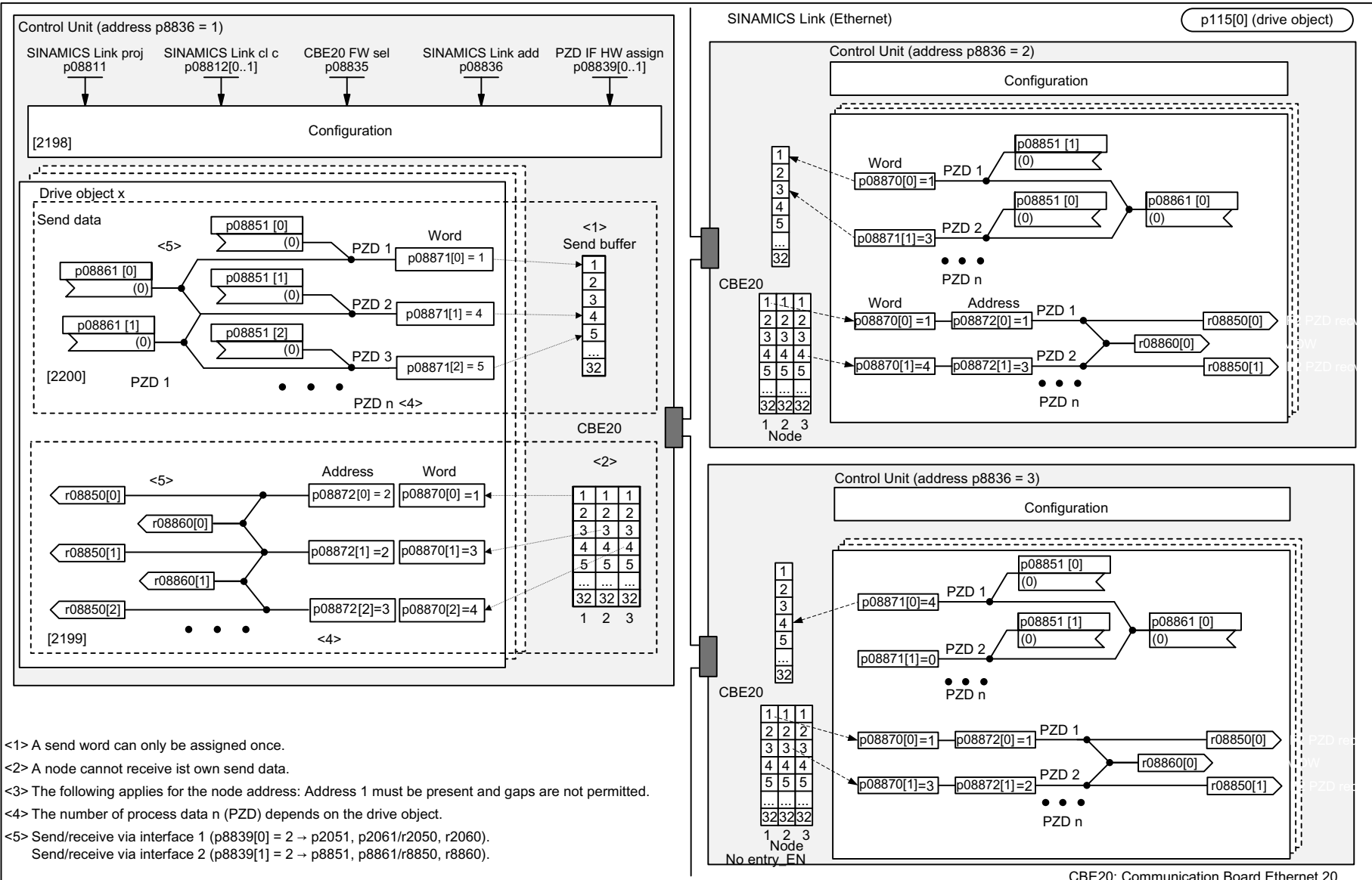
- 2095 -

Fig. 3-22 2095 – Analog outputs (AO 0 ... AO 1)

3.5 Control Unit communication

Function diagrams

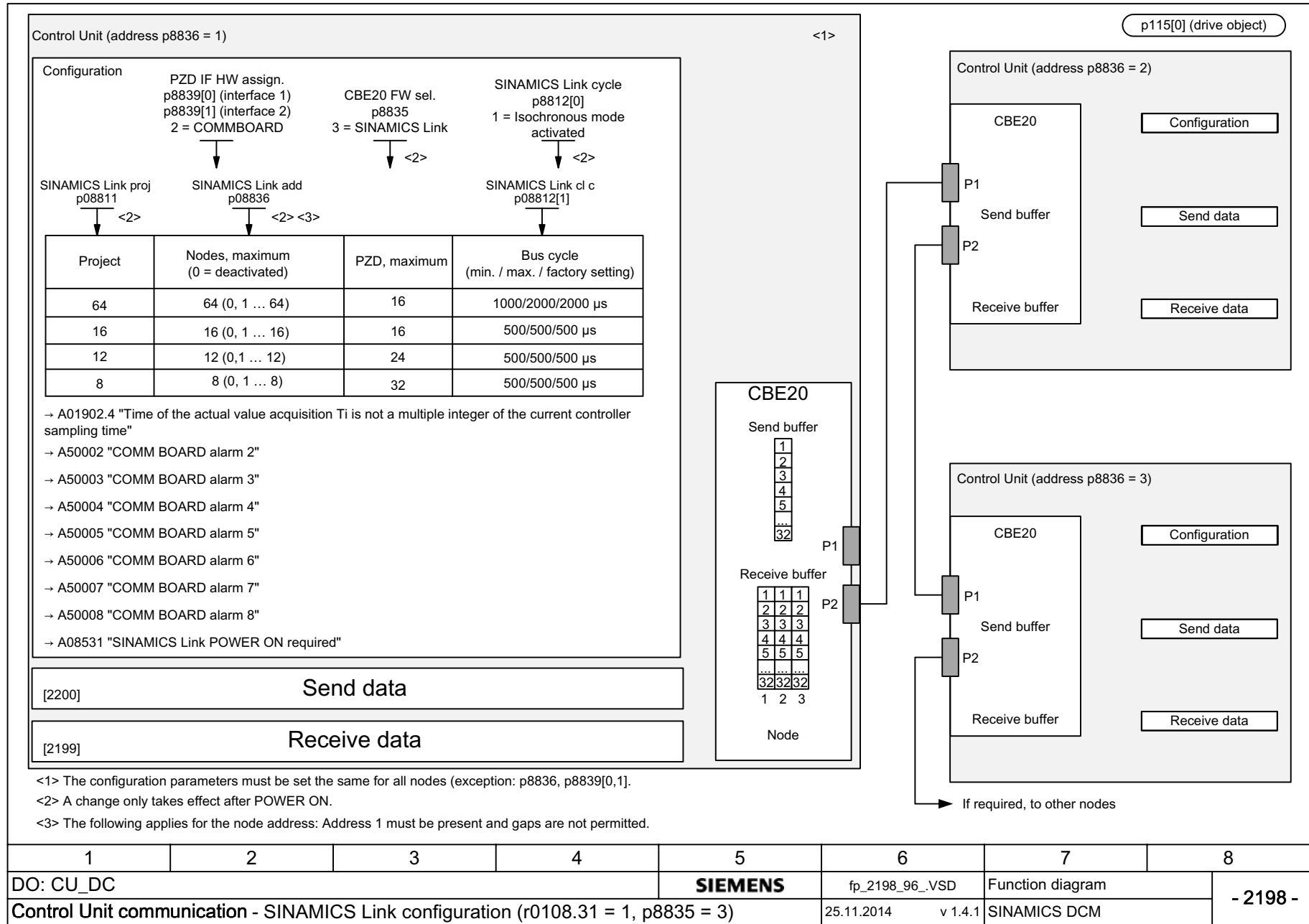
| | |
|--|-----|
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| 2199 – SINAMICS Link receive data (r0108.31 = 1, p8835 = 3) | 696 |
| 2200 – SINAMICS Link send data (r0108.31 = 1, p8835 = 3) | 697 |

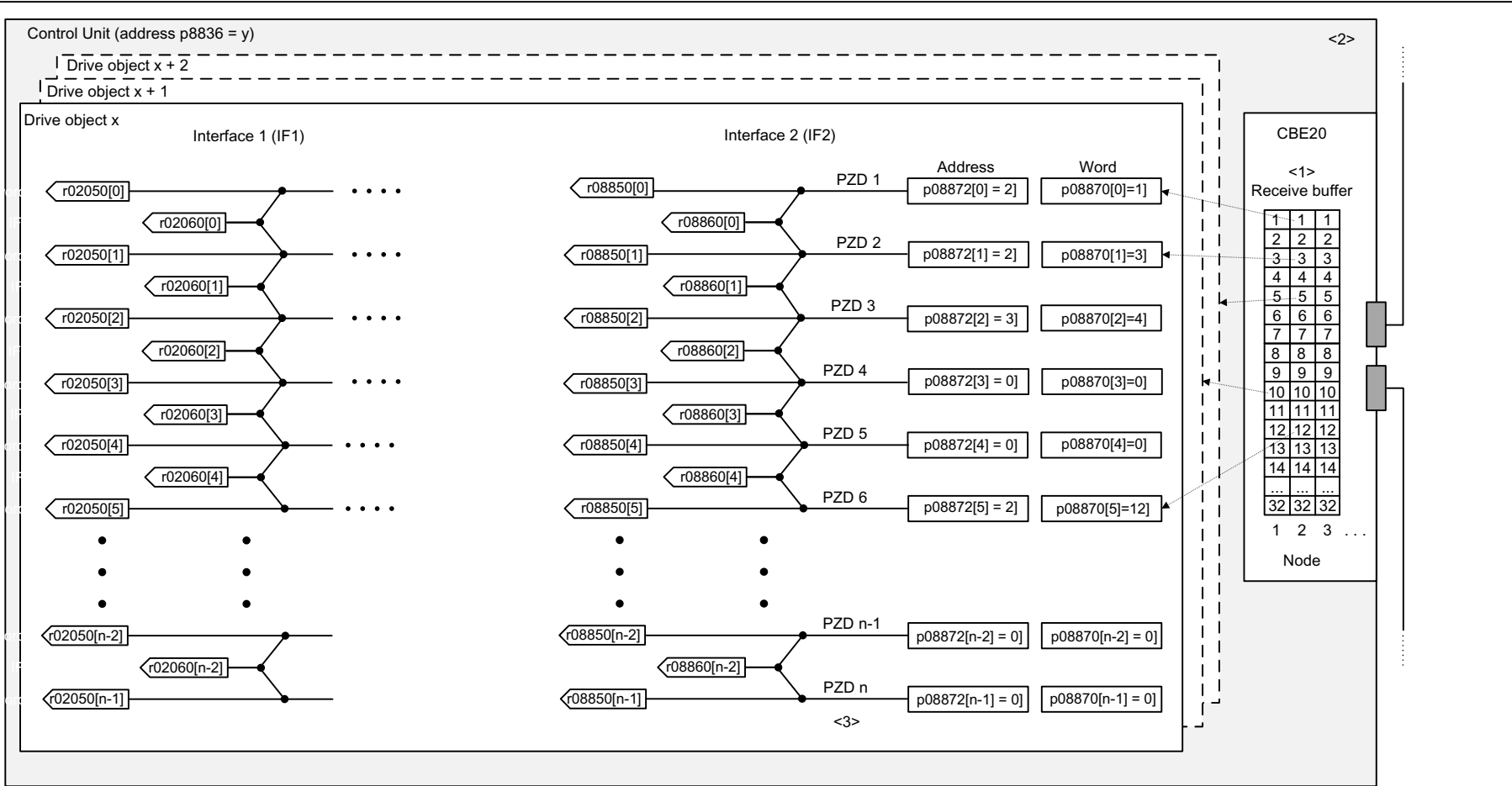


| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2197_96_VSD | Function diagram | |
| Control Unit communication - SINAMICS Link overview (r0108.31 = 1, p8835 = 3) | | | | 23.10.2014 | v 1.4.1 | SINAMICS DCM | |

Fig. 3-23 2197 - SINAMICS Link overview (r0108.31 = 1, p8835 = 3)

Fig. 3-24 2198 – SINAMICS Link configuration (r0108.31 = 1, p8835 = 3)





- <1> A pair of values p8870[index], 8872[index] must only be used once in a device.
- <2> A change takes effect with p8842 = 1.
Whereby, the configuration data p8841[0..239] is also transferred to the CBE20. p8842 = 0 is then set automatically.
A change can also take effect via a warm restart, project download or POWER ON
- <3> The number of process data n (PZD) depends on the drive object.

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2199_96_VSD | Function diagram | |
| Control Unit communication - SINAMICS Link receive data (r0108.31 = 1, p8835 = 3) | | | | | 27.11.2014 | v 1.4.1 | SINAMICS DCM |

Fig. 3-25 2199 – SINAMICS Link receive data (r0108.31 = 1, p8835 = 3)

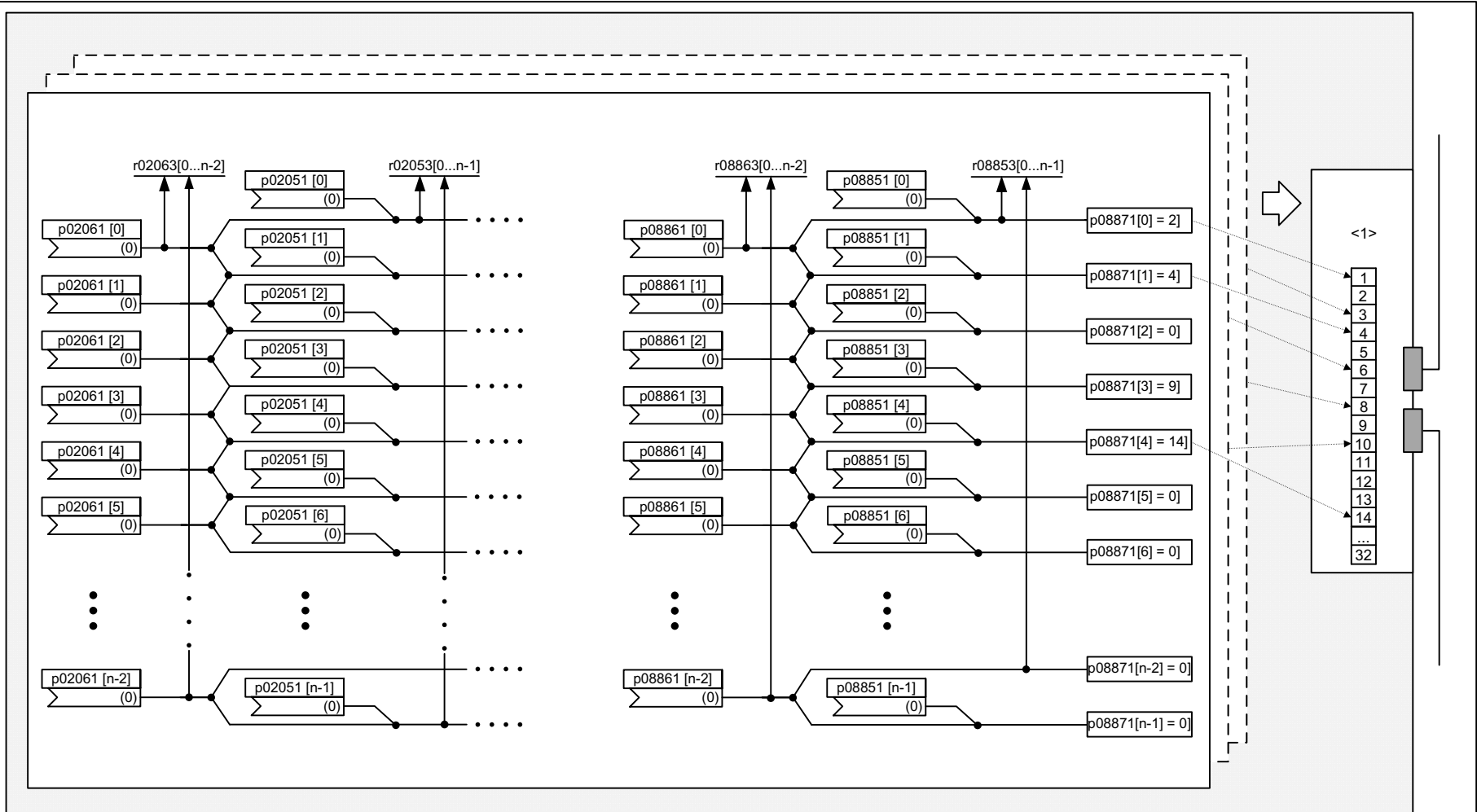


Fig. 3-26 2200 – SINAMICS Link send data (r0108.31 = 1, p8835 = 3)

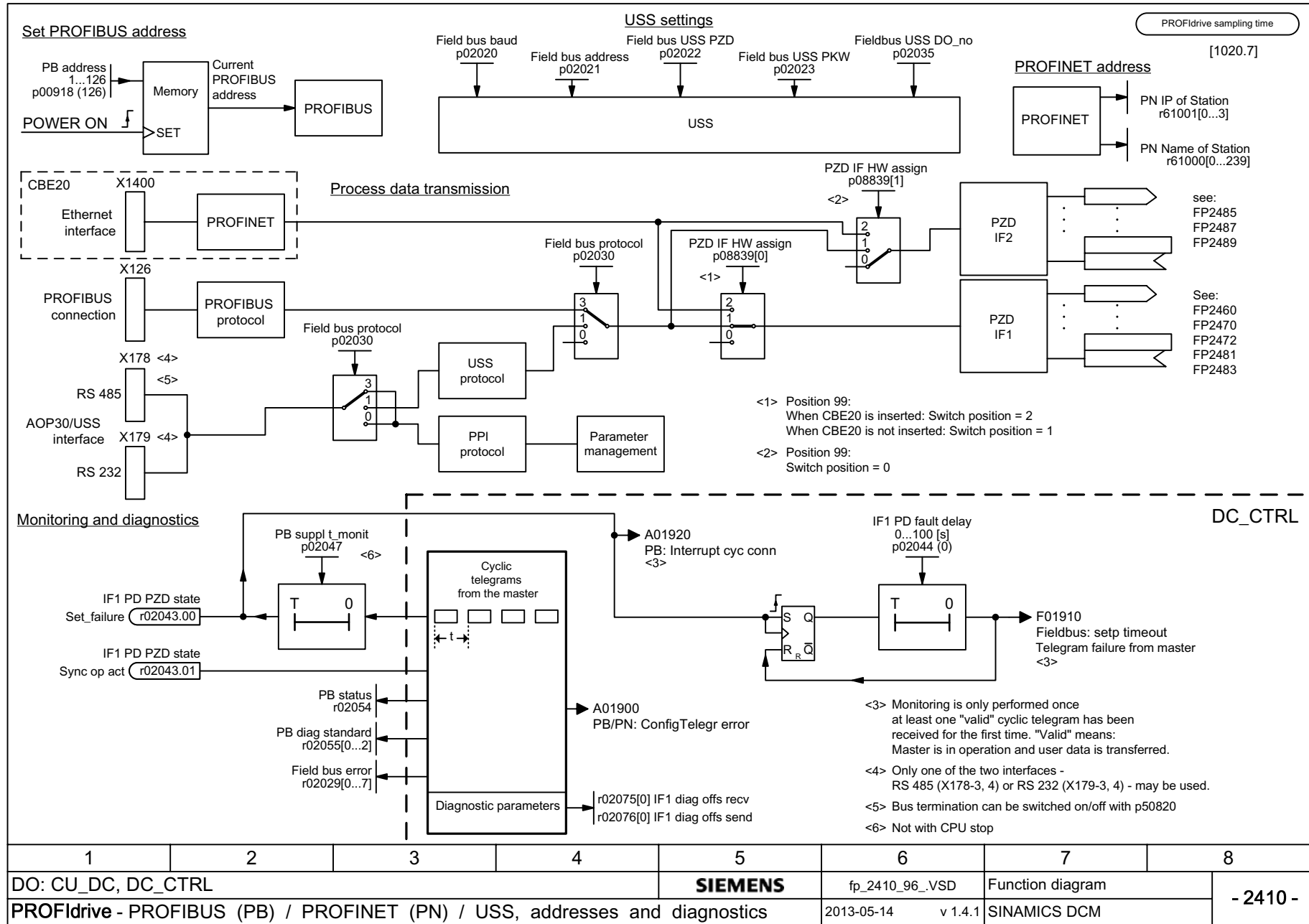
| | | | | | | | |
|-----------|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2200_96_VSD | Function diagram | |
| - | | | | | 28.11.2014 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2200 - |

3.6 PROFdrive

Function diagrams

| | |
|--|-----|
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| 2429 – ZSW2_BM status word, metal industry interconnection | 704 |
| 2440 – PZD receive signals interconnection | 705 |
| 2442 – STW1 control word interconnection | 706 |
| 2444 – STW2 control word interconnection | 707 |
| 2450 – PZD send signals interconnection | 708 |
| 2452 – ZSW1 status word interconnection | 709 |
| 2454 – ZSW2 status word interconnection | 710 |
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Fig. 3-27 2410 – PROFIBUS (PB) / PROFINET (PN) / USS, addresses and diagnostics



DO: CU_DC, DC_CTRL

SIEMENS

fp_2410_96_VSD

Function diagram

PROFdrive - PROFIBUS (PB) / PROFINET (PN) / USS, addresses and diagnostics

2013-05-14 v 1.4.1

SINAMICS DCM

- 2410 -

PROFdrive sampling time
[1020.7]

<1> <4>
IF1 PZD telegr
p00922 (999)

| Interconnection made in acc. with | [2440][2450] Automatic <2> | | | | | | | | | | | | | | [2460] [2470] [2481] [2483] | | |
|-----------------------------------|----------------------------|--------|---------|----------|---------|----------|---------|--------------|-----------|--------------|---------|--------------|-----------|-----------|-----------------------------|----------|--|
| Telegram | 1 | | 3 | | 4 | | 20 | | 220 | | 352 | | 390 <8> | | 999 | | |
| Appl. class | 1 | | 1, 4 | | 1, 4 | | 1 | | 1 | | 1 | | - | | - | | |
| PZD 1 | STW1 | ZSW1 | STW1 | ZSW1 | STW1 | ZSW1 | STW1 | ZSW1 | STW1_BM | ZSW1_BM | STW1 | ZSW1 | CU_STW1 | CU_ZSW1 | STW1 <3> | ZSW1 <3> | |
| PZD 2 | NSOLL_A | NIST_A | NSOLL_B | NIST_B | NSOLL_B | NIST_B | NSOLL_A | NIST_A_GLATT | NSOLL_B | NIST_A_GLATT | NSOLL_A | NIST_A_GLATT | A_DIGITAL | E_DIGITAL | ↕ | ↕ | |
| PZD 3 | | | | | | | | IAIST_GLATT | <6> | IAIST_GLATT | <3> | IAIST_GLATT | | | | | |
| PZD 4 | | | STW2 | ZSW2 | STW2 | ZSW2 | | MIST_GLATT | STW2_BM | MIST_GLATT | <3> | MIST_GLATT | | | | | |
| PZD 5 | | | G1_STW | G1_ZSW | G1_STW | G1_ZSW | | PIST_GLATT | M_ADD <6> | WARN_CODE | <3> | WARN_CODE | | | | | |
| PZD 6 | | | | G1_XIST1 | G2_STW | G1_XIST1 | | user <7> | M_LIM <6> | FAULT_CODE | <3> | FAULT_CODE | | | | | |
| PZD 7 | | | | | | | | | user <5> | ZSW2_BM | | | | | | | |
| PZD 8 | | | | | | | | | user <5> | r52162 | | | | | | | |
| PZD 9 | | | | G1_XIST2 | | G1_XIST2 | | | user <5> | user <5> | | | | | | | |
| PZD 10 | | | | | | G2_ZSW | | | user <5> | user <5> | | | | | | | |
| PZD 11 | | | | | | G2_XIST1 | | | | | | | | | | | |
| PZD 12 | | | | | | G2_XIST2 | | | | | | | | | | | |
| PZD 13 | | | | | | | | | | | | | | | | | |
| PZD 14 | | | | | | | | | | | | | | | | | |
| PZD 15 | | | | | | | | | | | | | | | | | |
| PZD 16 | | | | | | | | | | | | | | | | | |
| PZD 17 | | | | | | | | | | | | | | | | | |
| PZD 18 | | | | | | | | | | | | | | | | | |
| PZD 19 | | | | | | | | | | | | | | | | | |
| PZD 20 | | | | | | | | | | | | | | | | | |
| PZD 21 | | | | | | | | | | | | | | | | | |
| PZD 22 | | | | | | | | | | | | | | | | | |
| PZD 23 | | | | | | | | | | | | | | | | | |
| PZD 24 | | | | | | | | | | | | | | | | | |
| PZD 25 | | | | | | | | | | | | | | | | | |
| PZD 26 | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | | | | | |
| PZD 62 | | | | | | | | | | | | | | | | | |
| PZD 63 | | | | | | | | | | | | | | | | | |
| PZD 64 | | | | | | | | | | | | | | | | | |

<1> When changing p0922 = 999 to a different value, the telegram assignment is made automatically in accordance with [2420].
When changing p0922 not = 999 to p0922 = 999, the "old" telegram assignment as per [2420] remains unchanged.

<2> Only telegrams 390 and 999 are supported on DO CU_DC.

<3> To comply with the PROFdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).
If STW1 according to the PROFdrive profile is not transferred with PZD1, p2037 = 2 must be set.

<4> The maximum PZD number depends on the drive object type.

<5> Can be freely interconnected (default: 0).

<6> Default not inhibited

<7> Can be freely interconnected (default: MESS_NAMUR)

<8> Telegram 390 is only supported on DO CU_DC.

= Position encoder signal

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL, CU_DC | | | | SIEMENS | fp_2420_96_VSD | Function diagram | |
| PROFdrive - Telegrams and process data (PZD) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2420 - |

Fig. 3-28 2420 – Telegrams and process data (PZD)

Fig. 3-29 2425 – STW1_BM control word, metal industry interconnection

| Signal destinations for STW1_BM for telegram 220 | | | | | | | |
|--|--|---------------------------|------------------|----------|--------------------------------------|--|--|
| Signal | Meaning | Interconnection parameter | Function diagram | Inverted | PROFIdrive sampling time [1020.7] | | |
| STW1.0 | 0 = OFF (OFF1) 1 = ON | p0840[0] = r2090.0 | [2580.1] | - | | | |
| STW1.1 | 0 = OFF2 (immediate pulse suppression and switching on inhibited) 1 = No OFF2 (enable possible) | p0844[0] = r2090.1 | [2580.1] | - | | | |
| STW1.2 | 0 = OFF3 (braking along the OFF3 ramp, then pulse suppression and switching on inhibited) 1 = No OFF3 (enable possible) | p0848[0] = r2090.2 | [2580.1] | - | | | |
| STW1.3 | 0 = Inhibit operation 1 = Enable operation | p2816[0] = r2090.3 | [2655.6] | - | | | |
| STW1.4 | 0 = Set ramp-function generator zero 1 = Enable ramp-function generator | p1140[0] = r2090.4 | [2580.3] | - | | | |
| STW1.5 | 0 = Freeze ramp-function generator 1 = Continue ramp-function generator | p1141[0] = r2090.5 | [2580.3] | - | | | |
| STW1.6 | 0 = Speed setpoint = 0 1 = Speed setpoint enable | p1142[0] = r2090.6 | [2580.3] | - | | | |
| STW1.7 | 1 = Acknowledge fault | p2103[0] = r2090.7 | [2546.1] | - | | | |
| STW1.8 | Reserved | - | - | - | | | |
| STW1.9 | Reserved | - | - | - | | | |
| STW1.10 | 1 = Control via PLC | p0854[0] = r2090.10 | [2580.3] | - | <1> | | |
| STW1.11 | Reserved | - | - | - | <2> | | |
| STW1.12 | Reserved | - | - | - | <2> | | |
| STW1.13 | Reserved | - | - | - | <2> | | |
| STW1.14 | Reserved | - | - | - | <2> | | |
| STW1.15 | Reserved | - | - | - | <2> | | |

<1> STW1.10 must be set in order for the drive object to accept the process data (PZD).
<2> Interconnection is not inhibited.

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2425_96_VSD | Function diagram | |
| PROFIdrive - STW1_BM control word sector metal interconnection | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2425 - |

PROFIdrive sampling time
[1020.7]

| Signal destinations for STW2_BM for telegram 220 | | | | | |
|--|---|-----|---------------------------|------------------|----------|
| Signal | Meaning | | Interconnection parameter | Function diagram | Inverted |
| STW2.0 | Command data set selection CDS bit 0 | | p0810 = r2093.0 | [8560.3] | - |
| STW2.1 | Reserved; bit must always be set to 0. | | - | - | - |
| STW2.2 | Command data set selection DDS bit 0 | <1> | p0820[0] = r2093.2 | [8565.3] | - |
| STW2.3 | Command data set selection DDS bit 1 | <1> | p0821[0] = r2093.3 | [8565.3] | - |
| STW2.4 | Reserved; bit must always be set to 0. | | - | - | - |
| STW2.5 | 1 = Bridge ramp-function generator | | p50641[0] = r2093.5 | [3152.2] | - |
| STW2.6 | Reserved | | - | - | - |
| STW2.7 | 1 = Speed controller integration value set | | p50695[0] = r2093.7 | [6815.1] | - |
| STW2.8 | 1 = Enable droop | | p50684[0] = r2093.8 | [6805.3] | - |
| STW2.9 | 1 = Enable speed controller | <1> | p0856[0] = r2093.9 | [2580.3] | - |
| STW2.10 | Reserved | <1> | - | - | - |
| STW2.11 | 0 = Speed-controlled operation 1 = Torque-controlled operation | | p50687[0] = r2093.11 | [6830.2] | - |
| STW2.12 | Reserved | <1> | - | - | - |
| STW2.13 | Reserved | <1> | - | - | - |
| STW2.14 | Reserved | <1> | - | - | - |
| STW2.15 | Controller sign-of-life toggle bit | | p2081[15] = r2093.15 | [2472.1] | - |

<1> Interconnection is not inhibited.

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2426_96_VSD | Function diagram | |
| PROFIdrive - STW2_BM control word sector metal interconnection | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2426 - |

Fig. 3-30 2426 – STW2_BM control word, metal industry interconnection

Fig. 3-31 2428 – ZSW1_BM status word, metal industry interconnection

| Signal destinations for ZSW1_BM for telegram 220 | | | | | <1> | |
|--|--|-----|---------------------------|------------------|----------|--------------------------------------|
| Signal | Meaning | | Interconnection parameter | Function diagram | Inverted | PROFIdrive sampling time [1020.7] |
| ZSW1.0 | 1 = Ready to switch on | | p2080[0] = r0899.0 | [2585.7] | - | |
| ZSW1.1 | 1 = Ready | | p2080[1] = r0899.1 | [2585.7] | - | |
| ZSW1.2 | 1 = Operation enabled | | p2080[2] = r2811.0 | [2655.8] | - | |
| ZSW1.3 | 1 = Fault effective | | p2080[3] = r2139.3 | [2548.7] | - | |
| ZSW1.4 | 0 = Coasting down active (OFF2) | | p2080[4] = r0899.4 | [2585.7] | - | |
| ZSW1.5 | 0 = Quick stop active (OFF3) | | p2080[5] = r0899.5 | [2585.7] | - | |
| ZSW1.6 | 1 = Switching on inhibited active | | p2080[6] = r0899.6 | [2585.7] | - | |
| ZSW1.7 | 1 = Alarm effective | | p2080[7] = r2139.7 | [2548.7] | - | |
| ZSW1.8 | 1 = Speed setpoint - actual value deviation within tolerance | | p2080[8] = r2197.7 | [2534.6] | - | |
| ZSW1.9 | 1 = Control requested | <2> | p2080[9] = r0899.9 | [2585.7] | - | |
| ZSW1.10 | 1 = n comparison value reached or exceeded | | p2080[10] = r2199.1 | [2537.6] | - | |
| ZSW1.11 | 1 = Torque limit not reached | | p2080[11] = r1407.7 | - | ✓ | |
| ZSW1.12 | 1 = Open holding brake | | p2080[12] = r0899.12 | [2585.7] | - | |
| ZSW1.13 | Reserved | <3> | - | - | - | |
| ZSW1.14 | Reserved | <3> | - | - | - | |
| ZSW1.15 | Reserved | <3> | - | - | - | |

<1> ZSW1_BM is formed via binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15).
 <2> The drive object is ready for acceptance.

<3> Interconnection is not inhibited.

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2428_96_VSD | Function diagram | |
| PROFIdrive - ZSW1_BM status word sector metal interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2428 - |

PROFIdrive sampling time

[1020.7]

Signal destinations for ZSW2_BM for telegram 220

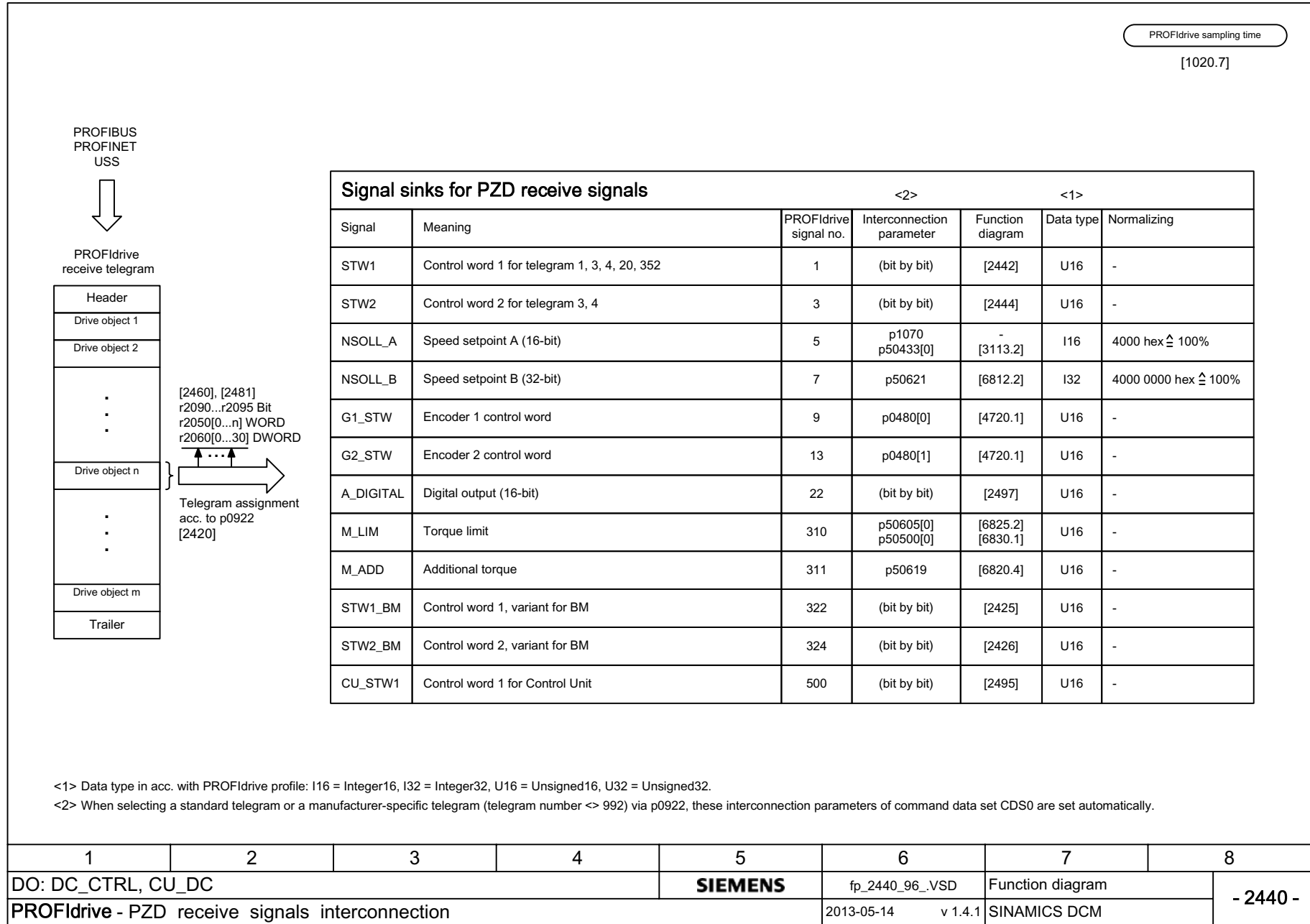
| Signal | Meaning | Interconnection parameter | Function diagram | Inverted |
|---------|--|---------------------------|------------------|----------|
| ZSW2.0 | Reserved | <1> | - | - |
| ZSW2.1 | Reserved | <1> | - | - |
| ZSW2.2 | Reserved | <1> | - | - |
| ZSW2.3 | Reserved | <1> | - | - |
| ZSW2.4 | Reserved | <1> | - | - |
| ZSW2.5 | 1 = Alarm class bit 0 | p2081[5] = r2139.11 | [2548.7] | - |
| ZSW2.6 | 1 = Alarm class bit 0 | p2081[6] = r2139.12 | [2548.7] | - |
| ZSW2.7 | Reserved | - | - | - |
| ZSW2.8 | Reserved | - | - | - |
| ZSW2.9 | 1 = Speed setpoint limited | p2081[9] = r1407.11 | - | - |
| ZSW2.10 | 1 = Upper torque limit reached | p2081[10] = r1407.8 | - | - |
| ZSW2.11 | 1 = Lower torque limit reached | p2081[11] = r1407.9 | - | - |
| ZSW2.12 | 1 = Encoderless operation because of fault | p2081[12] = r1407.13 | - | - |
| ZSW2.13 | Reserved | p2081[13] = r53110.1 | - | - |
| ZSW2.14 | Reserved | p2081[14] = r53110.0 | - | - |
| ZSW2.15 | Controller sign-of-life toggle bit | p2081[15] = r2093.15 | [2460.6] | - |

<1> Interconnection is not inhibited.

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2429_96_VSD | Function diagram | |
| PROFIdrive - ZSW2_BM status word sector metal interconnection | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2429 - |

Fig. 3-32 2429 – ZSW2_BM status word, metal industry interconnection

Fig. 3-33 2440 – PZD receive signals interconnection



PROFIdrive sampling time

[1020.7]

Signal destinations for STW1 for telegrams 1, 3, 4, 20, 352

| Signal | Meaning | Interconnection parameter | [Function diagram] Internal control word | Inverted |
|---------|---|---------------------------|--|----------|
| STW1.0 | \int = ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse suppression and ready to switch on) | p0840[0] = r2090.0 | [2580.1] | - |
| STW1.1 | 1 = OC (enable possible) <4> 0 = OFF2 (immediate pulse suppression and switching on inhibited) | p0844[0] = r2090.1 | [2580.1] | - |
| STW1.2 | 1 = OC (enable possible) <4> 0 = OFF3 (braking along the OFF3 ramp, then pulse suppression and switching on inhibited) | p0848[0] = r2090.2 | [2580.1] | - |
| STW1.3 | 1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (suppress pulses) | p0852[0] = r2090.3 | [2580.1] | - |
| STW1.4 | 1 = Enable ramp-function generator 0 = Inhibit ramp-function generator (set ramp-function generator output to zero) | p1140[0] = r2090.4 | [2580.3] | - |
| STW1.5 | 1 = Start ramp-function generator 0 = Stop ramp-function generator (freeze ramp-function generator output) | p1141[0] = r2090.5 | [2580.3] | - |
| STW1.6 | 1 = Enable speed setpoint 0 = Inhibit speed setpoint (set ramp-function generator input to zero) | p1142[0] = r2090.6 | [2580.3] | - |
| STW1.7 | \int = Acknowledge fault | p2103[0] = r2090.7 | [2546.1] | - |
| STW1.8 | Reserved | - | - | - |
| STW1.9 | Reserved | - | - | - |
| STW1.10 | 1 = Control via PLC <2> | p0854[0] = r2090.10 | [2580.3] | - |
| STW1.11 | 1 = setpoint inversion | p1113[0] = r2090.11 | [3113.6] | - |
| STW1.12 | Reserved | - | - | - |
| STW1.13 | 1 = Motorized potentiometer, higher <3> | p1035[0] = r2090.13 | [3110.1] | - |
| STW1.14 | 1 = Motorized potentiometer, lower <3> | p1036[0] = r2090.14 | [3110.1] | - |
| STW1.15 | 1 = Command data set selection CDS bit 0 <1> | <5> p0810[0] = 2090.15 | [8560.3] | - |

<5> Interconnection is not inhibited.

<1> Only for telegram 20

<2> STW1.10 must be set in order for the drive object to accept the process data (PZD).

<3> Only for telegram 1, 3, 4 and 352

<4> OC = Operating condition

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2442_96_VSD | Function diagram | |
| PROFIdrive - STW1 control word interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2442 - |

Fig. 3-34 2442 – STW1 control word interconnection

PROFIdrive sampling time

[1020.7]

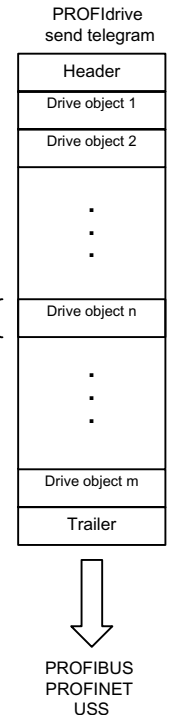
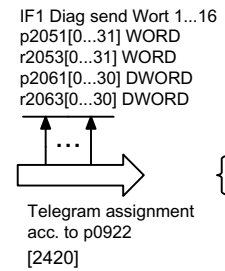
Signal destinations for STW2 for telegrams 3, 4

| Signal | Meaning | Interconnection parameter | Function diagram | Inverted |
|---------|------------------------------------|---------------------------|------------------|----------|
| STW2.0 | Drive data set selection DDS bit 0 | p0820[0] = r2093.0 | [8565.3] | - |
| STW2.1 | Drive data set selection DDS bit 1 | p0821[0] = r2093.1 | [8565.3] | - |
| STW2.2 | Reserved | - | - | - |
| STW2.3 | Reserved | - | - | - |
| STW2.4 | Reserved | - | - | - |
| STW2.5 | Reserved | - | - | - |
| STW2.6 | Reserved | - | - | - |
| STW2.7 | Reserved | - | - | - |
| STW2.8 | Reserved | - | - | - |
| STW2.9 | Reserved | - | - | - |
| STW2.10 | Reserved | - | - | - |
| STW2.11 | Reserved | - | - | - |
| STW2.12 | Master sign-of-life bit 0 | p2045 = r2050[3] | - | - |
| STW2.13 | Master sign-of-life bit 1 | | | |
| STW2.14 | Master sign-of-life bit 2 | | | |
| STW2.15 | Master sign-of-life bit 3 | | | |

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2444_96_VSD | Function diagram | |
| PROFIdrive - STW2 control word interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2444 - |

Fig. 3-35 2444 – STW2 control word interconnection

PROFdrive sampling time
[1020.7]



| Signal sources for PZD send signals | | <2> | <1> | | | |
|-------------------------------------|--|----------------------|---------------------------|------------------|-----------|---------------------------------|
| Signal | Description | PROFdrive signal no. | Interconnection parameter | Function diagram | Data type | Normalizing |
| ZSW1 | Status word 1 | 2 | r2089[0] | [2452] | U16 | - |
| ZSW2 | Status word 2 | 4 | r2089[1] | [2454] | U16 | - |
| NIST_A | Actual speed value A (16-bit) | 6 | r0063[0] | [6810.4] | I16 | 4000 hex $\hat{=}$ 100% = p2000 |
| G1_ZSW | Encoder 1 status word | 10 | r0481[0] | [4730.5] | U16 | - |
| G1_XIST1 | Encoder 1 actual position value 1 | 11 | r0482[0] | [4704.8] | U32 | - |
| G1_XIST2 | Encoder 1 actual position value 2 | 12 | r0483[0] | [4704.8] | U32 | - |
| G2_ZSW | Encoder 2 status word | 14 | r0481[1] | [4730.5] | U16 | - |
| G2_XIST1 | Encoder 2 actual position value 1 | 15 | r0482[1] | [4704.8] | U32 | - |
| G2_XIST2 | Encoder 2 actual position value 2 | 16 | r0483[1] | [4704.8] | U32 | - |
| E_DIGITAL | Digital input (16-bit) | 21 | r2089[2] | [2498] | U16 | - |
| IAIST_GLATT | Absolute actual current value smoothed | 51 | r0027 | [6851.6] | I16 | 4000 hex $\hat{=}$ 100% = p2002 |
| MIST_GLATT | Actual torque value smoothed | <3> | r0080 | [6851.7] | I16 | 4000 hex $\hat{=}$ 100% = p2003 |
| PIST_GLATT | Active power smoothed | <4> | r0082[1] | - | I16 | 4000 hex $\hat{=}$ 100% = r2004 |
| NIST_A_GLATT | Actual speed value smoothed | 57 | r0063[1] | [6810.5] | I16 | 4000 hex $\hat{=}$ 100% = p2000 |
| MELD_NAMUR | VIK-NAMUR message bit bar | 58 | r3113 | - | U16 | - |
| FAULT_CODE | Fault code | 301 | r2131 | [8060.3] | U16 | - |
| WARN_CODE | Alarm code | 303 | r2132 | [8065.3] | U16 | - |
| ZSW1_BM | Status word 1, variant for BM | 323 | r2089[0] | [2428] | U16 | - |
| ZSW2_BM | Status word 2, variant for BM | 325 | r2089[1] | [2429] | U16 | - |
| CU_ZSW1 | Status word 1 for Control Unit | 501 | r2089[1] | [2496] | U16 | - |

<1> "Data type according to PROFdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32"
 <2> When selecting a standard telegram or a manufacturer-specific telegram (telegram number <> 999) via p0922, these interconnection parameters of command data set CDS0 are set automatically.
 <3> Value refers to device data. I.e. 100% corresponds to p2003.

<4> Electric power output of the SINAMICS DCM

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL, CU_DC | | | | SIEMENS | fp_2450_96_VSD | Function diagram | |
| PROFdrive - PZD send signals interconnection | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2450 - |

Fig. 3-36 2450 – PZD send signals interconnection

Fig. 3-37 2452 – ZSW1 status word interconnection

| Signal sources for ZSW1 for telegrams 1, 3, 4, 20, 352 | | | | | <2> | |
|--|--|-----|---|---|----------|-------------------------|
| Signal | Meaning | | Interconnection parameter | [Function diagram] internal status word | Inverted | PROFdrive sampling time |
| ZSW1.0 | 1 = Ready to switch on | | p2080[0] = r0899.0 | [2585.7] | - | [1020.7] |
| ZSW1.1 | 1 = Ready | | p2080[1] = r0899.1 | [2585.7] | - | |
| ZSW1.2 | 1 = Operation enabled | | p2080[2] = r0899.2 | [2585.7] | - | |
| ZSW1.3 | 1 = Fault effective | | p2080[3] = r2139.3 | [2548.7] | - | |
| ZSW1.4 | 1 = No coasting down active (OFF2 inactive) | | p2080[4] = r0899.4 | [2585.7] | - | |
| ZSW1.5 | 1 = No quick stop active (OFF3 inactive) | | p2080[5] = r0899.5 | [2585.7] | - | |
| ZSW1.6 | 1 = Switching on inhibited active | | p2080[6] = r0899.6 | [2585.7] | - | |
| ZSW1.7 | 1 = Alarm effective | | p2080[7] = r2139.7 | [2548.7] | - | |
| ZSW1.8 | 1 = Speed setpoint - actual value deviation within tolerance t_off | | p2080[8] = r2197.7 | [2534.6] | - | |
| ZSW1.9 | 1 = Control request | <3> | p2080[9] = r0899.9 | [2585.7] | - | |
| ZSW1.10 | 1 = f or n comparison value reached or exceeded | | p2080[10] = r2199.1 | [2537.6] | - | |
| ZSW1.11 | 1 = M limit not reached 1 = I or M limit not reached | <1> | p2080[11] = r1407.7 p2080[11] = r0056.13 | - | ✓ | |
| ZSW1.12 | 1 = Holding brake open reserved (always value 0) | <1> | p2080[12] = r0899.12 | [2585.7] | - | |
| ZSW1.13 | 1 = No warning overtemperature motor | | p2080[13] = r2135.14 | [2548.7] | ✓ | |
| ZSW1.14 | 1 = Motor rotates forwards (n_act >= 0) 0 = Motor rotates backwards (n_act < 0) | | p2080[14] = r2197.3 | [2534.6] | - | |
| ZSW1.15 | No warning thermal overload power unit 1 = Command data set CDS effective bit 0 | <1> | p2080[15] = r2135.15 p2080[15] = r836.0 | [2548.7] [8560.7] | ✓ | |

<1> For telegram 20
<2> ZSW1 is formed via binector-connector converter (BI: p2080[0...15], inversion: p2088[0]..p2088[0].15).

<3> The drive object is ready for acceptance.

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2452_96_VSD | Function diagram | |
| PROFdrive - ZSW1 status word interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2452 - |

PROFIdrive sampling time

[1020.7]

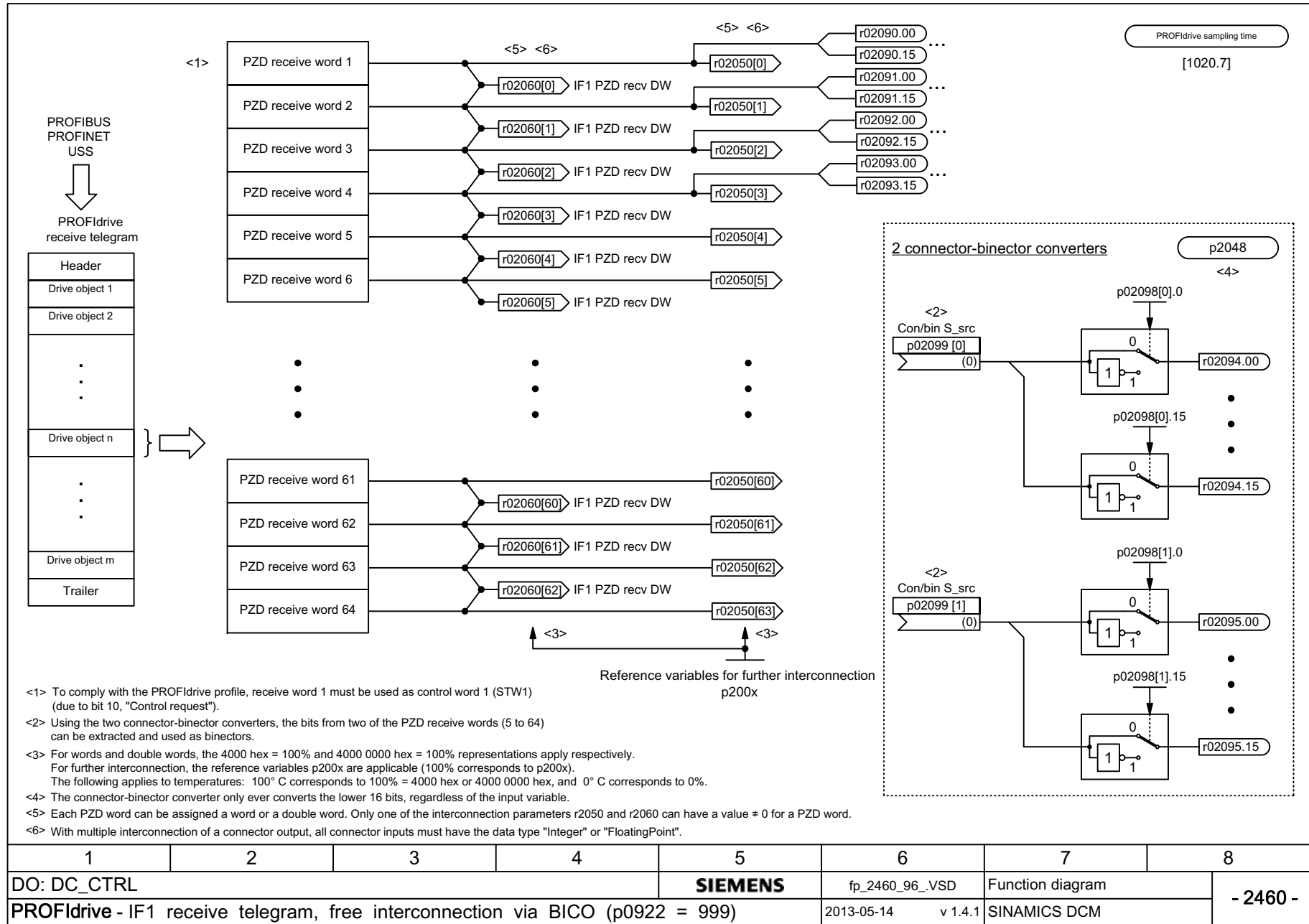
Signal destinations for ZSW2 for telegrams 3, 4

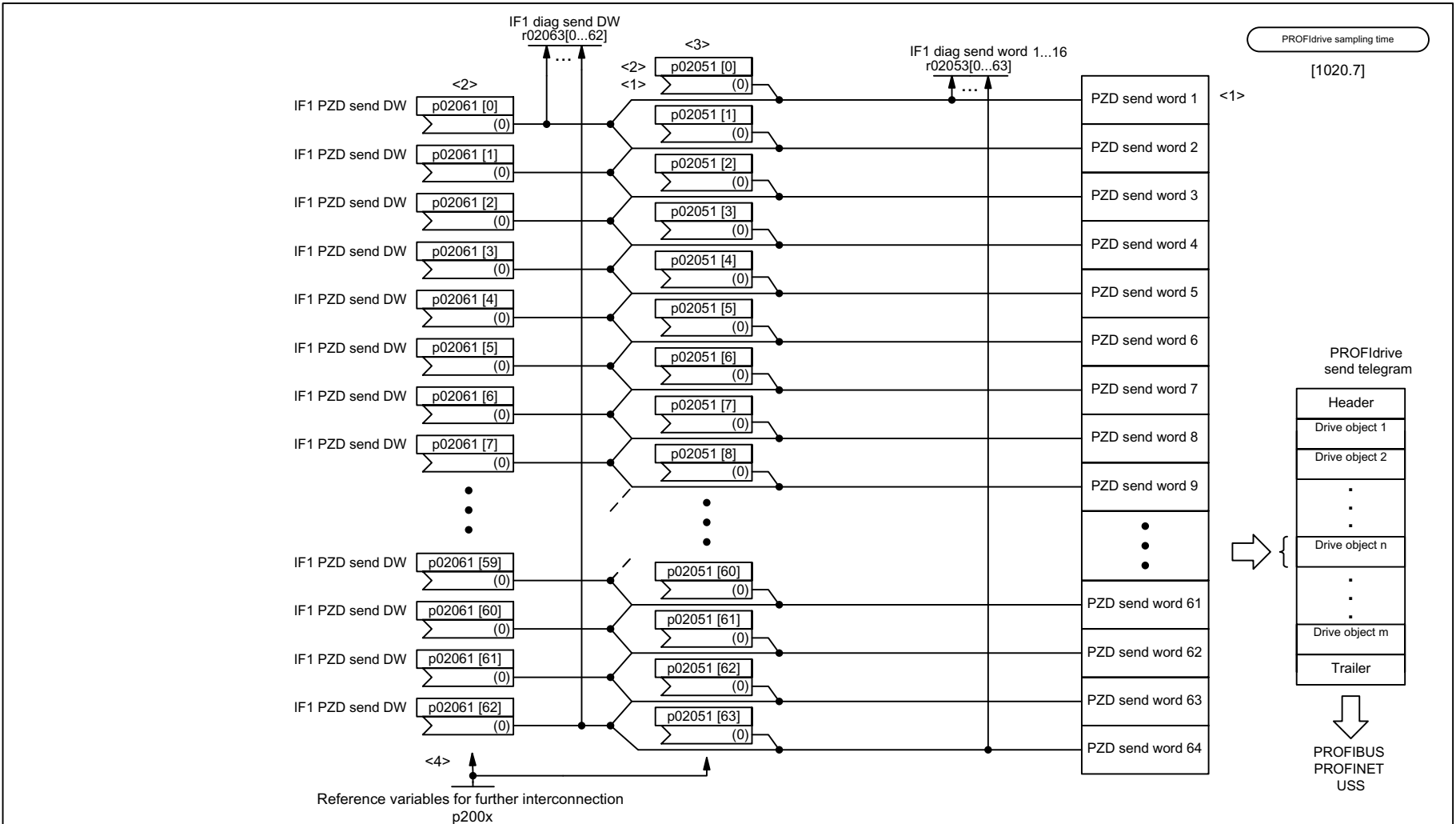
| Signal | Meaning | Interconnection parameter | Function diagram | Inverted |
|---------|--|---------------------------|------------------|----------|
| ZSW2.0 | 1 = Drive data set selection DDS effective bit 0 | p2081[0] = r0051.0 | [8565.7] | - |
| ZSW2.1 | 1 = Drive data set selection DDS effective bit 1 | p2081[1] = r0051.1 | [8565.7] | - |
| ZSW2.2 | Reserved | - | - | - |
| ZSW2.3 | Reserved | - | - | - |
| ZSW2.4 | Reserved | - | - | - |
| ZSW2.5 | 1 = Alarm class bit 0 | p2081[5] = r2139.11 | [2548.7] | - |
| ZSW2.6 | 1 = Alarm class bit 1 | p2081[6] = r2139.12 | [2548.7] | - |
| ZSW2.7 | Reserved | - | - | - |
| ZSW2.8 | Reserved | - | - | - |
| ZSW2.9 | Reserved | - | - | - |
| ZSW2.10 | 1 = Pulses enabled | p2081[10] = r0899.11 | [2585.7] | - |
| ZSW2.11 | Reserved | - | - | - |
| ZSW2.12 | Reserved | - | - | - |
| ZSW2.13 | Reserved | - | - | - |
| ZSW2.14 | Reserved | - | - | - |
| ZSW2.15 | Reserved | - | - | - |

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2454_96_VSD | Function diagram | |
| PROFIdrive - ZSW2 status word interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2454 - |

Fig. 3-38 2454 – ZSW2 status word interconnection

Fig. 3-39 2460 – IF1 receive telegram, free interconnection via BICO (p0922 = 999)





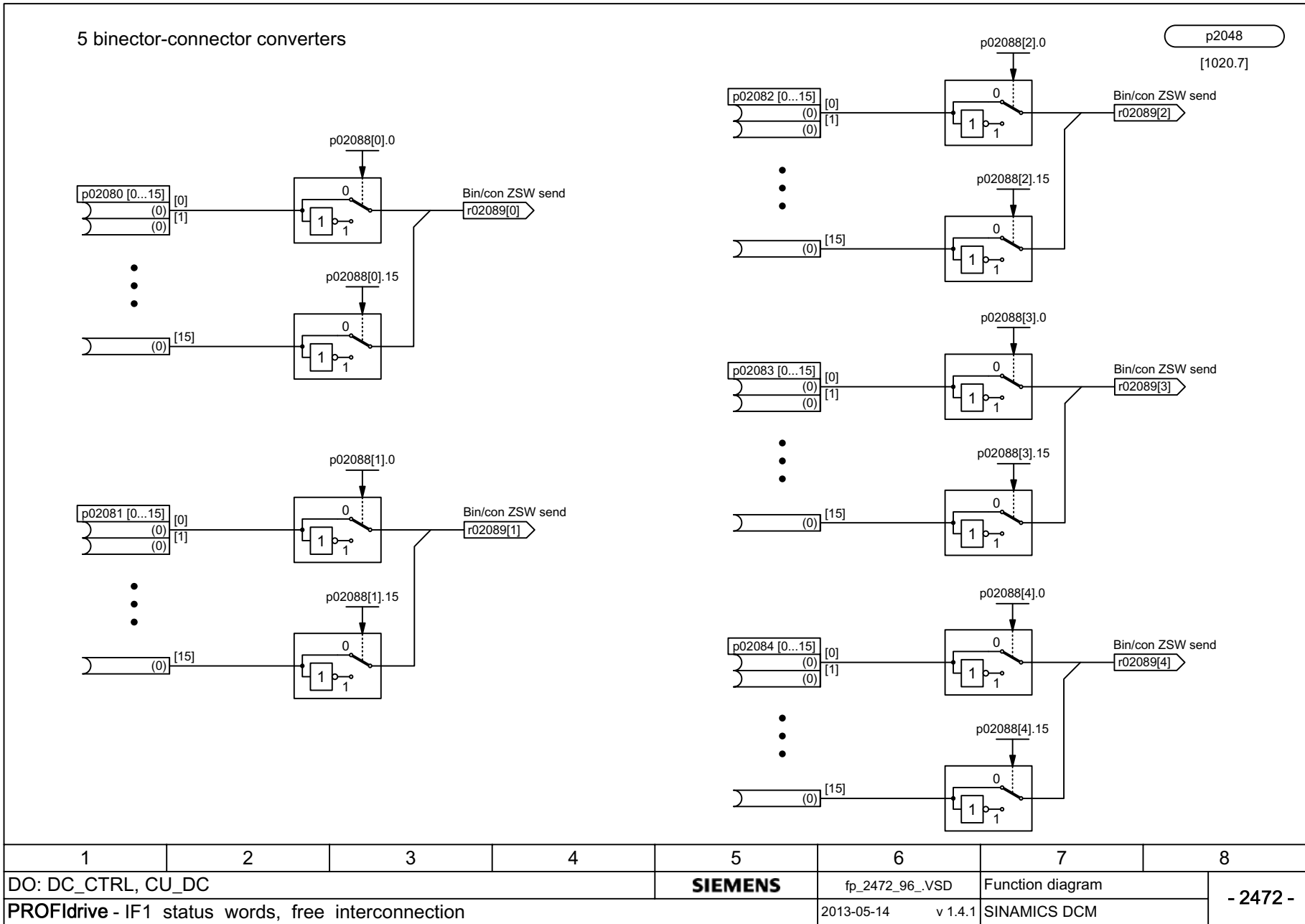
<1> To comply with the PROFdrive profile, send word 1 must be used as status word 1 (ZSW1) rather than as the DWORD.
 <2> Each PZD send word can be supplied via connector input p2051 (WORD) or via p2061 (DWORD). An interconnection of the two relevant connector inputs is not possible.

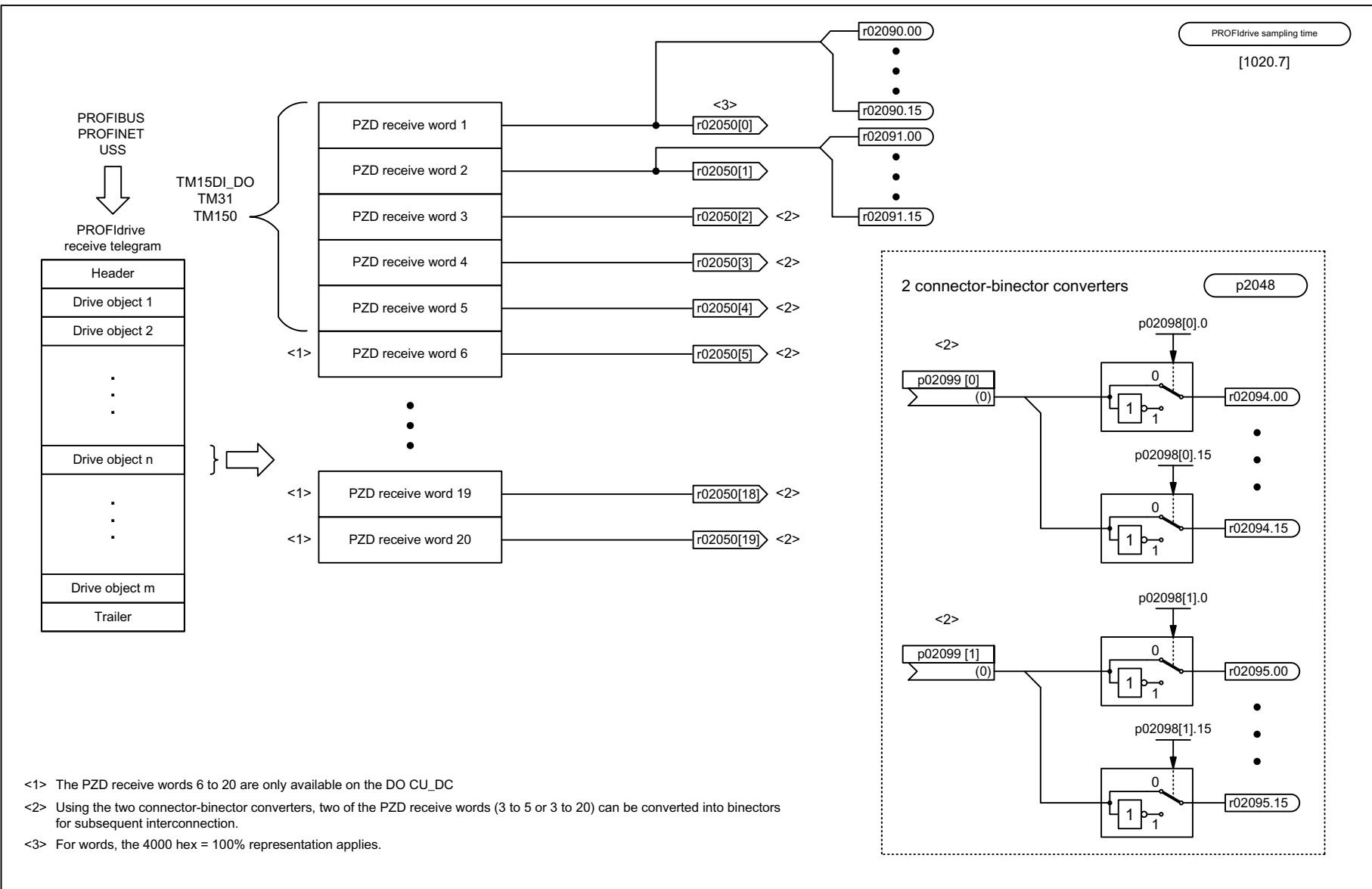
<3> Using the two connector-binector converters at [2472], the bits from 5 of the send words can be interconnected with any binectors.
 <4> Physical word and double word values are inserted in the telegram as referenced variables. The reference variables p200x are applicable (telegram content = 4000 hex or 4000 0000 hex for double words if the input variable has the value p200x). The following applies to temperatures: 100° C corresponds to 100% = 4000 hex or 4000 0000 hex, and 0° C corresponds to 0%.

Fig. 3-40 2470 – IF1 send telegram, free interconnection via BICO (p0922 = 999)

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2470_96_VSD | Function diagram | |
| PROFdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2470 - |

Fig. 3-41 2472 - IF1 status words, free interconnection



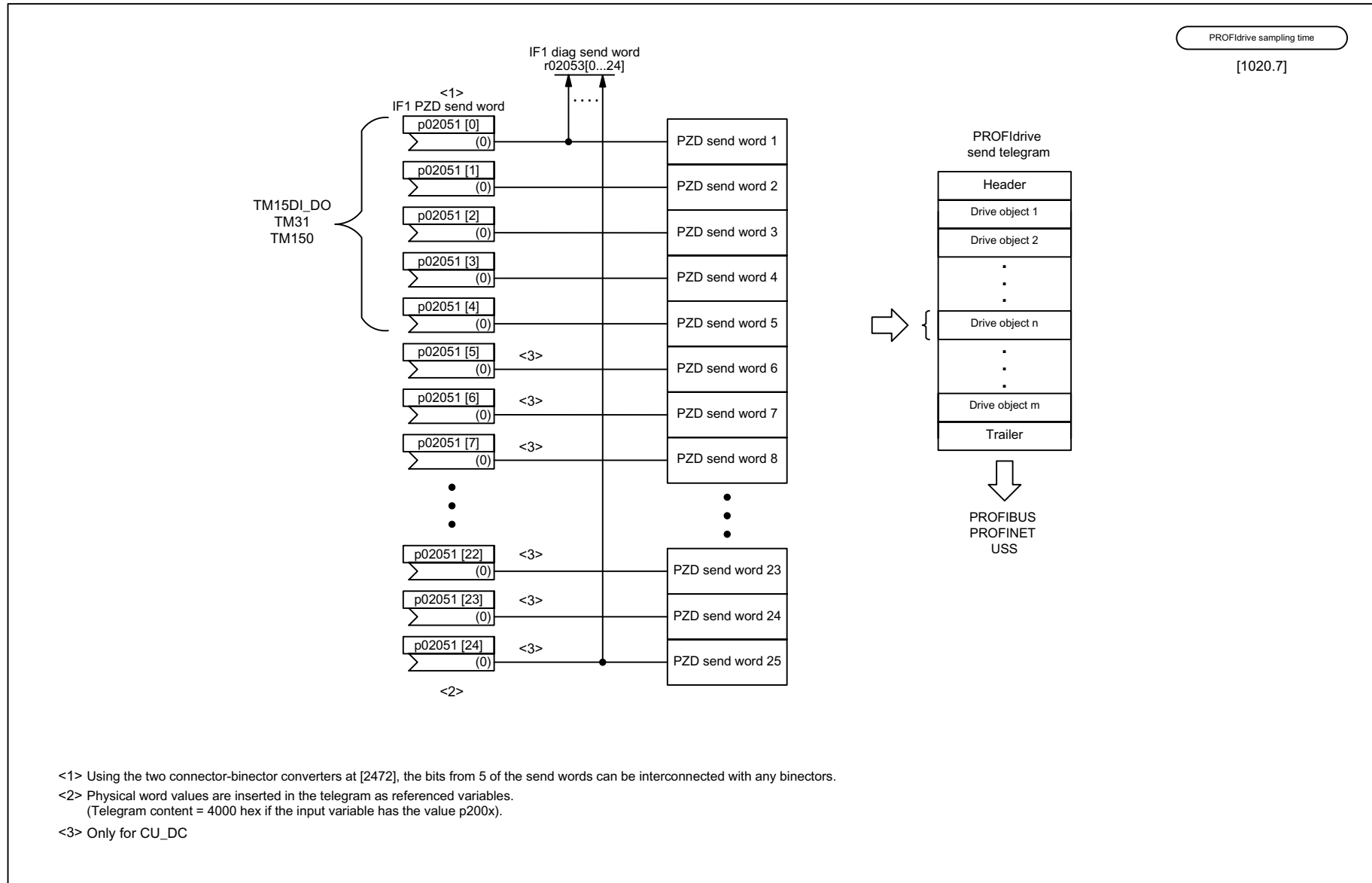


- <1> The PZD receive words 6 to 20 are only available on the DO CU_DC
- <2> Using the two connector-binector converters, two of the PZD receive words (3 to 5 or 3 to 20) can be converted into binectors for subsequent interconnection.
- <3> For words, the 4000 hex = 100% representation applies.

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC, TM15DI_DO, TM31, TM150 | | | | SIEMENS | fp_2481_96_VSD | Function diagram | |
| PROFdrive - IF1 receive telegram, free interconnection via BICO (p0922 = 999) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2481 - |

Fig. 3-42 2481 - IF1 receive telegram, free interconnection via BICO (p0922 = 999)

Fig. 3-43 2483 – IF1 send telegram, free interconnection via BICO (p0922 = 999)



- <1> Using the two connector-binector converters at [2472], the bits from 5 of the send words can be interconnected with any binectors.
- <2> Physical word values are inserted in the telegram as referenced variables.
(Telegram content = 4000 hex if the input variable has the value p200x).
- <3> Only for CU_DC

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC, TM15DI_DO, TM31, TM150 | | | | SIEMENS | fp_2483_96_VSD | Function diagram | |
| PROFIdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2483 - |

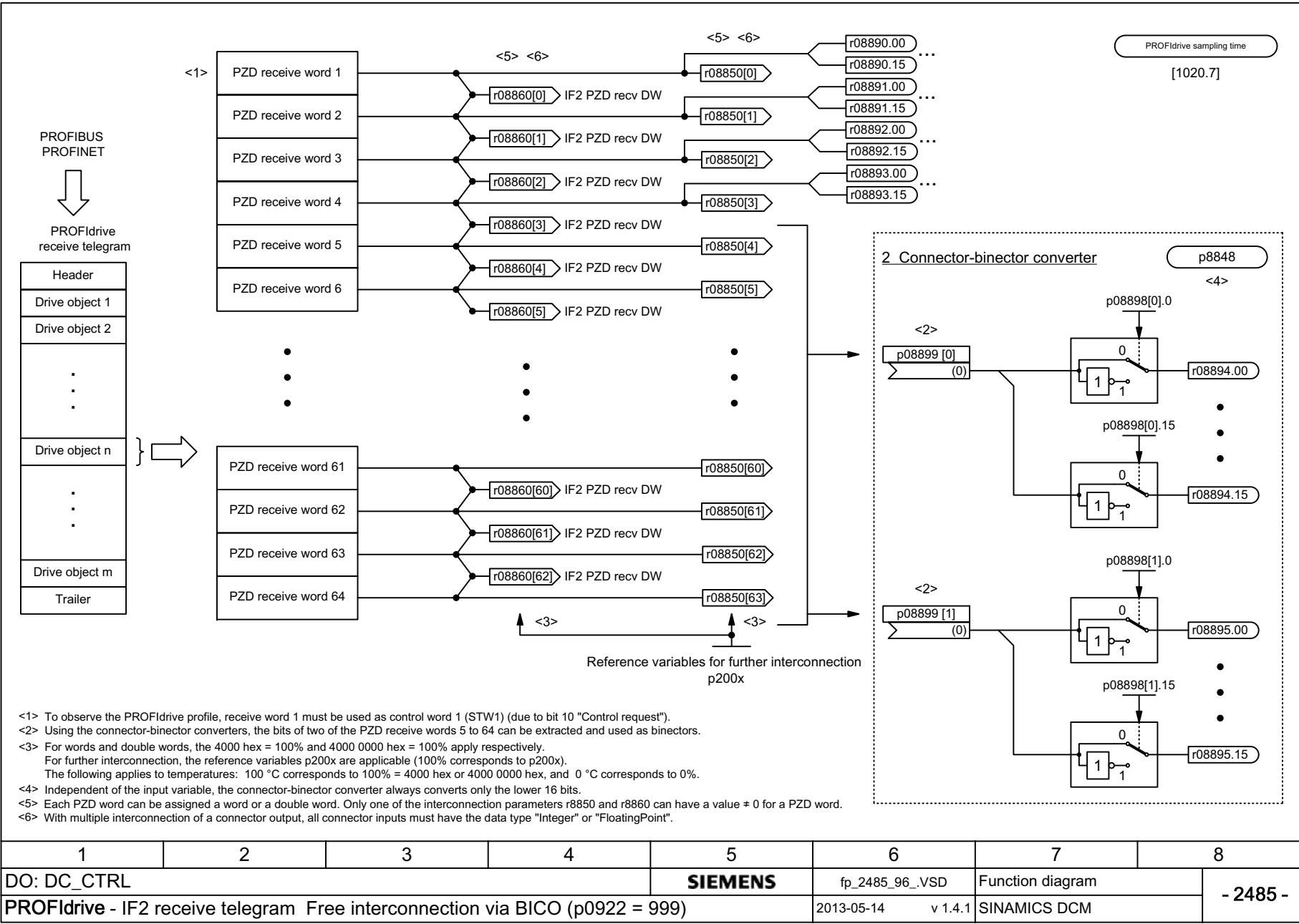
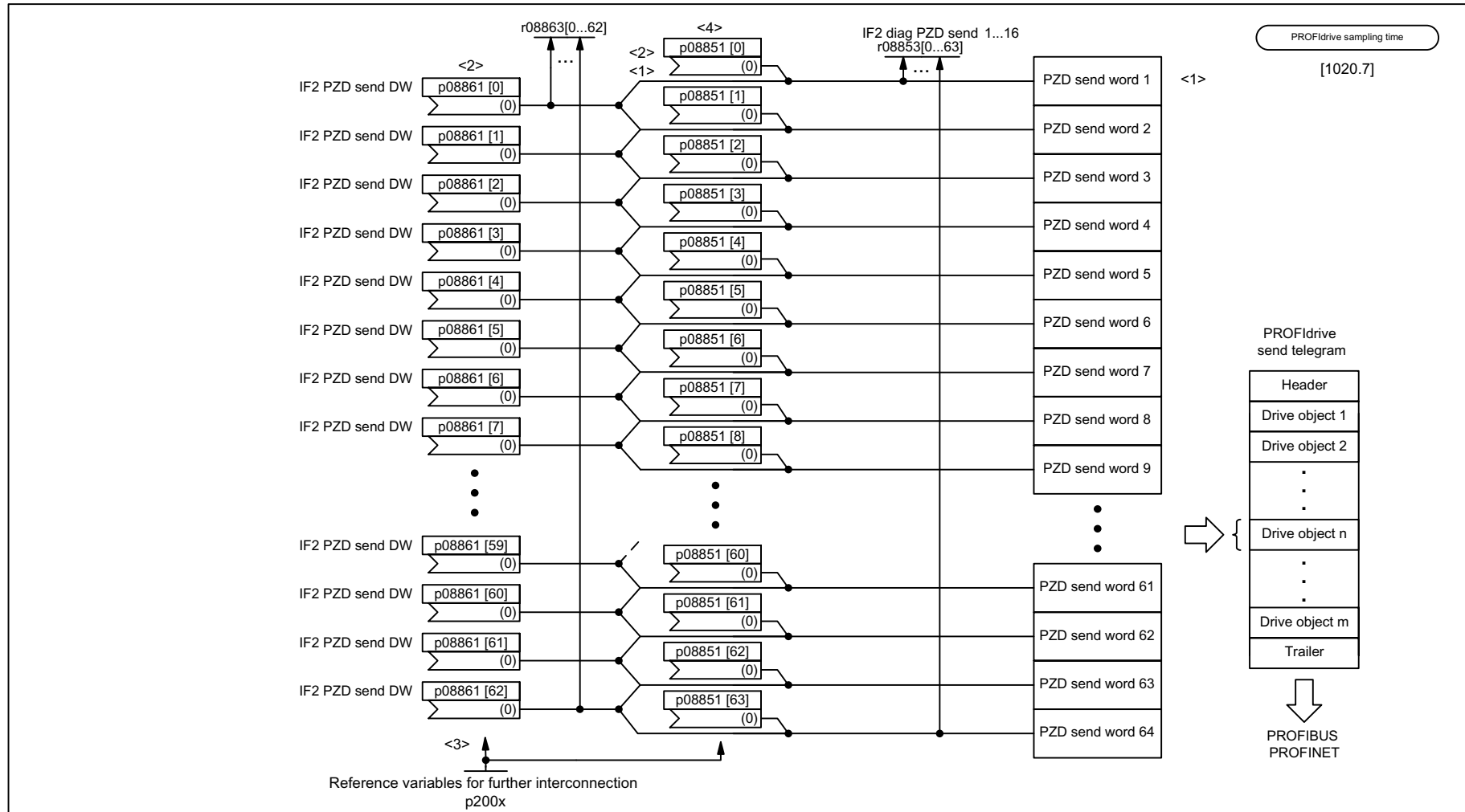


Fig. 3-44 2485 – IF2 receive telegram, free interconnection via BICO (p0922 = 999)

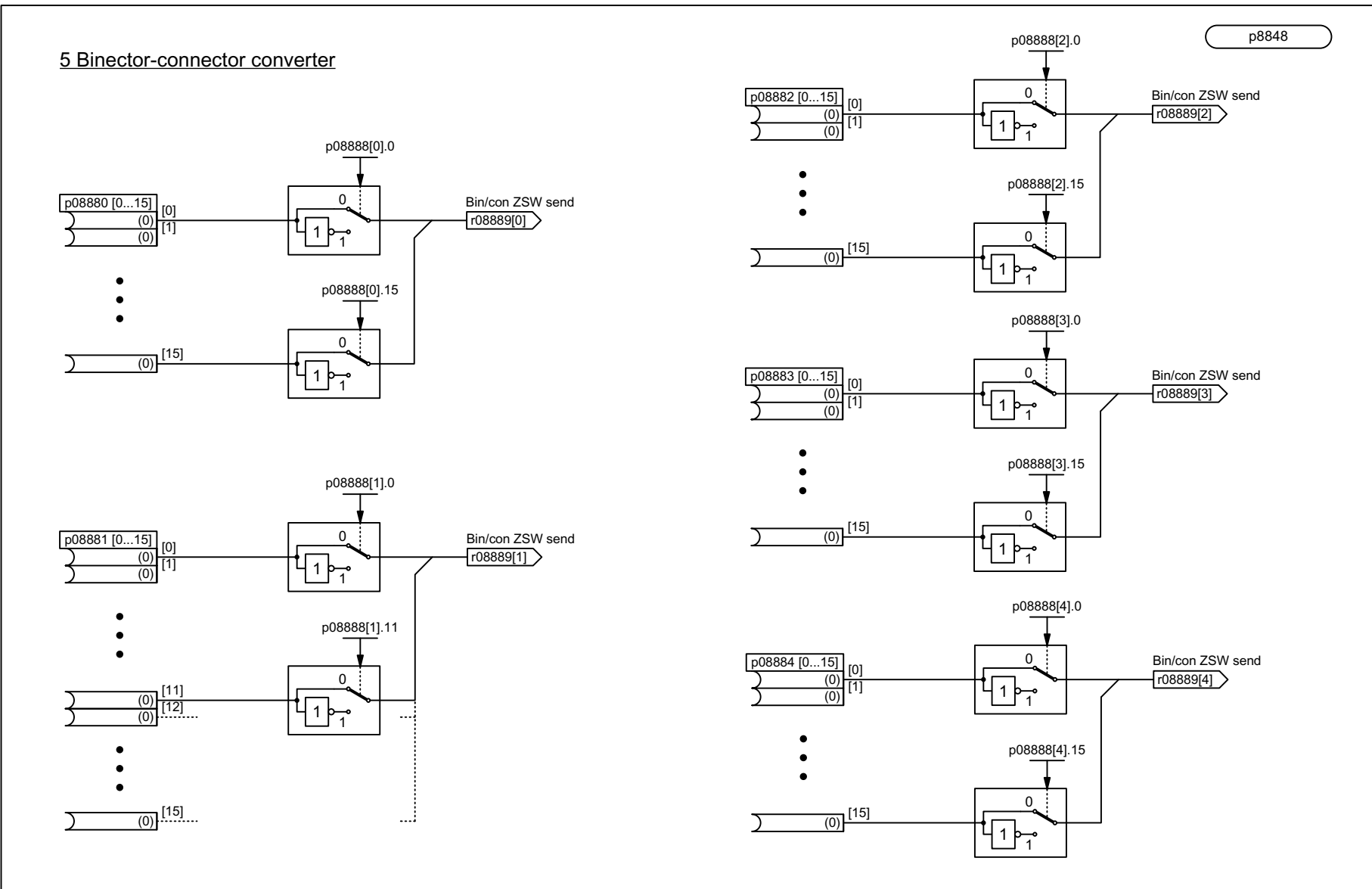
Fig. 3-45 2487 – IF2 send telegram, free interconnection via BICO (p0922 = 999)



- <1> To maintain the PROFIdrive profile, send word 1 must be used as status word 1 (ZSW1), not as DWORD.
- <2> Each PZD send word can be supplied via connector input p8851 (WORD) or via p8861 (DWORD). An interconnection of the two relevant connector inputs is not possible.

- <3> Physical word and double word values are inserted in the telegram as referenced variables. The reference variables p200x are applicable (telegram content = 4000 hex or 4000 0000 hex for double words if the input variable has the value p200x). The following applies to temperatures: 100° C corresponds to 100% = 4000 hex or 4000 0000 hex, and 0° C corresponds to 0%.
- <4> Using the two connector-binector converters at [2489], the bits from 5 of the send words can be interconnected with any binectors.

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2487_96_VSD | Function diagram | |
| PROFIdrive - IF2 send telegram Free interconnection via BICO (p0922 = 999) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2487 - |



5 Binector-connector converter

Fig. 3-46

2489 – IF2 status words, free interconnection

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2489_96_VSD | Function diagram | |
| PROFdrive - IF2 status words Free interconnection | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2489 - |

Fig. 3-47 2495 – CU_STW1 control word 1, Control Unit interconnection

| Signal destinations for CU_STW1 for telegram 390 | | | | | | | |
|--|------------------------------------|---------------------------|------------------|----------|--------------------------|--|--|
| Signal | Meaning | Interconnection parameter | Function diagram | Inverted | PROFIdrive sampling time | | |
| CU_STW1.0 | Reserved | - | - | - | [1020.7] | | |
| CU_STW1.1 | RTC real-time synchronization PING | p3104 = r2090.1 | - | - | | | |
| CU_STW1.2 | Reserved | - | - | - | | | |
| CU_STW1.3 | Reserved | - | - | - | | | |
| CU_STW1.4 | Reserved | - | - | - | | | |
| CU_STW1.5 | Reserved | - | - | - | | | |
| CU_STW1.6 | Reserved | - | - | - | | | |
| CU_STW1.7 | ☐ = Acknowledge fault | p2103[0] = r2090.7 | [2546.2] | - | | | |
| CU_STW1.8 | Reserved | - | - | - | | | |
| CU_STW1.9 | Reserved | - | - | - | | | |
| CU_STW1.10 | Control by PLC | p3116 = r2090.10 | - | - | | | |
| CU_STW1.11 | Reserved | - | - | - | | | |
| CU_STW1.12 | Reserved | - | - | - | | | |
| CU_STW1.13 | Reserved | - | - | - | | | |
| CU_STW1.14 | Reserved | - | - | - | | | |
| CU_STW1.15 | Reserved | - | - | - | | | |

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2495_96_VSD | Function diagram | |
| PROFIdrive - CU_STW1 control word 1 Control Unit interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2495 - |

| Signal destinations for CU_ZSW1 for telegram 390 | | | | | <1> | |
|--|-----------------------------|---------------------------|------------------|----------|--------------------------------------|--|
| Signal | Meaning | Interconnection parameter | Function diagram | Inverted | PROFIdrive sampling time [1020.7] | |
| CU_ZSW1.0 | Reserved | - | - | - | | |
| CU_ZSW1.1 | Reserved | - | - | - | | |
| CU_ZSW1.2 | Reserved | - | - | - | | |
| CU_ZSW1.3 | 1 = Fault effective | p2081[3] = r2139.3 | [2548.7] | - | | |
| CU_ZSW1.4 | Reserved | - | - | - | | |
| CU_ZSW1.5 | Reserved | - | - | - | | |
| CU_ZSW1.6 | Reserved | - | - | - | | |
| CU_ZSW1.7 | 1 = Alarm effective | p2081[7] = r2139.7 | [2548.7] | - | | |
| CU_ZSW1.8 | 1 = Synchronize system time | p2081[8] = r0899.8 | [2585.7] | - | | |
| CU_ZSW1.9 | 1 = No group alarm present | p2081[9] = r3114.9 | [8065.7] | ✓ | | |
| CU_ZSW1.10 | 1 = No group fault present | p2081[10] = r3114.10 | [8060.8] | ✓ | | |
| CU_ZSW1.11 | Reserved | p2081[11] = r3114.11 | - | ✓ | | |
| CU_ZSW1.12 | Reserved | - | - | - | | |
| CU_ZSW1.13 | Reserved | - | - | - | | |
| CU_ZSW1.14 | Reserved | - | - | - | | |
| CU_ZSW1.15 | Reserved | - | - | - | | |

<1> CU_ZSW1 is formed via binector-connector converter (BI: p2080[0...15], inversion: p2088[0]..p2088[0].15).

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2496_96_VSD | Function diagram | |
| PROFIdrive - CU_ZSW1 status word 1 Control Unit interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2496 - |

Fig. 3-48 2496 – CU_ZSW1 status word 1, Control Unit interconnection

Fig. 3-49 2497 – A_DIGITAL interconnection

| Signal destinations for O_DIGITAL for telegram 390 | | | | | <1> | | |
|--|-----------------------------|---------------------------|------------------|----------|-----------------------------------|--|--|
| Signal | Meaning | Interconnection parameter | Function diagram | Inverted | PROFIdrive sampling time [1020.7] | | |
| A_DIGITAL.0 | CUD digital output 0 (DO 0) | p50771[0] = r2091.0 | [2055.1] | - | | | |
| A_DIGITAL.1 | CUD digital output 1 (DO 1) | p50772[0] = r2091.1 | [2055.1] | - | | | |
| A_DIGITAL.2 | CUD digital output 2 (DO 2) | p50773[0] = r2091.2 | [2055.1] | - | | | |
| A_DIGITAL.3 | CUD digital output 3 (DO 3) | p50774[0] = r2091.3 | [2055.1] | - | | | |
| A_DIGITAL.4 | Reserved | - | - | - | | | |
| A_DIGITAL.5 | Reserved | - | - | - | | | |
| A_DIGITAL.6 | Reserved | - | - | - | | | |
| A_DIGITAL.7 | Reserved | - | - | - | | | |
| A_DIGITAL.8 | Reserved | - | - | - | | | |
| A_DIGITAL.9 | Reserved | - | - | - | | | |
| A_DIGITAL.10 | Reserved | - | - | - | | | |
| A_DIGITAL.11 | Reserved | - | - | - | | | |
| A_DIGITAL.12 | Reserved | - | - | - | | | |
| A_DIGITAL.13 | Reserved | - | - | - | | | |
| A_DIGITAL.14 | Reserved | - | - | - | | | |
| A_DIGITAL.15 | Reserved | - | - | - | | | |

<1> Default can be changed by user

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2497_96_.VSD | Function diagram | |
| PROFIdrive - O_DIGITAL interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2497 - |

PROFdrive sampling time

[1020.7]

Signal destinations for I_DIGITAL for telegram 390

| Signal | Meaning | | Interconnection parameter | Function diagram | Inverted |
|--------------|----------------------------|-----|---------------------------|------------------|----------|
| E_DIGITAL.0 | CUD digital input 4 (DI 4) | <2> | p2082[0] = r53010.8 | [2060.8] | - |
| E_DIGITAL.1 | CUD digital input 5 (DI 5) | <2> | p2082[1] = r53010.10 | [2060.8] | - |
| E_DIGITAL.2 | CUD digital input 6 (DI 6) | <2> | p2082[2] = r53010.12 | [2065.8] | - |
| E_DIGITAL.3 | CUD digital input 7 (DI 7) | <2> | p2082[3] = r53010.14 | [2065.8] | - |
| E_DIGITAL.4 | Reserved | | - | - | - |
| E_DIGITAL.5 | Reserved | | - | - | - |
| E_DIGITAL.6 | Reserved | | - | - | - |
| E_DIGITAL.7 | Reserved | | - | - | - |
| E_DIGITAL.8 | CUD digital input 0 (DI 0) | | p2082[8] = r53010.0 | [2050.7] | - |
| E_DIGITAL.9 | CUD digital input 1 (DI 1) | | p2082[9] = r53010.2 | [2050.7] | - |
| E_DIGITAL.10 | CUD digital input 2 (DI 2) | | p2082[10] = r53010.4 | [2050.7] | - |
| E_DIGITAL.11 | CUD digital input 3 (DI 3) | | p2082[11] = r53010.6 | [2050.7] | - |
| E_DIGITAL.12 | Reserved | | - | - | - |
| E_DIGITAL.13 | Reserved | | - | - | - |
| E_DIGITAL.14 | Reserved | | - | - | - |
| E_DIGITAL.15 | Reserved | | - | - | - |

<1> Default can be changed by user
<2> Can be set via p50789[0...3] as digital input or digital output.

| | | | | | | | |
|---------------------------------------|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_2498_96_VSD | Function diagram | |
| PROFdrive - I_DIGITAL interconnection | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2498 - |

Fig. 3-50 2498 – E_DIGITAL interconnection

3.7 Internal control/status words

Function diagrams

| | |
|--|-----|
| 2534 – Status word, monitoring functions 1 | 724 |
| 2537 – Status word, monitoring functions 3 | 725 |
| 2546 – Control word, faults/alarms | 726 |
| 2548 – Status word, faults/alarms 1 and 2 | 727 |
| 2580 – Control word, sequence control | 728 |
| 2585 – Status word, sequence control | 729 |

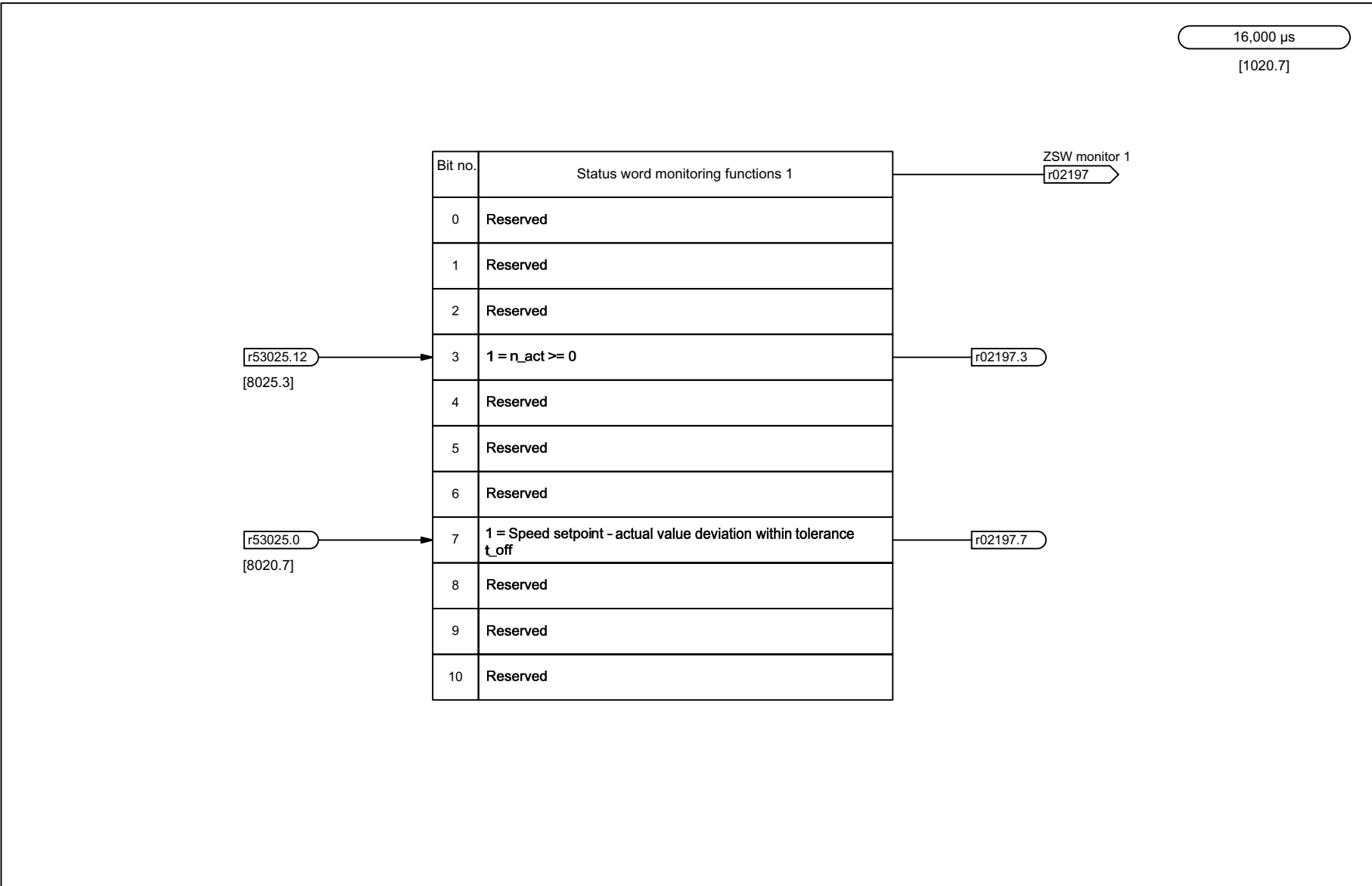


Fig. 3-51 2534 – Status word, monitoring functions 1

| | | | | | | | |
|--|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2534_96_.VSD | Function diagram | |
| Internal control/status words - Status word monitoring functions 1 | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |

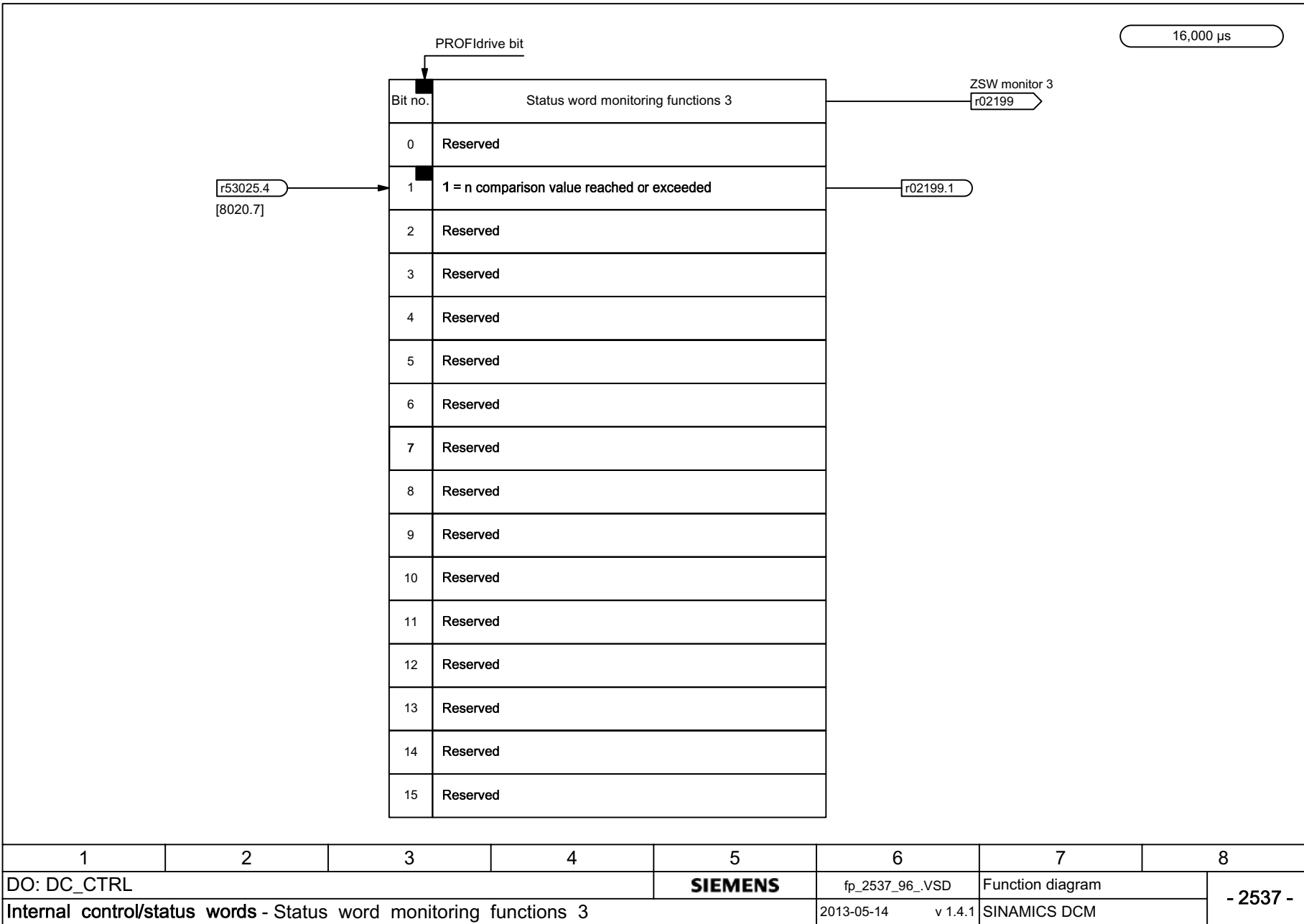
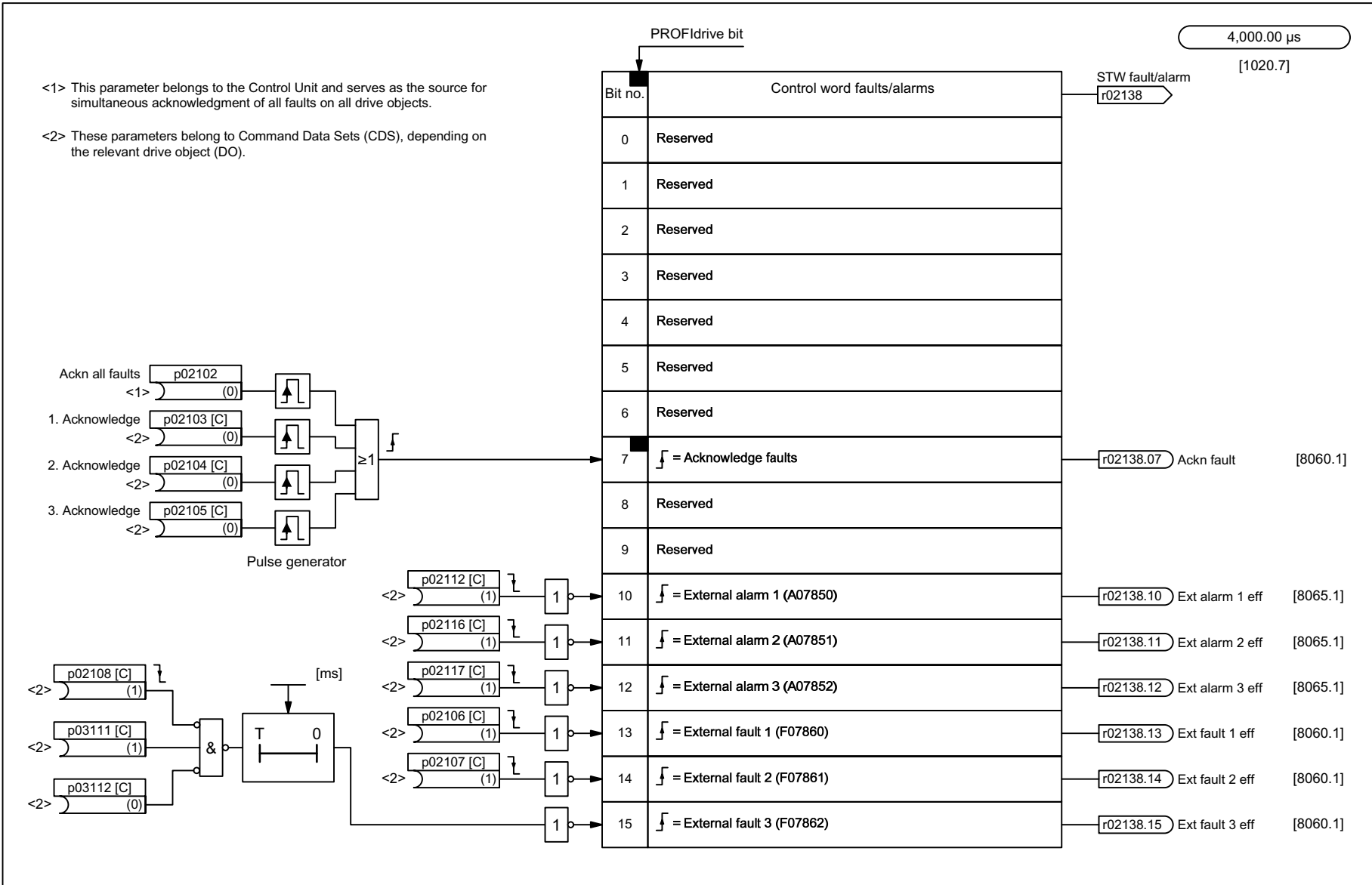


Fig. 3-52 2537 – Status word, monitoring functions 3



| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|---|---|---|----------------|--------------------|------------------|---|
| DO: All Objects | | | | SIEMENS | fp_2546_96_VSD | Function diagram | |
| Internal control/status words - Control word faults/alarms | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |

Fig. 3-53 2546 – Control word, faults/alarms

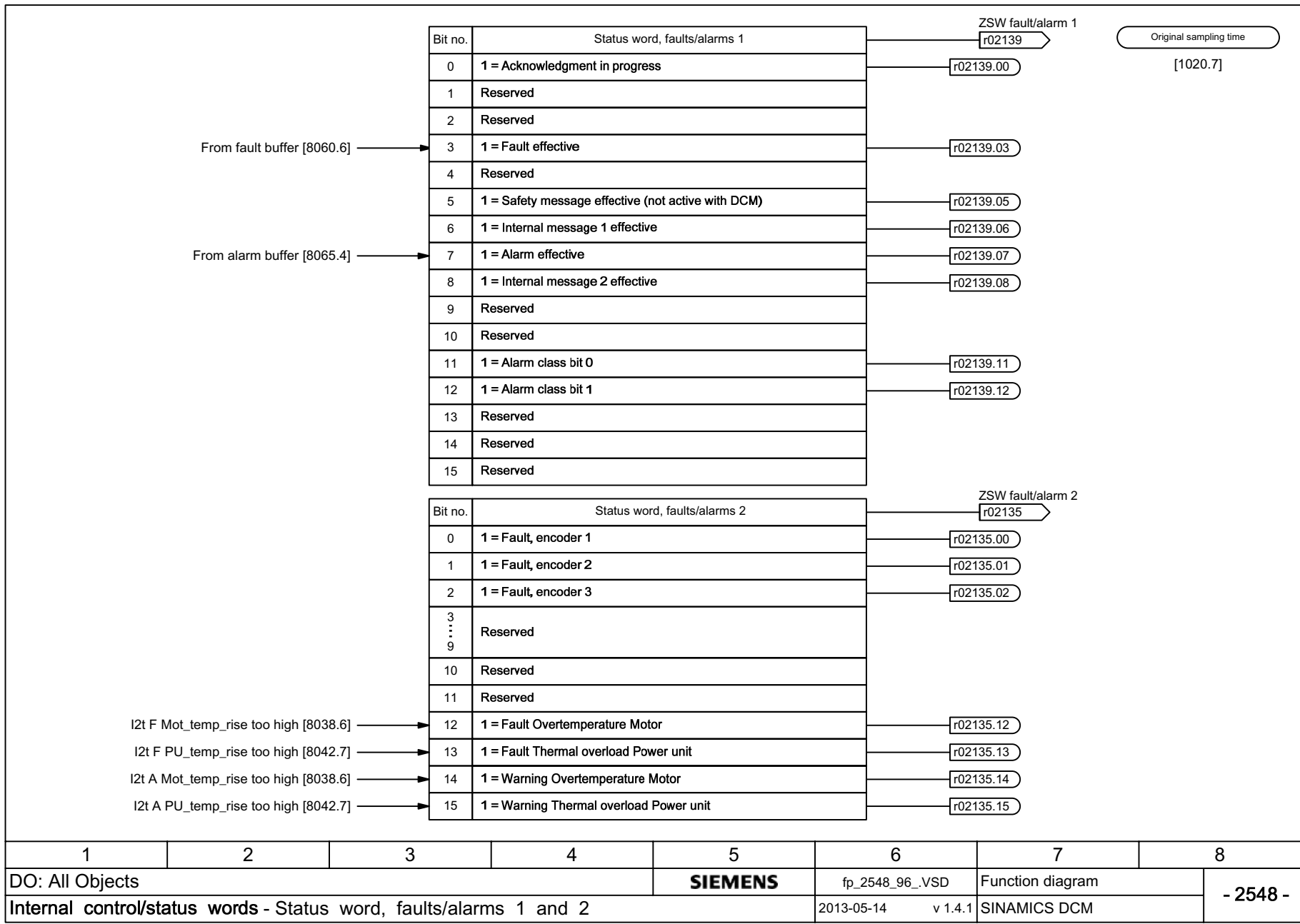
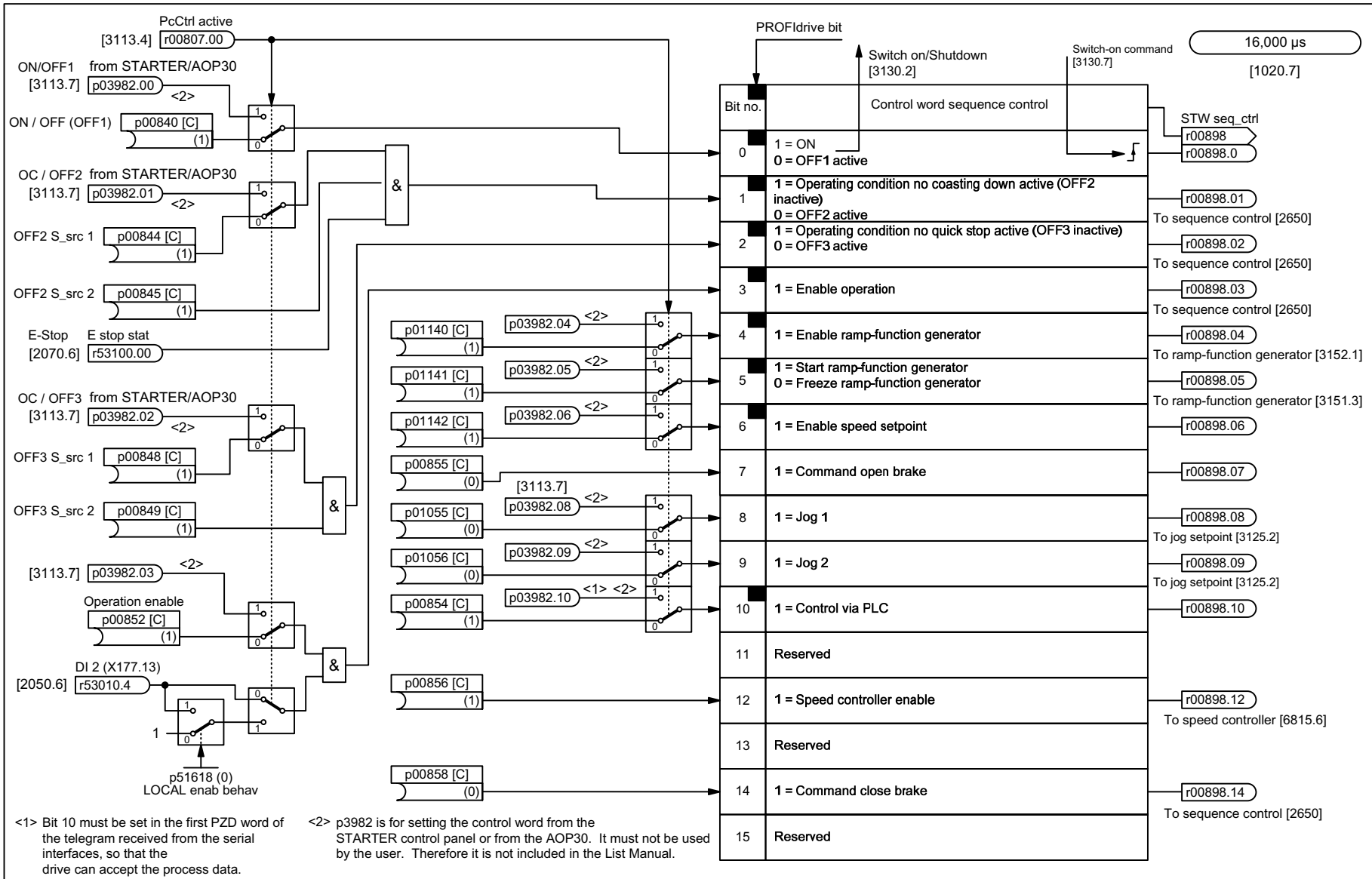
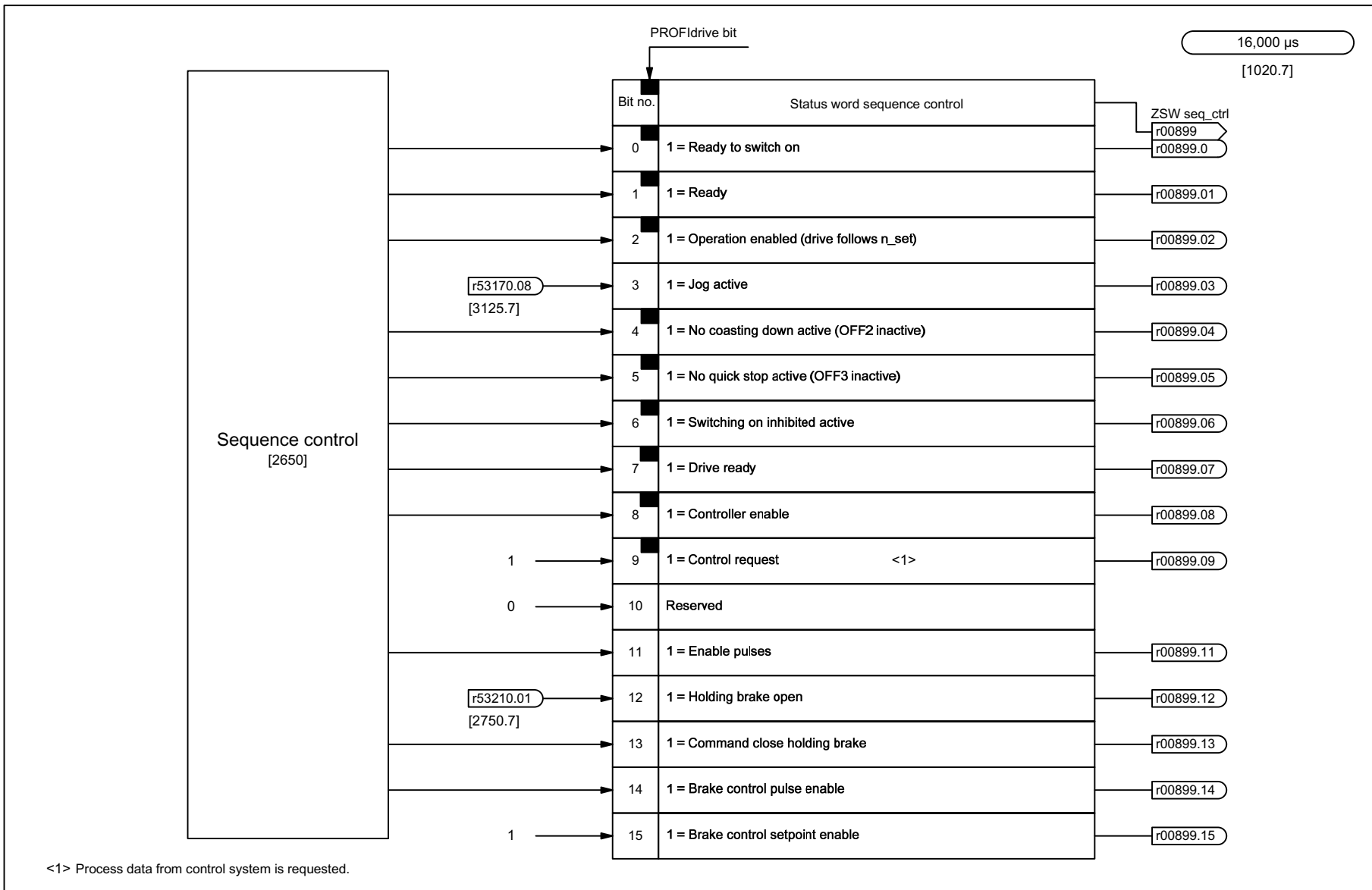


Fig. 3-54 2548 – Status word, faults/alarms 1 and 2



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2580_96_VSD | Function diagram | |
| Internal control/status words - Control word sequence control | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2580 - |

Fig. 3-55 2580 – Control word, sequence control



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2585_96_VSD | Function diagram | |
| Internal control/status words - Status word sequence control | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2585 - |

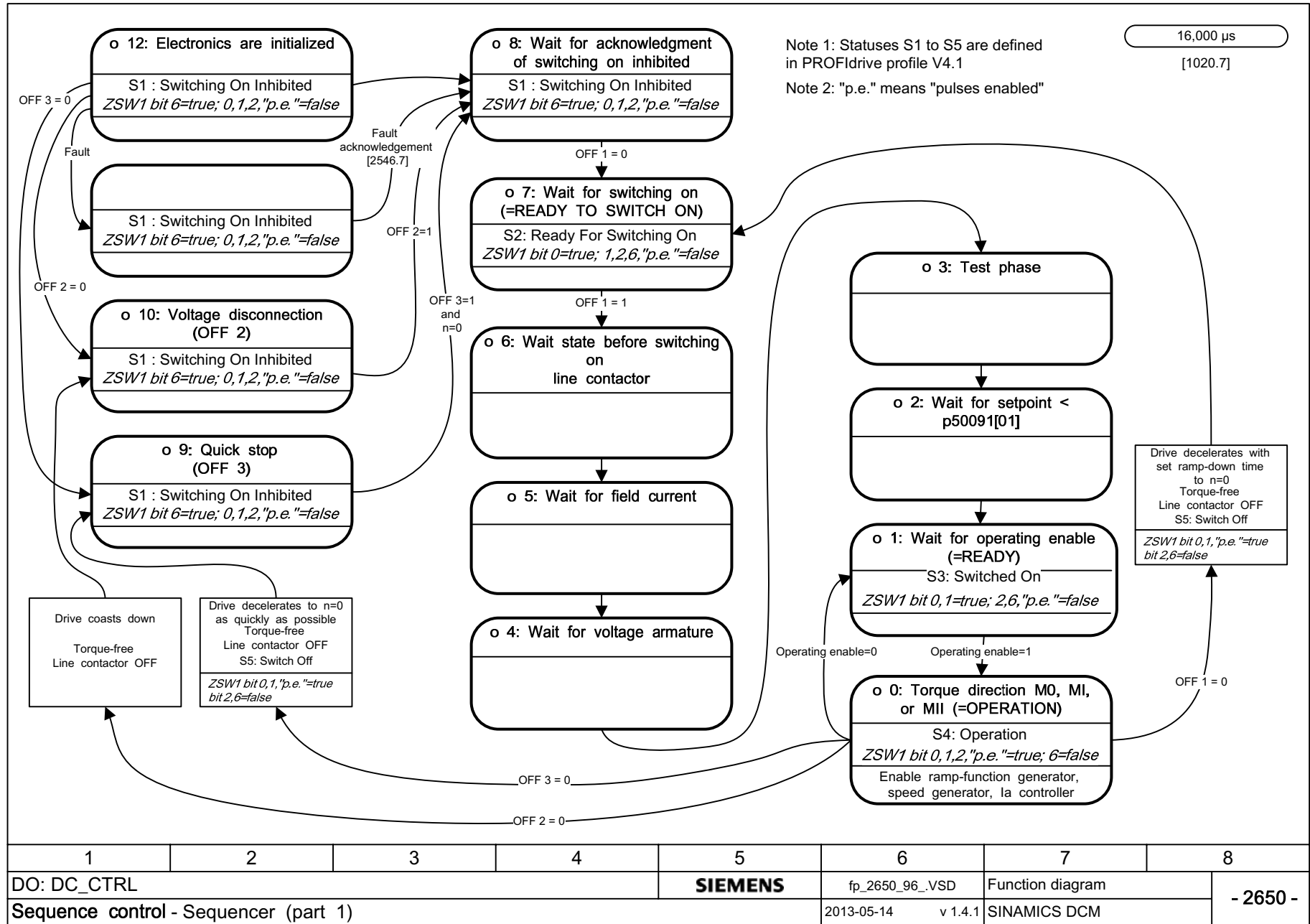
Fig. 3-56 2585 – Status word, sequence control

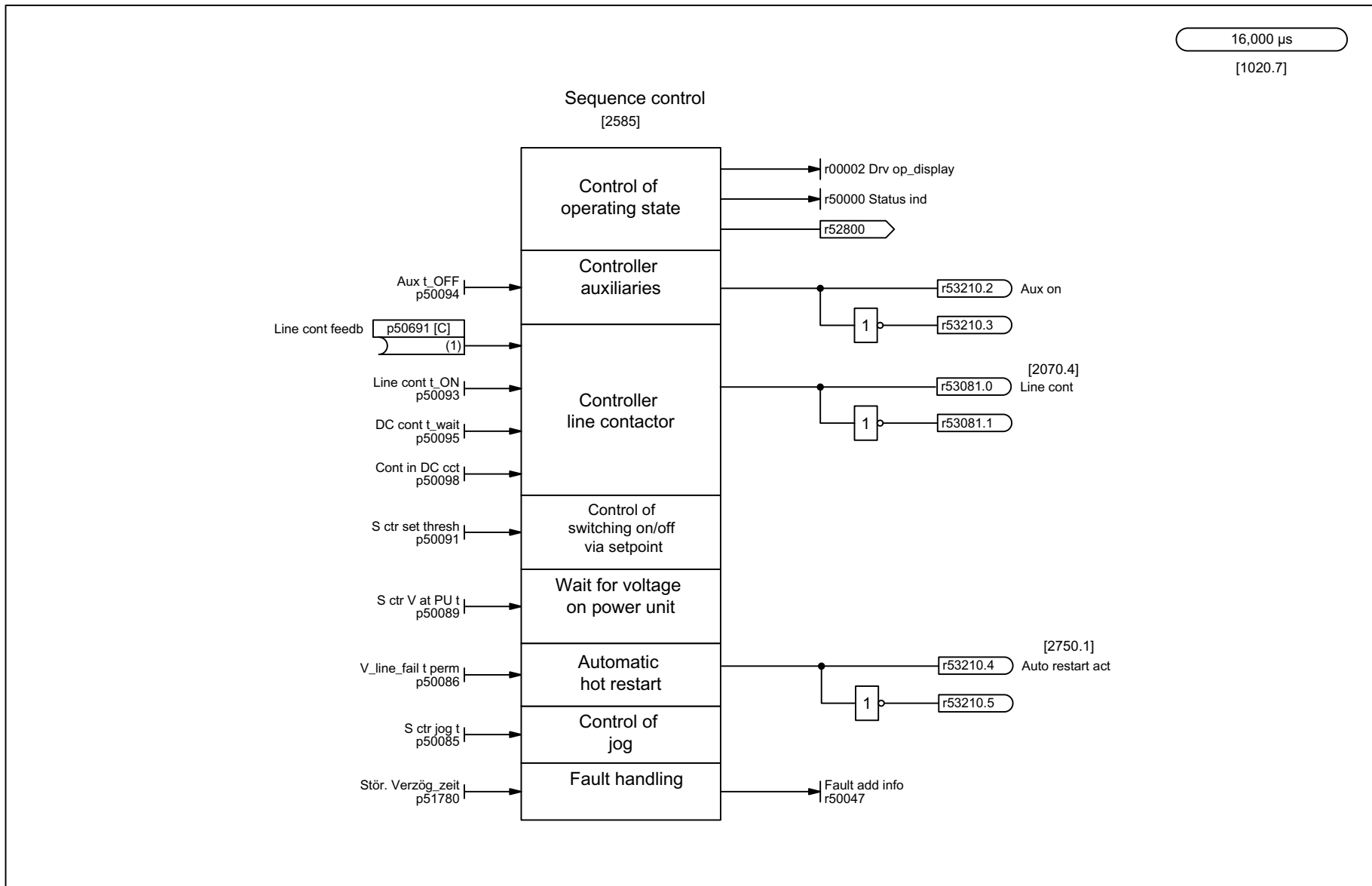
3.8 Sequence control

Function diagrams

| | |
|---|-----|
| 2650 – Sequencer (part 1) | 731 |
| 2651 – Sequencer (part 2) | 732 |
| 2655 – Missing enable signals, logic operations | 733 |
| 2660 – Optimization runs | 734 |

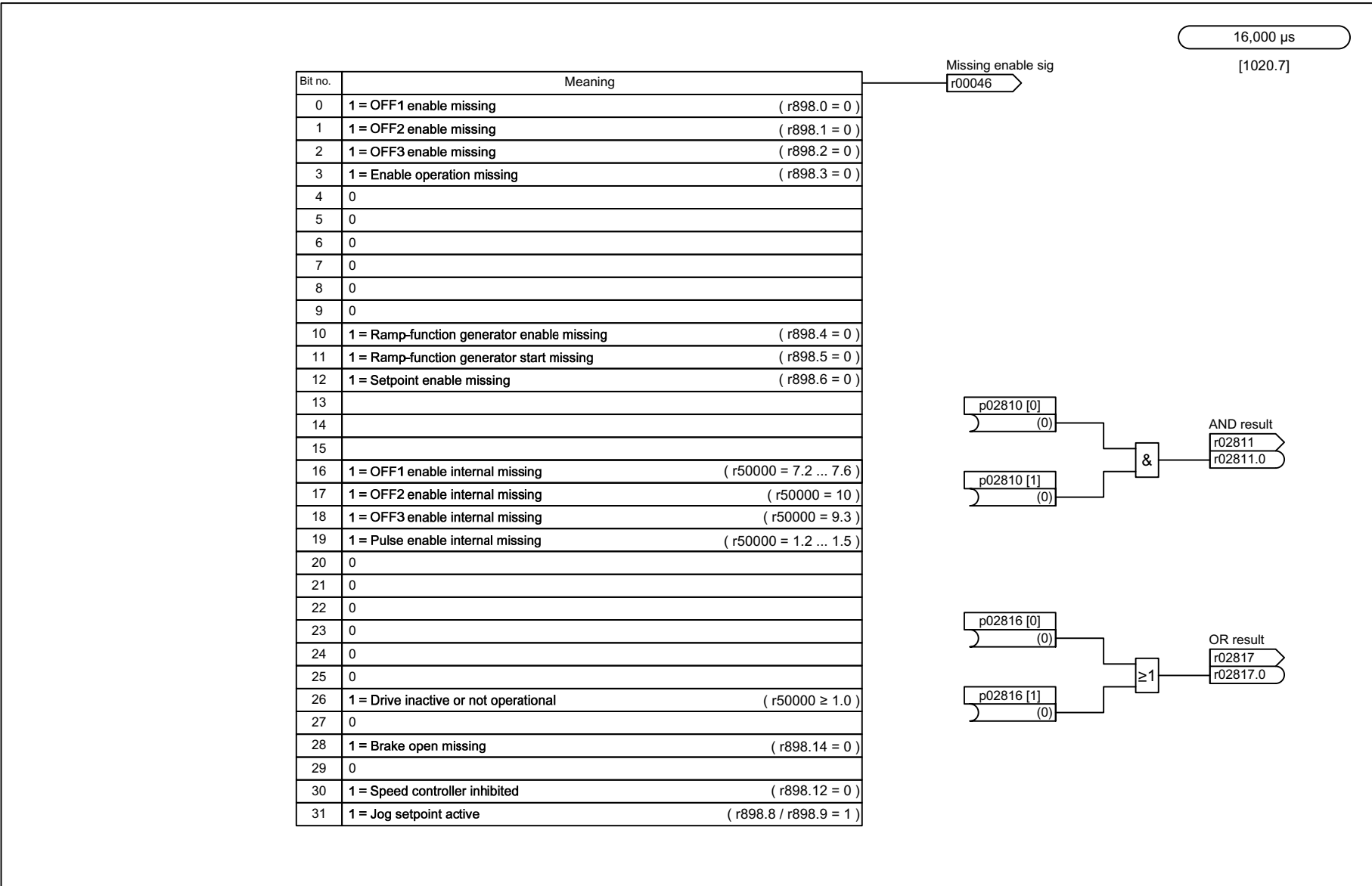
Fig. 3-57 2650 – Sequencer (part 1)





| | | | | | | | |
|---------------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2651_96_VSD | Function diagram | |
| Sequence control - Sequencer (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2651 - |

Fig. 3-58 2651 – Sequencer (part 2)



| Bit no. | Meaning | |
|---------|--|--------------------------|
| 0 | 1 = OFF1 enable missing | (r898.0 = 0) |
| 1 | 1 = OFF2 enable missing | (r898.1 = 0) |
| 2 | 1 = OFF3 enable missing | (r898.2 = 0) |
| 3 | 1 = Enable operation missing | (r898.3 = 0) |
| 4 | 0 | |
| 5 | 0 | |
| 6 | 0 | |
| 7 | 0 | |
| 8 | 0 | |
| 9 | 0 | |
| 10 | 1 = Ramp-function generator enable missing | (r898.4 = 0) |
| 11 | 1 = Ramp-function generator start missing | (r898.5 = 0) |
| 12 | 1 = Setpoint enable missing | (r898.6 = 0) |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | 1 = OFF1 enable internal missing | (r50000 = 7.2 ... 7.6) |
| 17 | 1 = OFF2 enable internal missing | (r50000 = 10) |
| 18 | 1 = OFF3 enable internal missing | (r50000 = 9.3) |
| 19 | 1 = Pulse enable internal missing | (r50000 = 1.2 ... 1.5) |
| 20 | 0 | |
| 21 | 0 | |
| 22 | 0 | |
| 23 | 0 | |
| 24 | 0 | |
| 25 | 0 | |
| 26 | 1 = Drive inactive or not operational | (r50000 ≥ 1.0) |
| 27 | 0 | |
| 28 | 1 = Brake open missing | (r898.14 = 0) |
| 29 | 0 | |
| 30 | 1 = Speed controller inhibited | (r898.12 = 0) |
| 31 | 1 = Jog setpoint active | (r898.8 / r898.9 = 1) |

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2655_96_VSD | Function diagram | |
| Sequence control - Missing enables, logic operations | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2655 - |

Fig. 3-59 2655 – Missing enable signals, logic operations

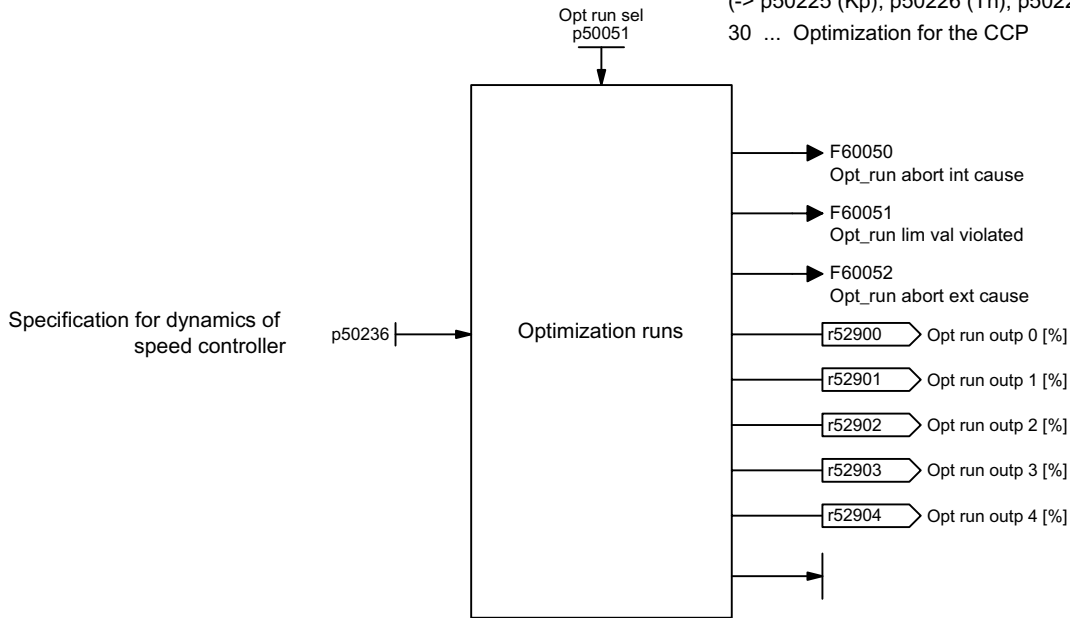
Background [1020.7]

Carry out an optimization run:

- 1) Select required optimization run using p50051
- 2) Switch on drive (OFF1 0->1, not relevant for p50051 = 30)
- 3) Wait until optimization run is finished
(drive enters state o8 of its own accord)
- 4) Check whether the results of the optimization run are viable

Properties of optimization runs:

- p50051 =
- 24 ... Optimization of field current regulation (duration up to 1 min)
(-> p50112 (Rf), p50116 (Lf), p50255 (Kp), p50256 (Tn))
- 25 ... Optimization of armature current control (duration up to 1 min)
(-> p50110 (Ra), p50111 (La), p50591 (La_fak), p50594 (Ls), p50595 (Ls_fak), p50155 (Kp), p50156 (Tn))
- 26 ... Optimization of speed control by means of step response (duration up to 1 min)
(-> p50225 (Kp), p50226 (Tn), p50228 (T_set,filter), p50540 (T_accel))
- 27 ... Optimization of EMF control (incl. field characteristic recording) (duration up to 1 min)
(->p50117 to p50139 (field characteristic), p50275 (Kp), p50276 (Tn))
- 28 ... Optimization of compensation of friction (duration up to 1 min)
(-> p50520 to 50530 (friction characteristic)) from V1.2
- 29 ... Optimization of closed-loop speed control for drives with a mechanical system capable of oscillation (time up to 10 min)
(-> p50225 (Kp), p50226 (Tn), p50228 (T_set,filter), p50540 (T_accel))
- 30 ... Optimization for the CCP



| | | | | | | | |
|--------------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2660_96_VSD | Function diagram | |
| Sequence control - Optimization runs | | | | | 11.06.2014 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 2660 - |

Fig. 3-60 2660 – Optimization runs

3.9 Brake control

Function diagrams

2750 – Brake control

736

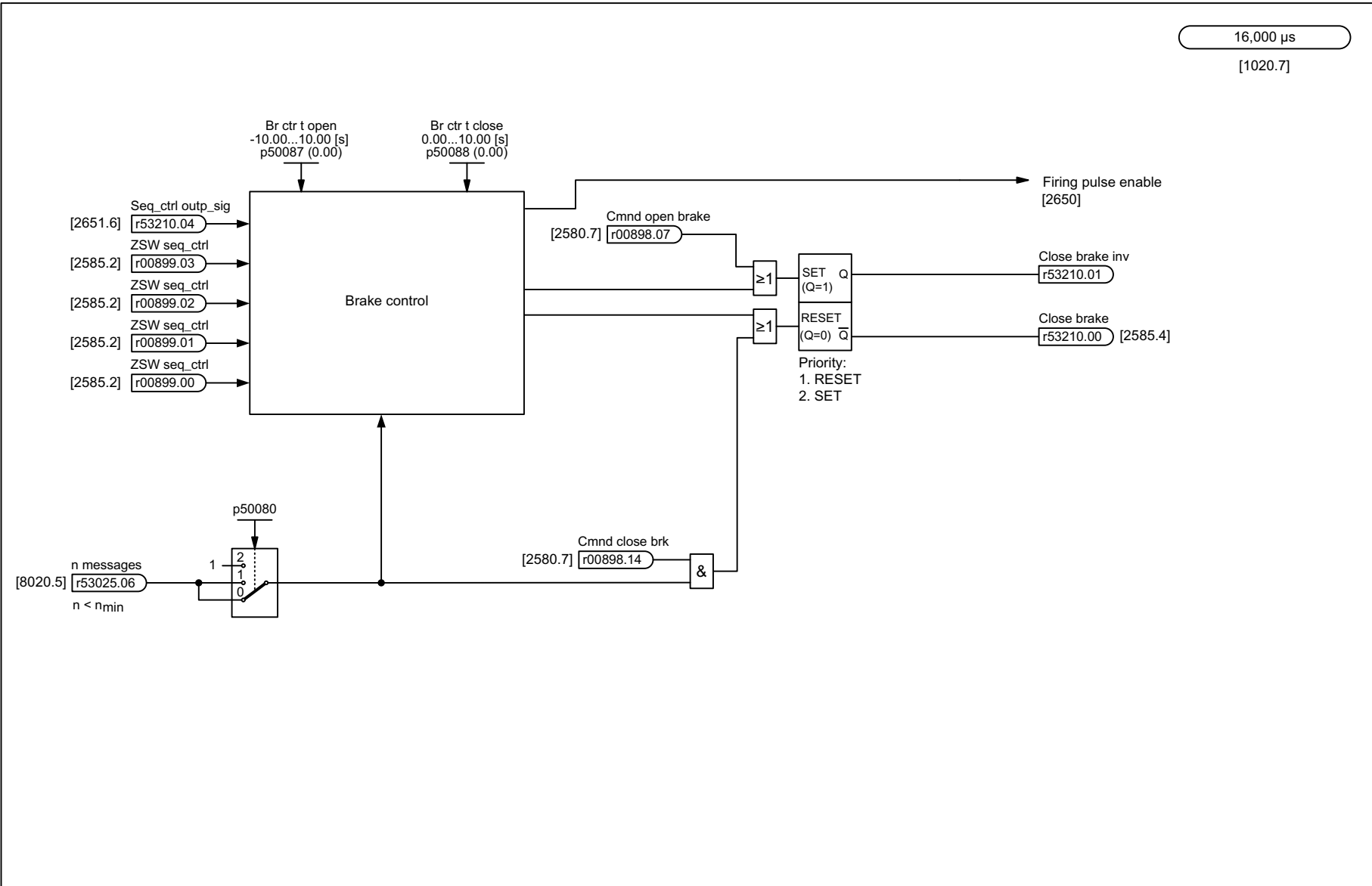


Fig. 3-61 2750 – Brake control

| | | | | | | | |
|--------------------------------------|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_2750_96_.VSD | Function diagram | |
| Brake control - Brake control | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 2750 - |

3.10 Setpoint channel

Function diagrams

| | |
|---|-----|
| 3100 – Fixed values (part 1) | 738 |
| 3102 – Fixed values (part 2) | 739 |
| 3105 – 4-stage joystick switch | 740 |
| 3110 – Motorized potentiometer | 741 |
| 3113 – AOP30 display and control unit | 742 |
| 3115 – Fixed setpoint | 743 |
| 3120 – Oscillation/square-wave generator | 744 |
| 3125 – Jog setpoint | 745 |
| 3130 – Creep setpoint | 746 |
| 3135 – Setpoint processing | 747 |
| 3150 – Ramp-function generator (Part 1) | 748 |
| 3151 – Ramp-function generator (Part 2) | 749 |
| 3152 – Ramp-function generator (Part 3) | 750 |
| 3155 – Limit behind ramp-function generator | 751 |

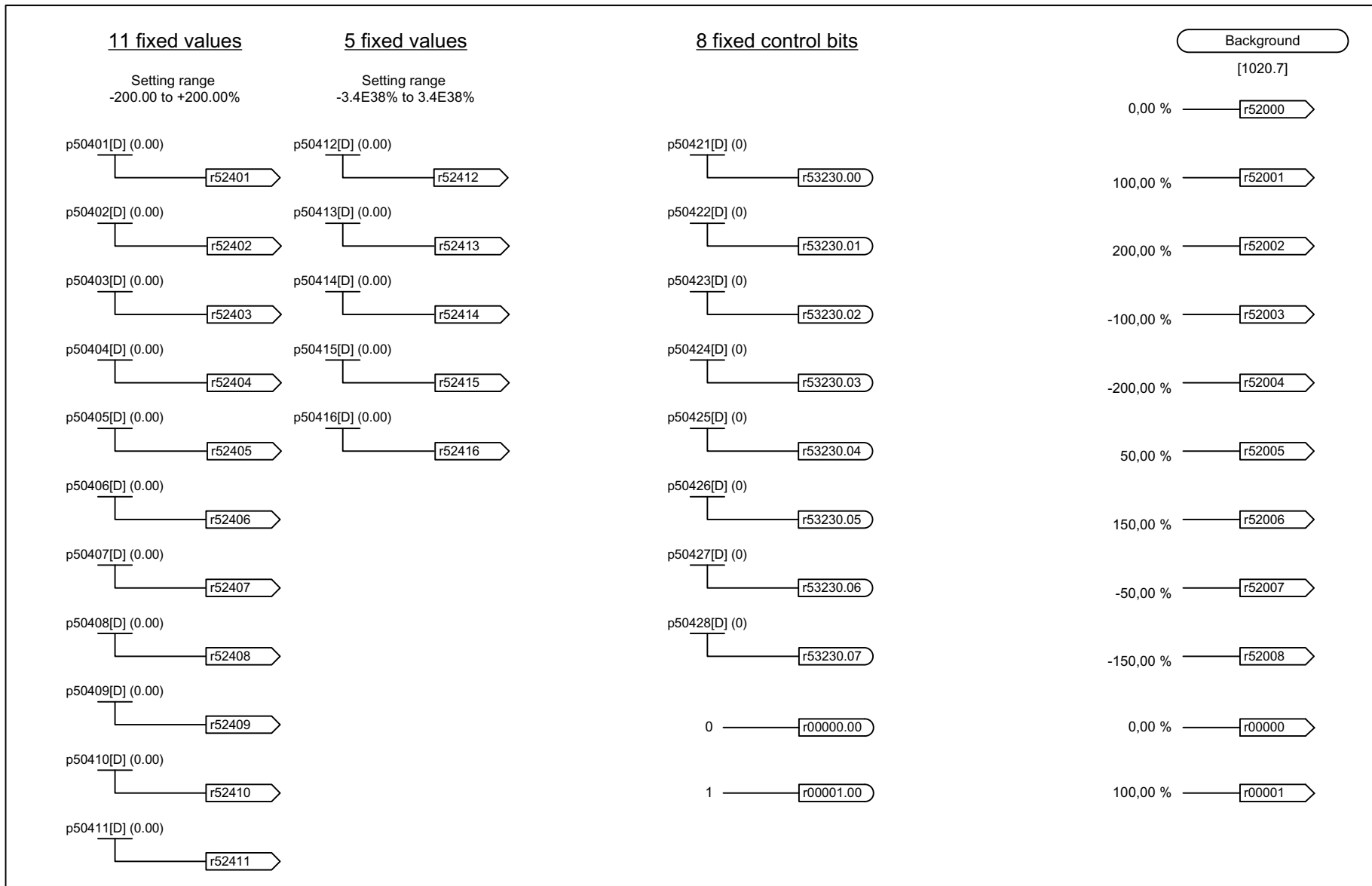
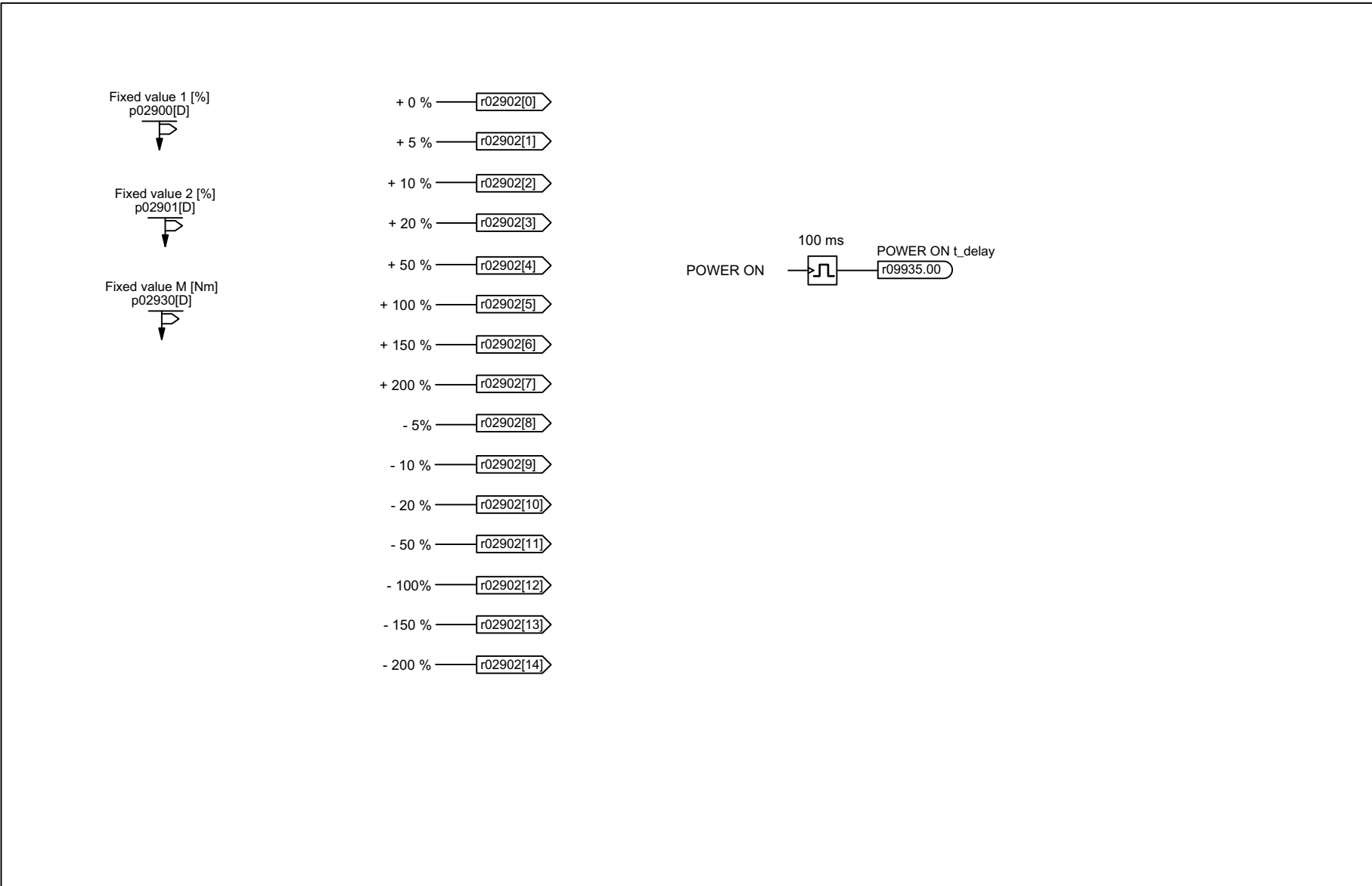


Fig. 3-62 3100 – Fixed values (part 1)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| DO: DC_CTRL | | | | SIEMENS | fp_3100_96_.VSD | Function diagram | |
| Setpoint channel - Fixed values | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 3100 - |



| | | | | | | | |
|-------------------------------------|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3102_96_.VSD | Function diagram | |
| Fixed values - Fixed values, part 2 | | | | | 03.12.2014 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 3102 - |

Fig. 3-63 3102 – Fixed values (part 2)

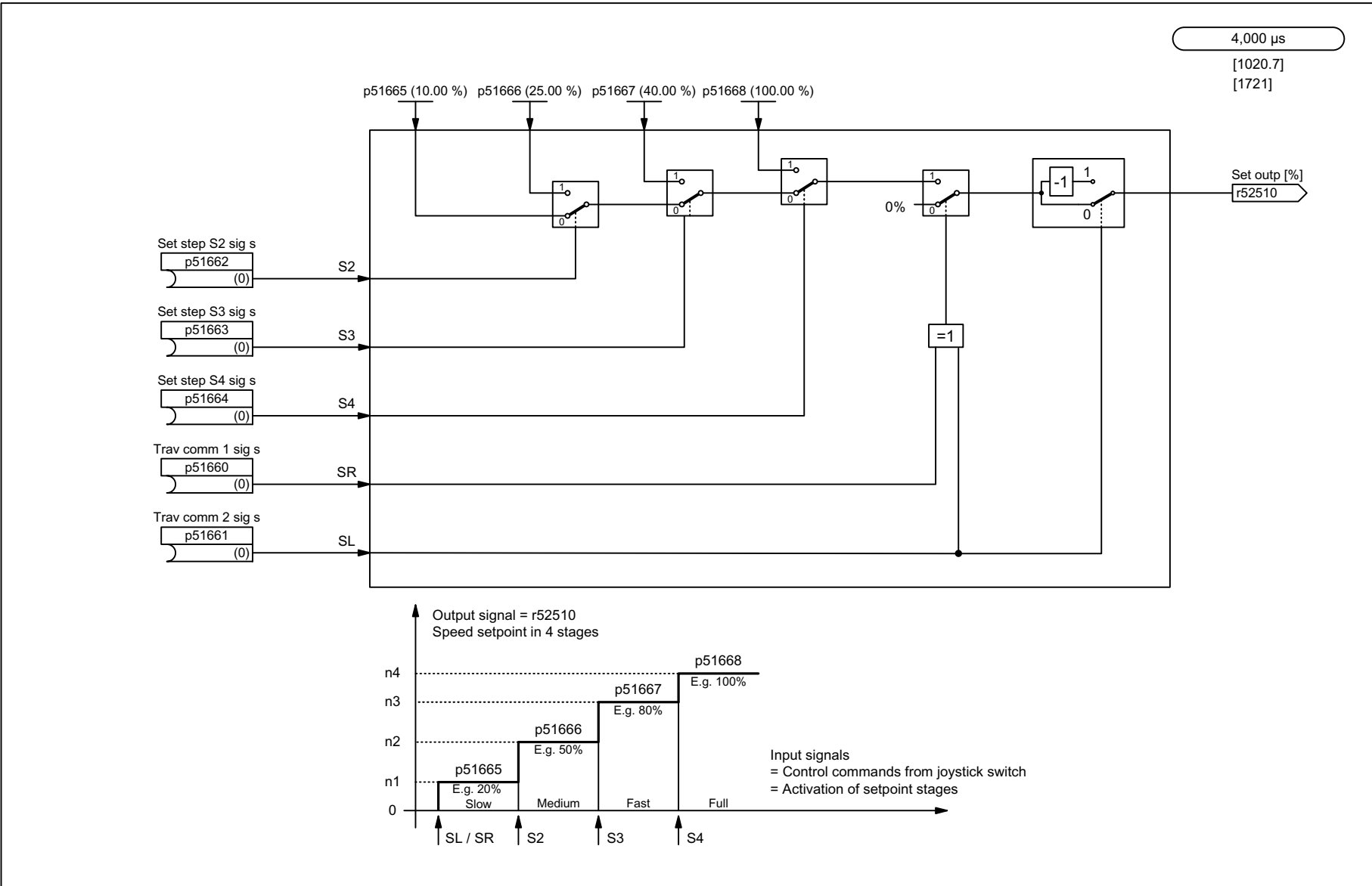
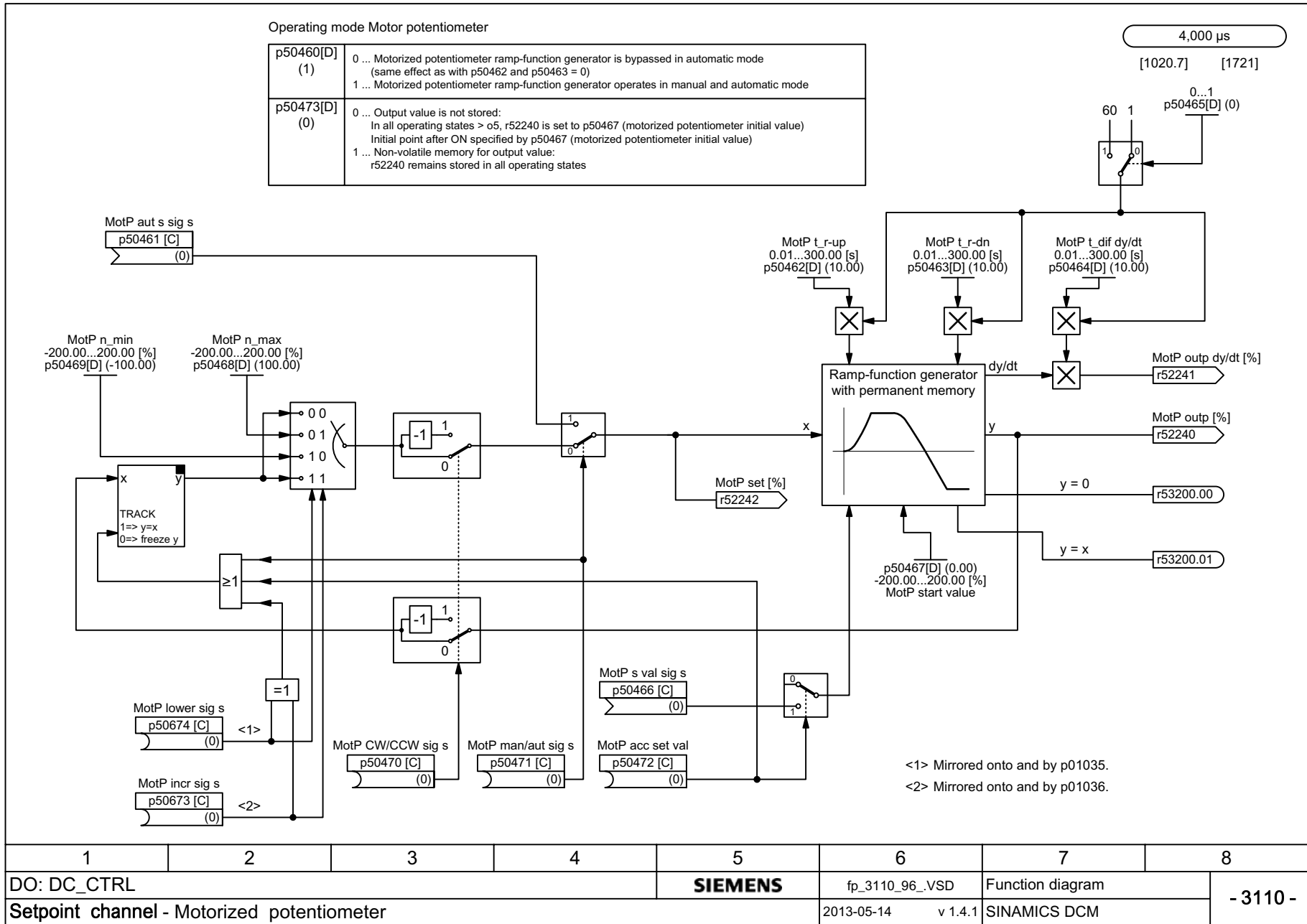


Fig. 3-64 3105 – 4-stage joystick switch

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3105_96_VSD | Function diagram | |
| Setpoint channel - 4-stage joystick switch | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 3105 - |

Fig. 3-65 3110 – Motorized potentiometer



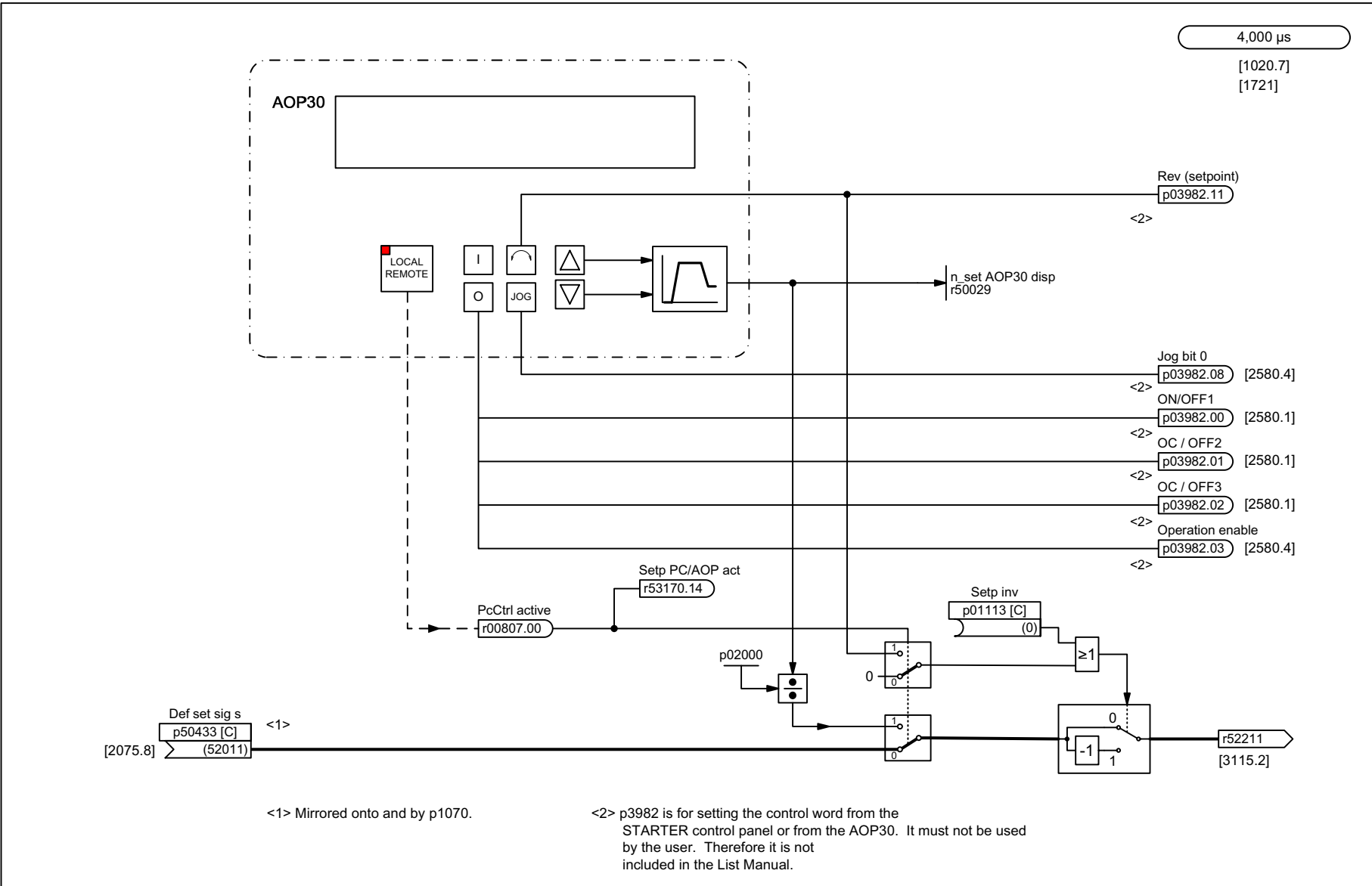
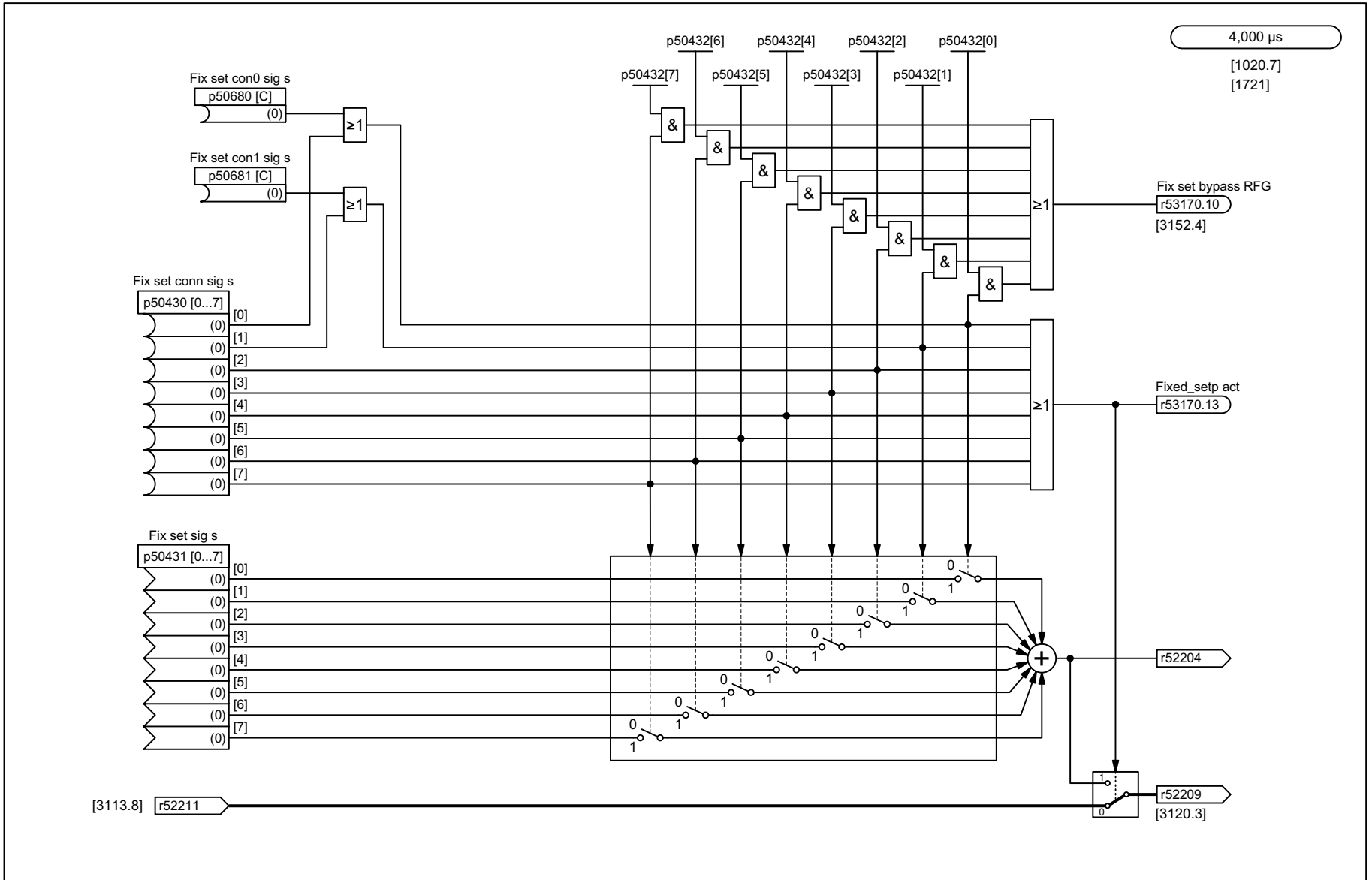


Fig. 3-66 3113 – AOP30 display and control unit

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3113_96_VSD | Function diagram | |
| Setpoint channel - Display and operating unit AOP30 | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 3113 - |

Fig. 3-67 3115 – Fixed setpoint



| | | | | | | | |
|-----------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3115_96_VSD | Function diagram | |
| Setpoint channel - Fixed setpoint | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 3115 - |

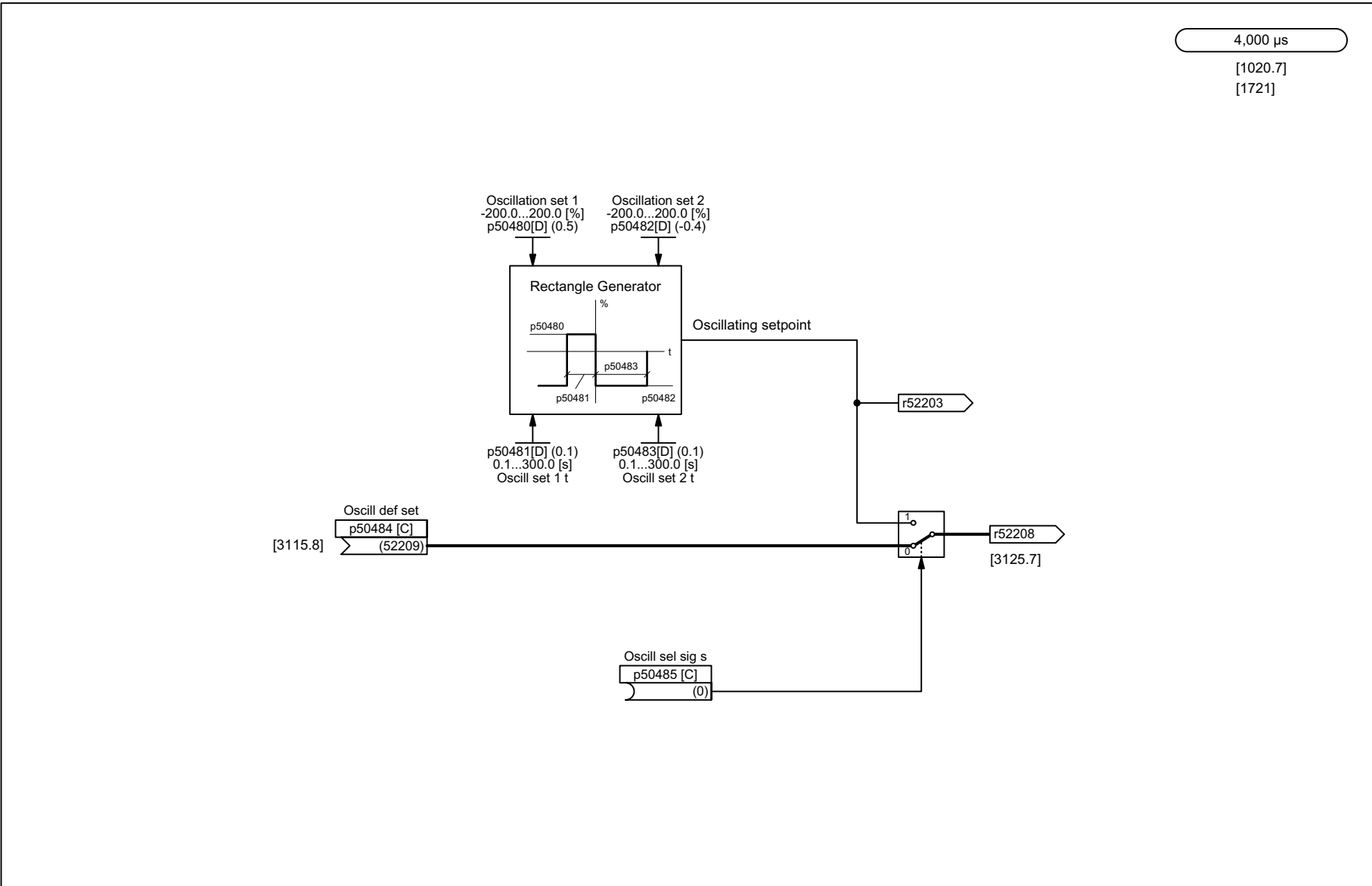
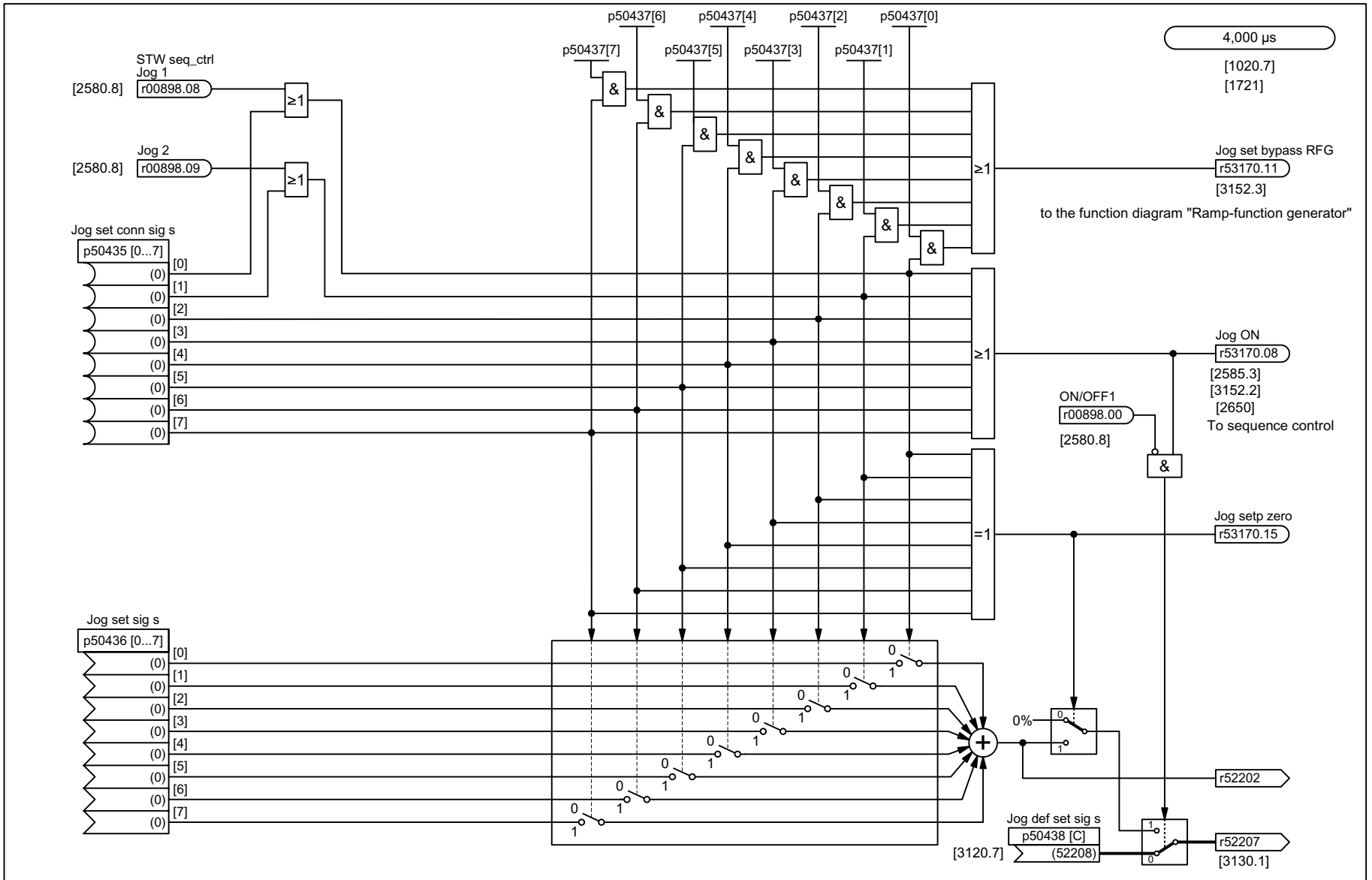


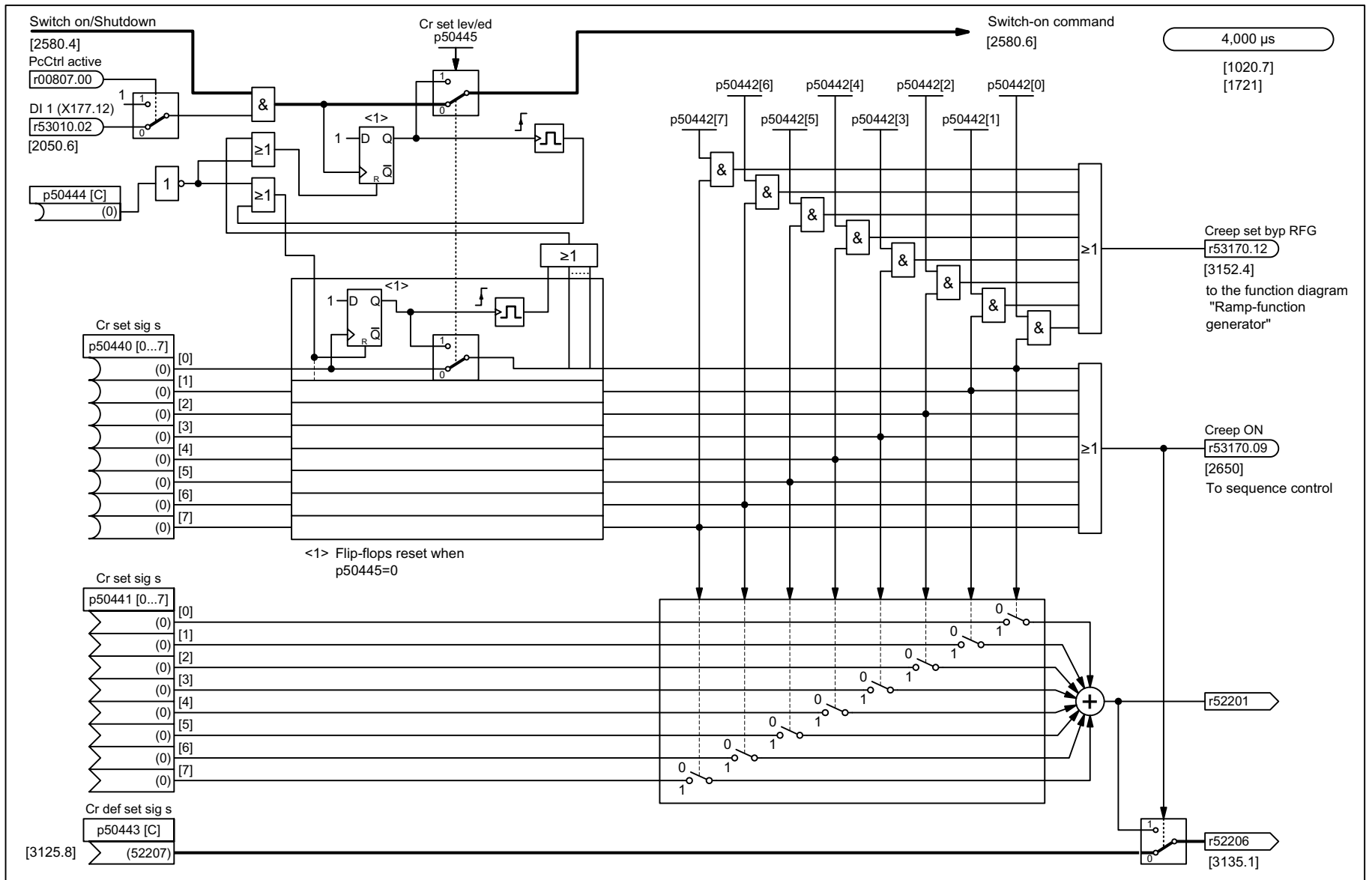
Fig. 3-68 3120 – Oscillation/square-wave generator

| | | | | | | | |
|--|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3120_96_.VSD | Function diagram | |
| Setpoint channel - Oscillation/square wave generator | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 3120 - |

Fig. 3-69 3125 – Jog setpoint



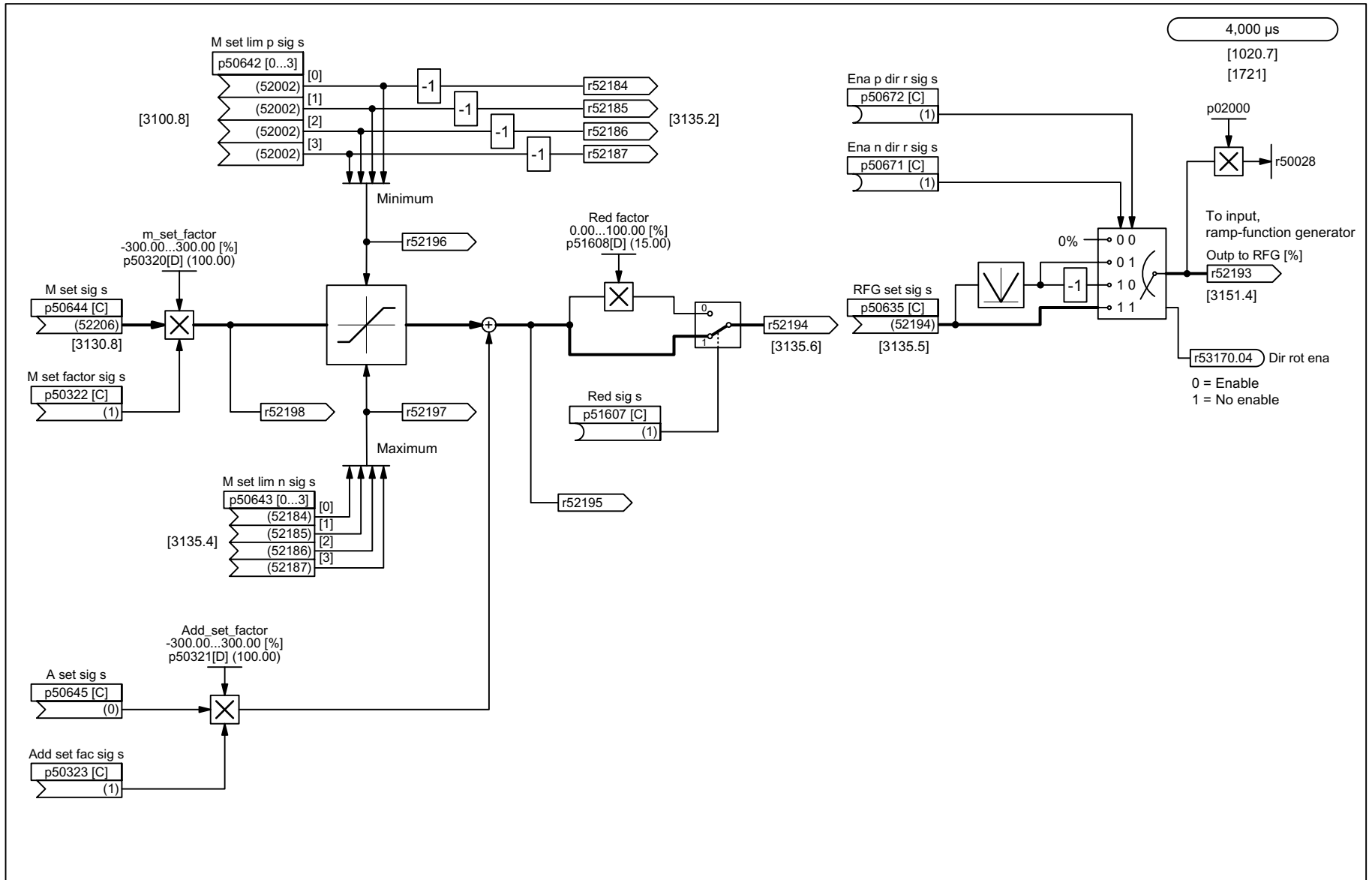
| | | | | | | | |
|---------------------------------|---|---|---|--------------------|---|------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | | fp_3125_96_VSD | |
| Setpoint channel - Jog setpoint | | | | 2013-05-14 v 1.4.1 | | Function diagram | |
| | | | | | | SINAMICS DCM | |
| | | | | | | - 3125 - | |



| | | | | | | | |
|--------------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3130_96_VSD | Function diagram | |
| Setpoint channel - Creeping setpoint | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 3130 - |

Fig. 3-70 3130 – Creep setpoint

Fig. 3-71 3135 – Setpoint processing



| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3135_96_VSD | Function diagram | |
| Setpoint channel - Setpoint preprocessing | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 3135 - |

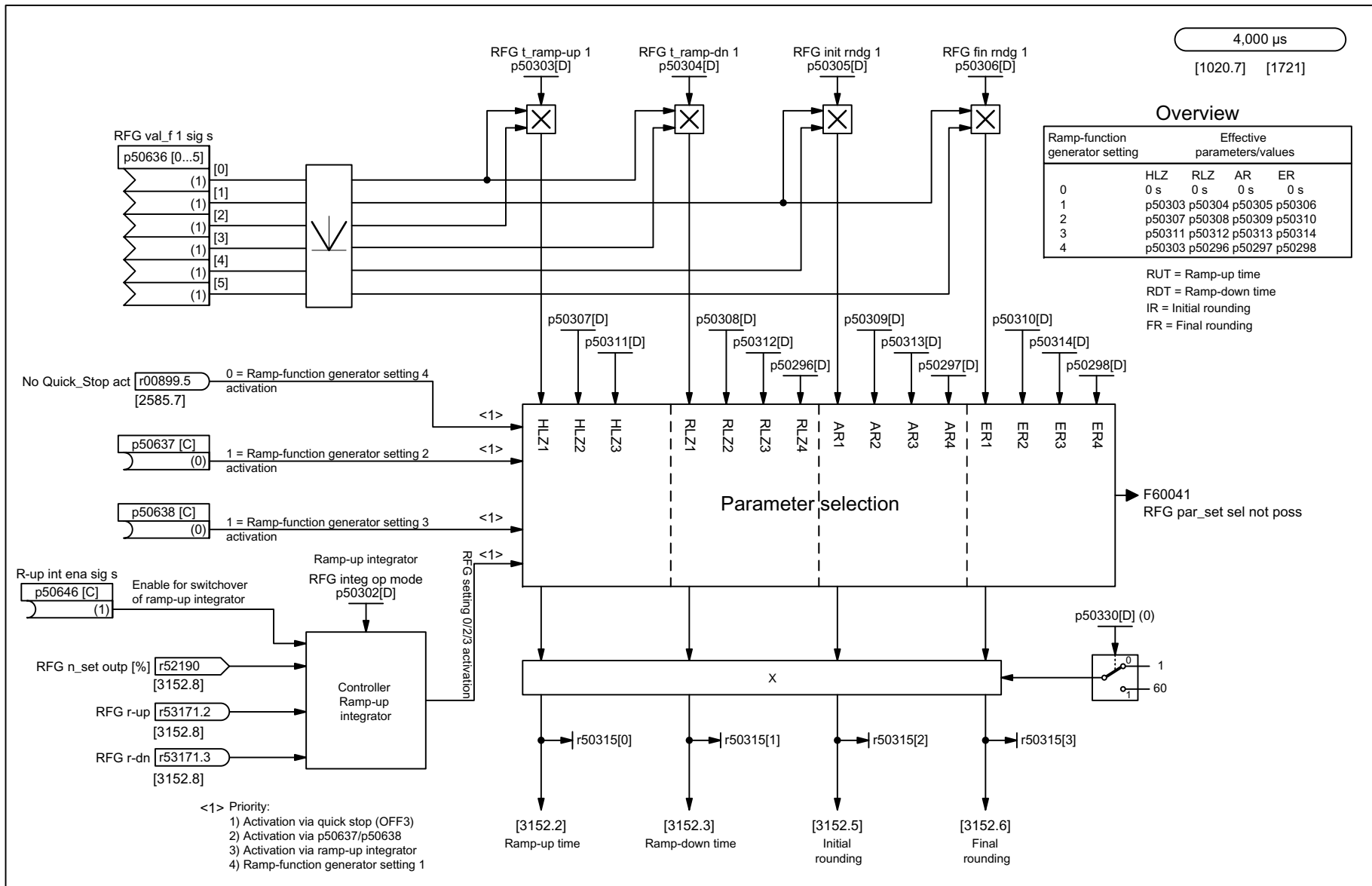
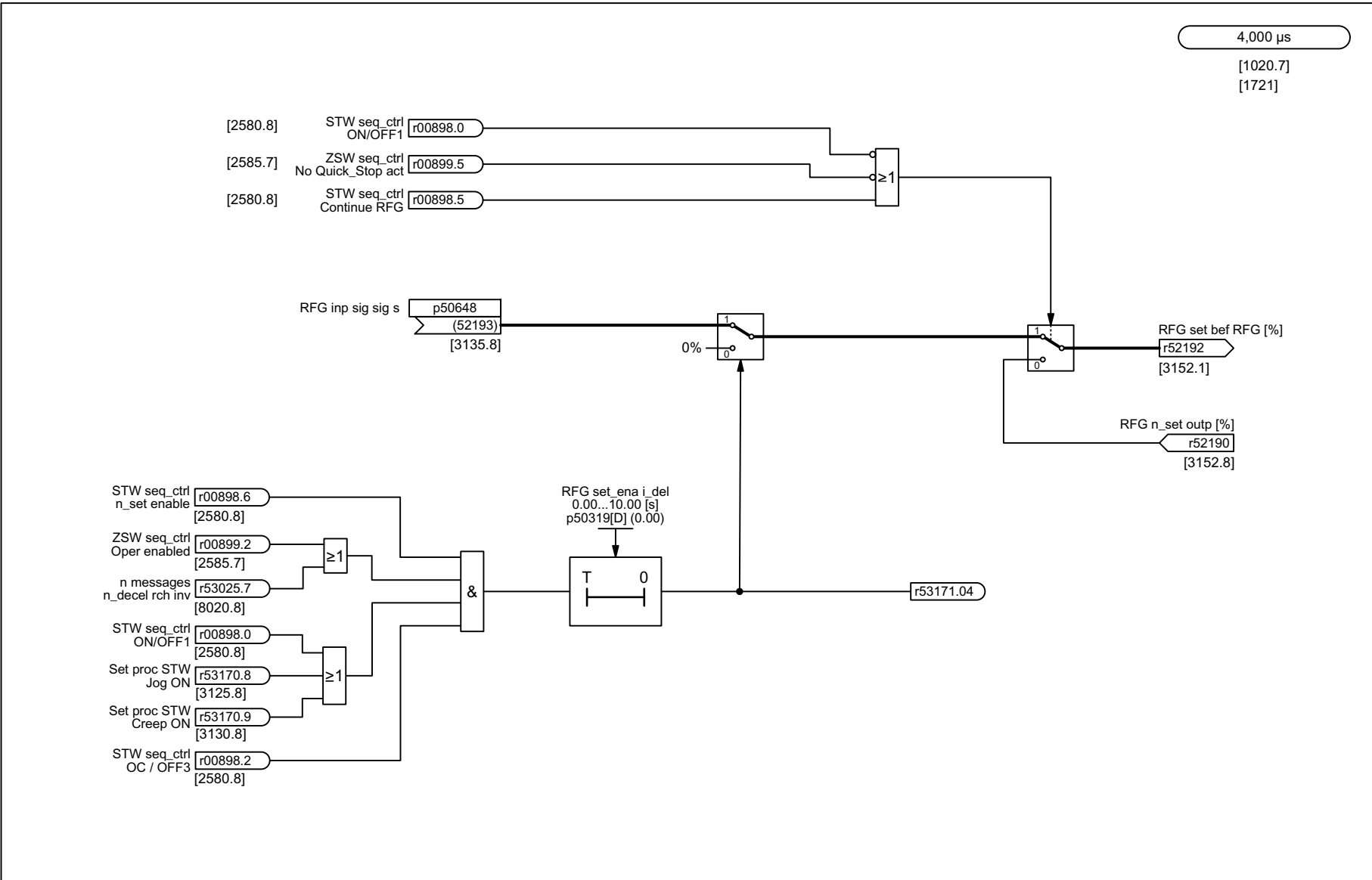


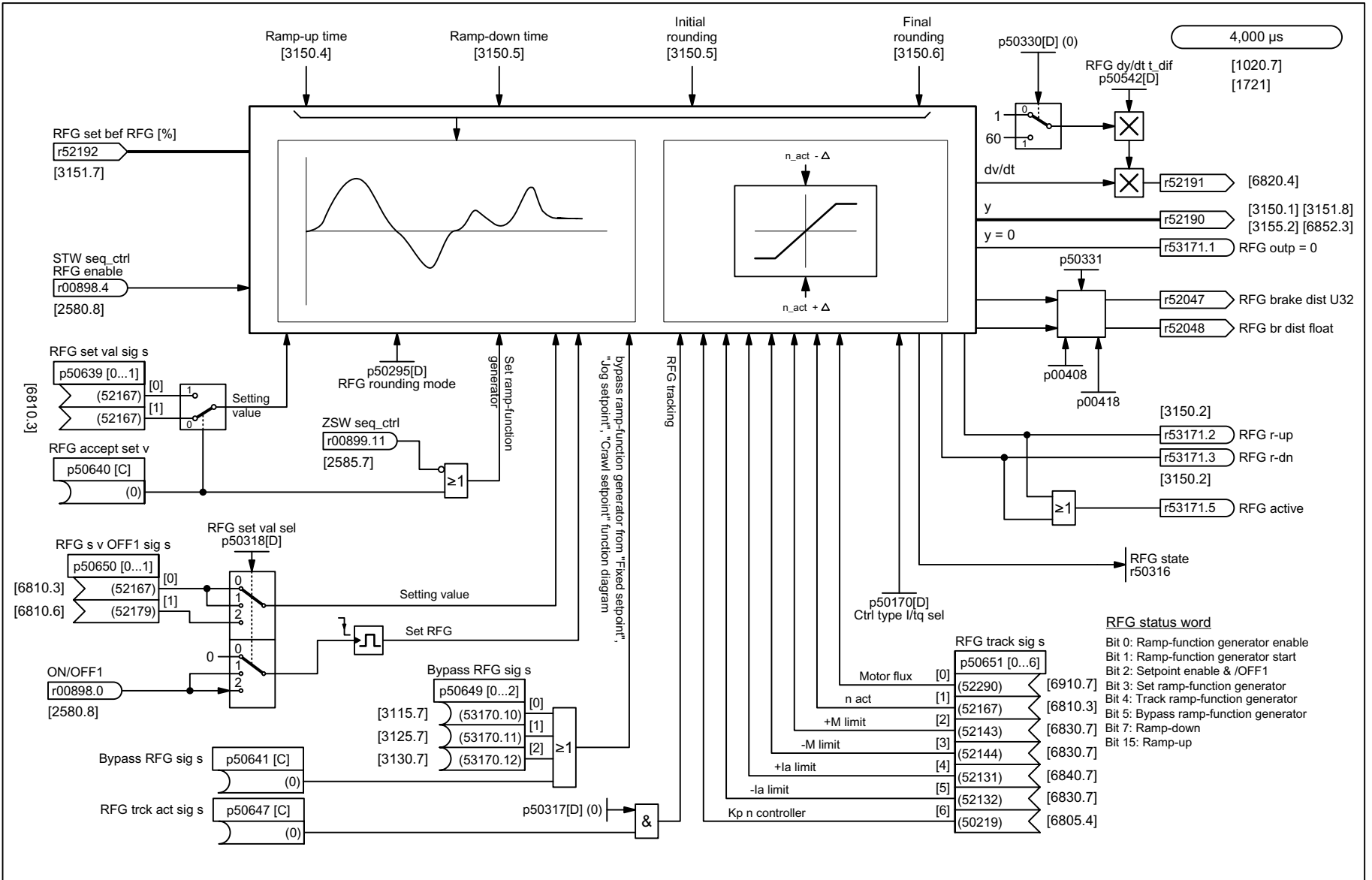
Fig. 3-72 3150 – Ramp-function generator (Part 1)

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3150_96_VSD | Function diagram | |
| Setpoint channel - Ramp-function generator (part 1) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 3150 - |



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3151_96_VSD | Function diagram | |
| Setpoint channel - Ramp-function generator (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 3151 - |

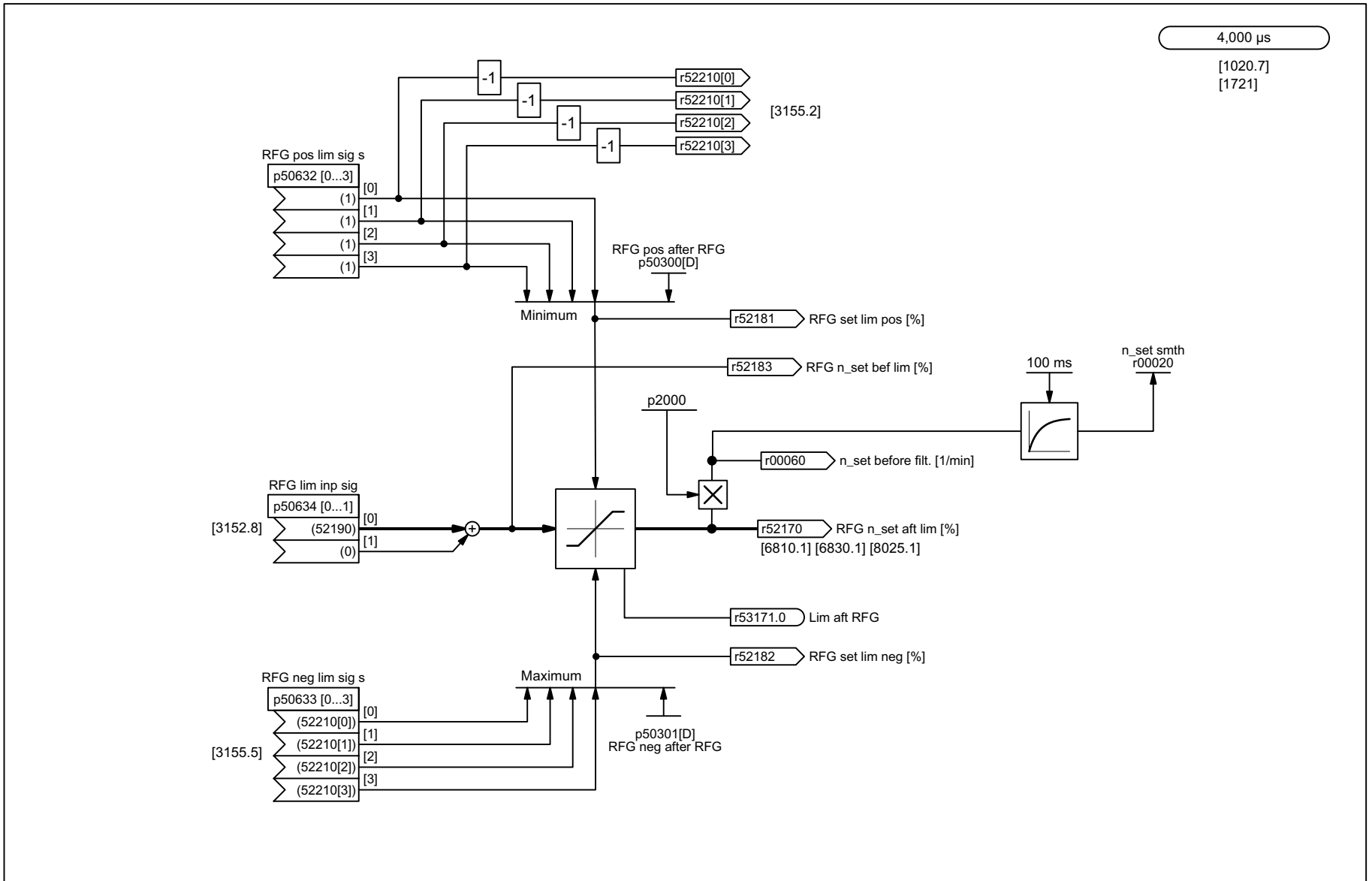
Fig. 3-73 3151 – Ramp-function generator (Part 2)



| | | | | | | | |
|---|---|---|---|--------------------|---|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | | fp_3152_96_VSD | |
| Setpoint channel - Ramp-function generator (part 3) | | | | 2013-05-14 v 1.4.1 | | Function diagram | |
| | | | | | | SINAMICS DCM | |
| | | | | | | | - 3152 - |

Fig. 3-74 3152 – Ramp-function generator (Part 3)

Fig. 3-75 3155 – Limit behind ramp-function generator



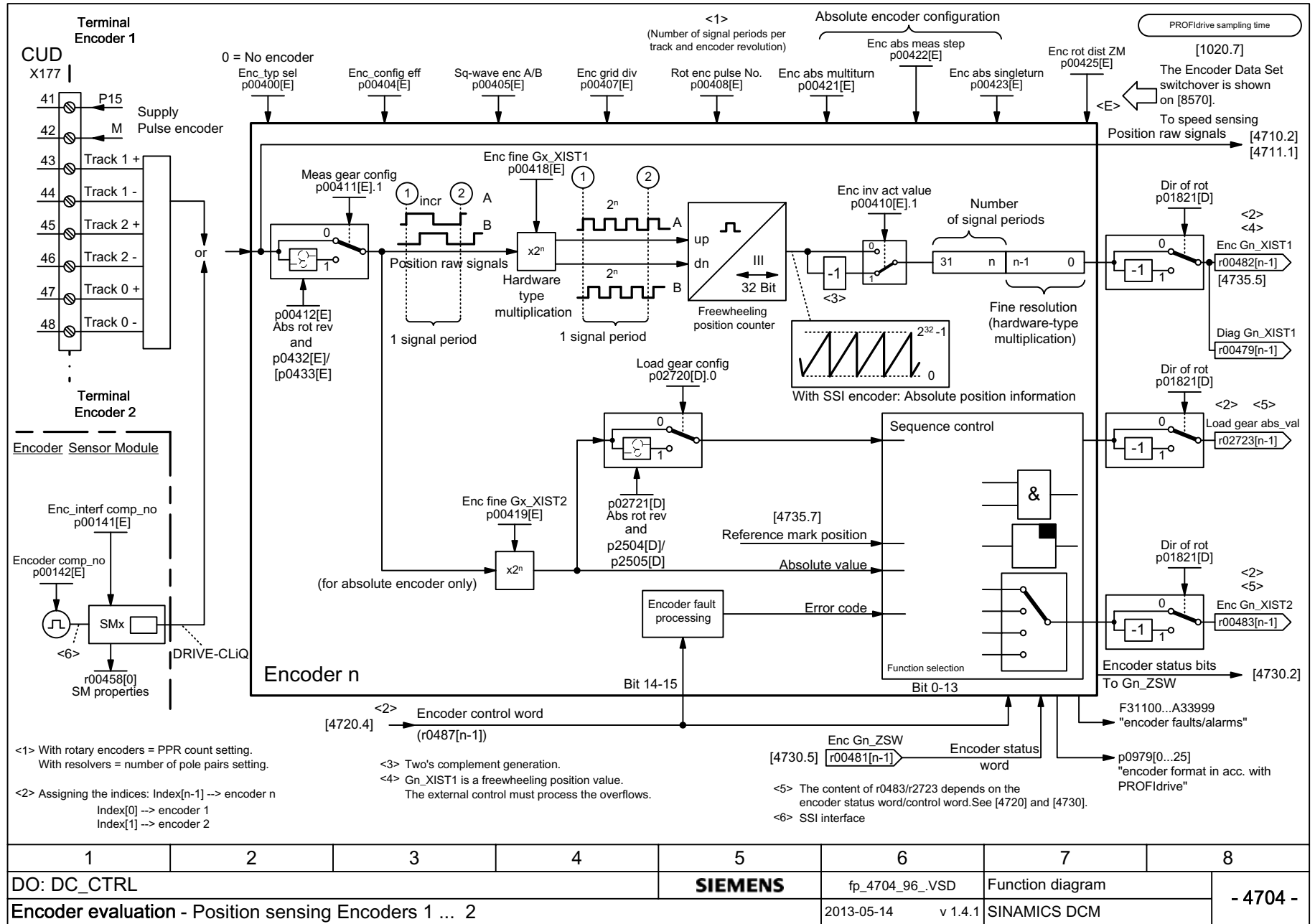
| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_3155_96_VSD | Function diagram | |
| Setpoint channel - Limit behind ramp-function generator | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 3155 - |

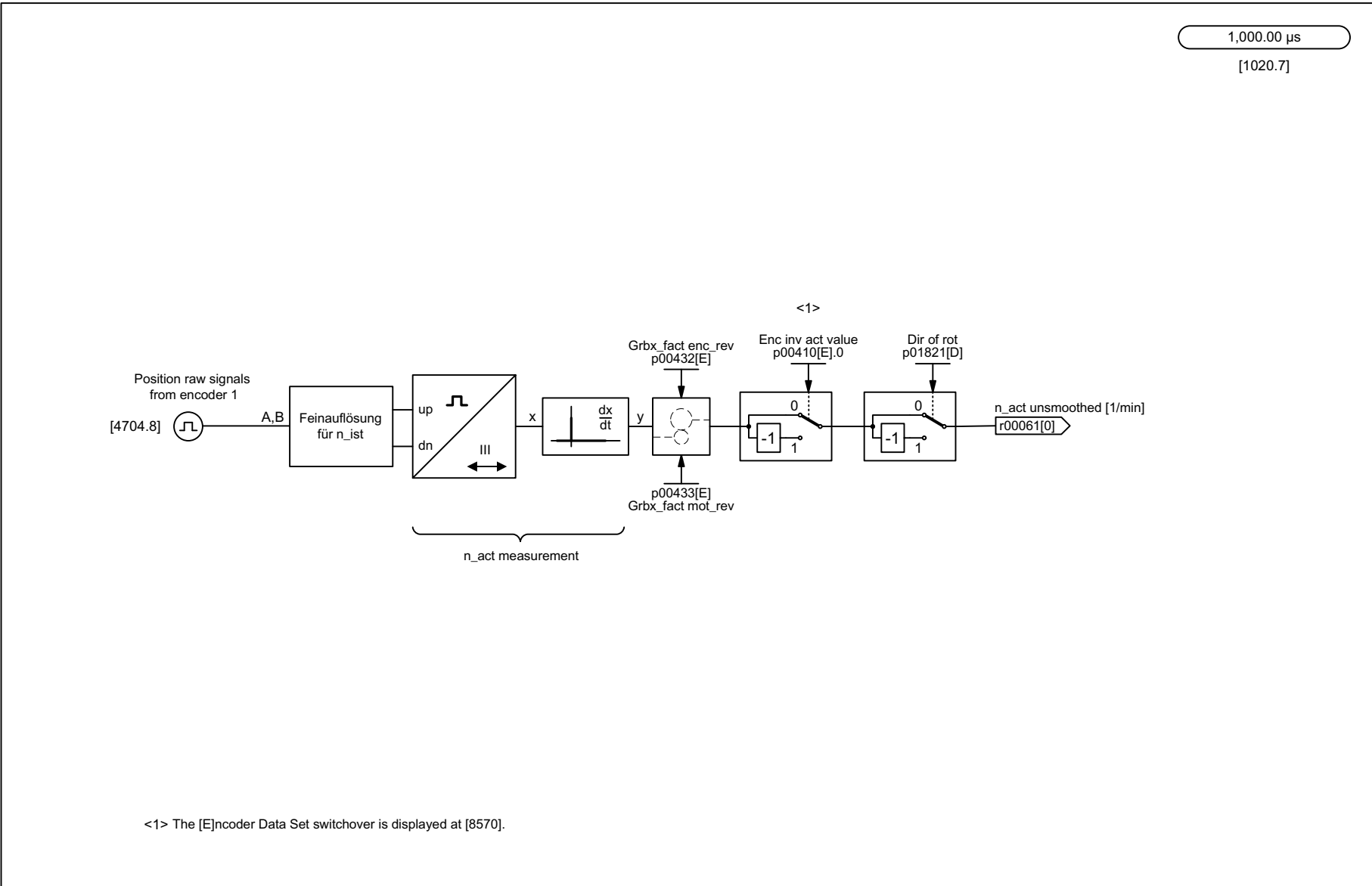
3.11 Encoder evaluation

Function diagrams

| | |
|--|-----|
| 4704 – Position sensing, encoders 1 ... 2 | 753 |
| 4710 – Speed actual value sensing, motor encoder (encoder 1) | 754 |
| 4711 – Speed actual value sensing, encoder 2 | 755 |
| 4720 – Encoder interface, receive signals, encoders 1 ... 2 | 756 |
| 4730 – Encoder interface, send signals, encoders 1 ... 2 | 757 |
| 4735 – Reference mark search, encoders 1 ... 2 | 758 |
| 4750 – Absolute value for incremental encoder | 759 |

Fig. 3-76 4704 – Position sensing, encoders 1 ... 2



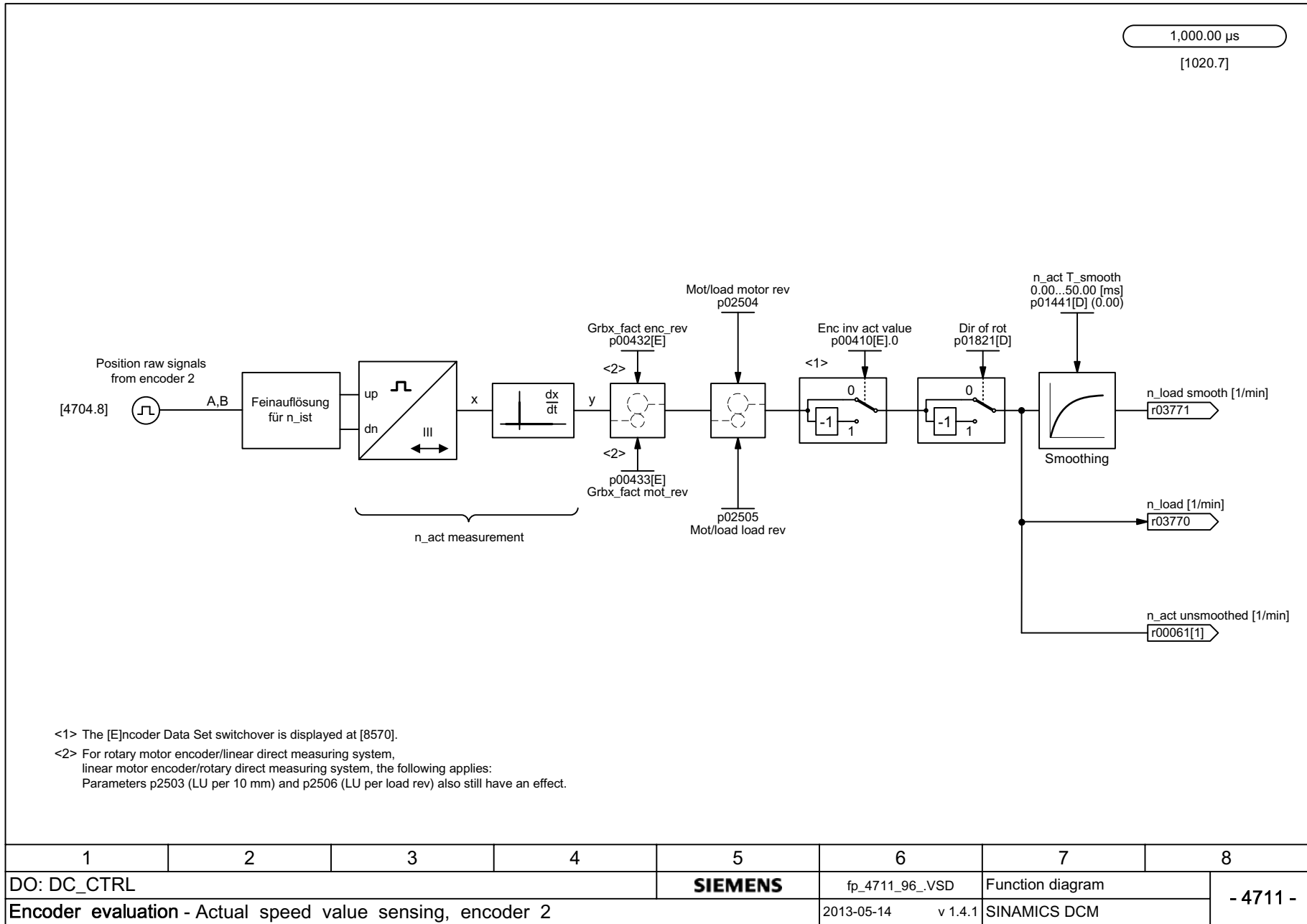


<1> The [E]ncoder Data Set switchover is displayed at [8570].

| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_4710_96_.VSD | Function diagram | |
| Encoder evaluation - Motor encoder actual speed value sensing (encoder 1) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 4710 - |

Fig. 3-77 4710 – Speed actual value sensing, motor encoder (encoder 1)

Fig. 3-78 4711 – Speed actual value sensing, encoder 2



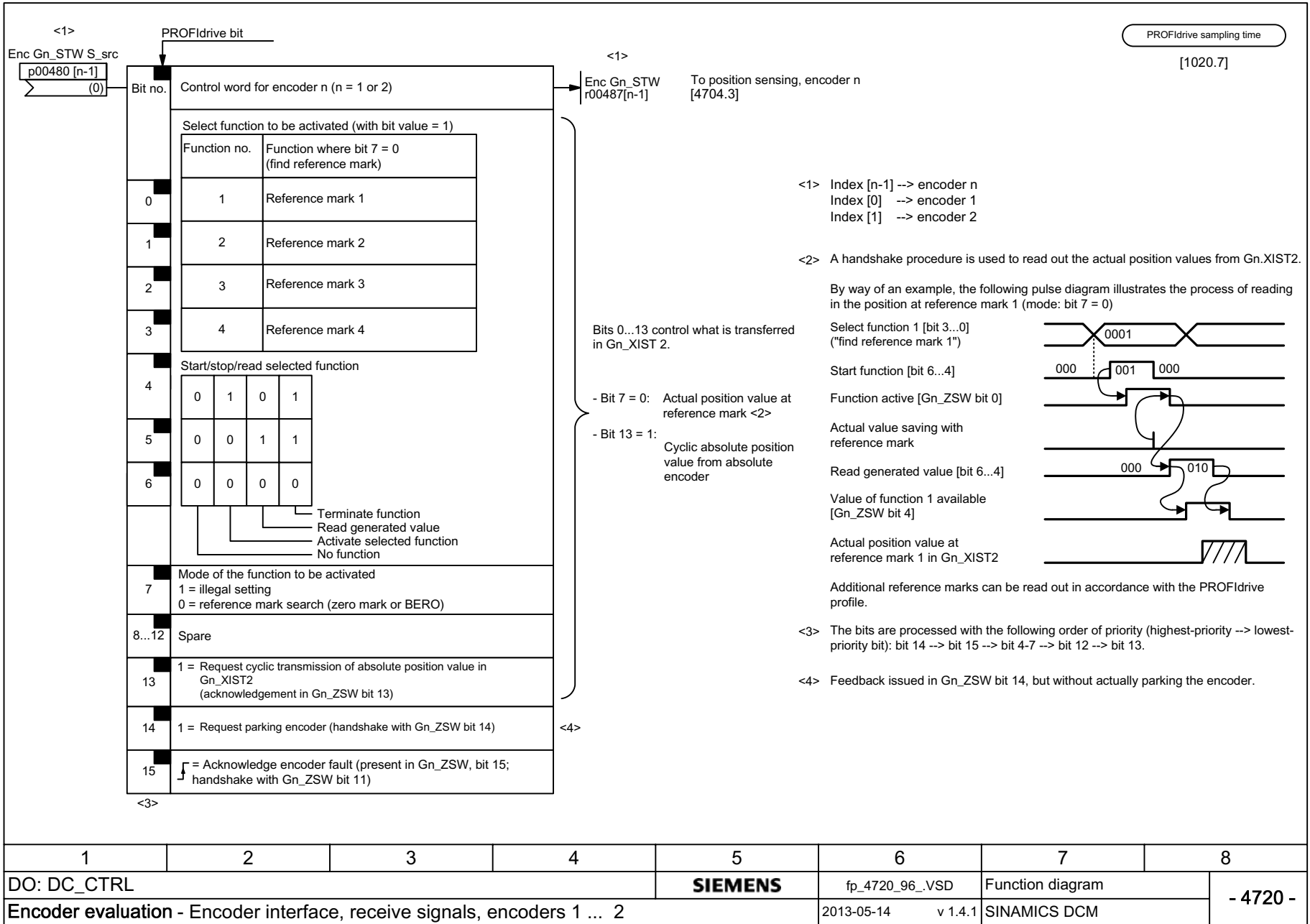
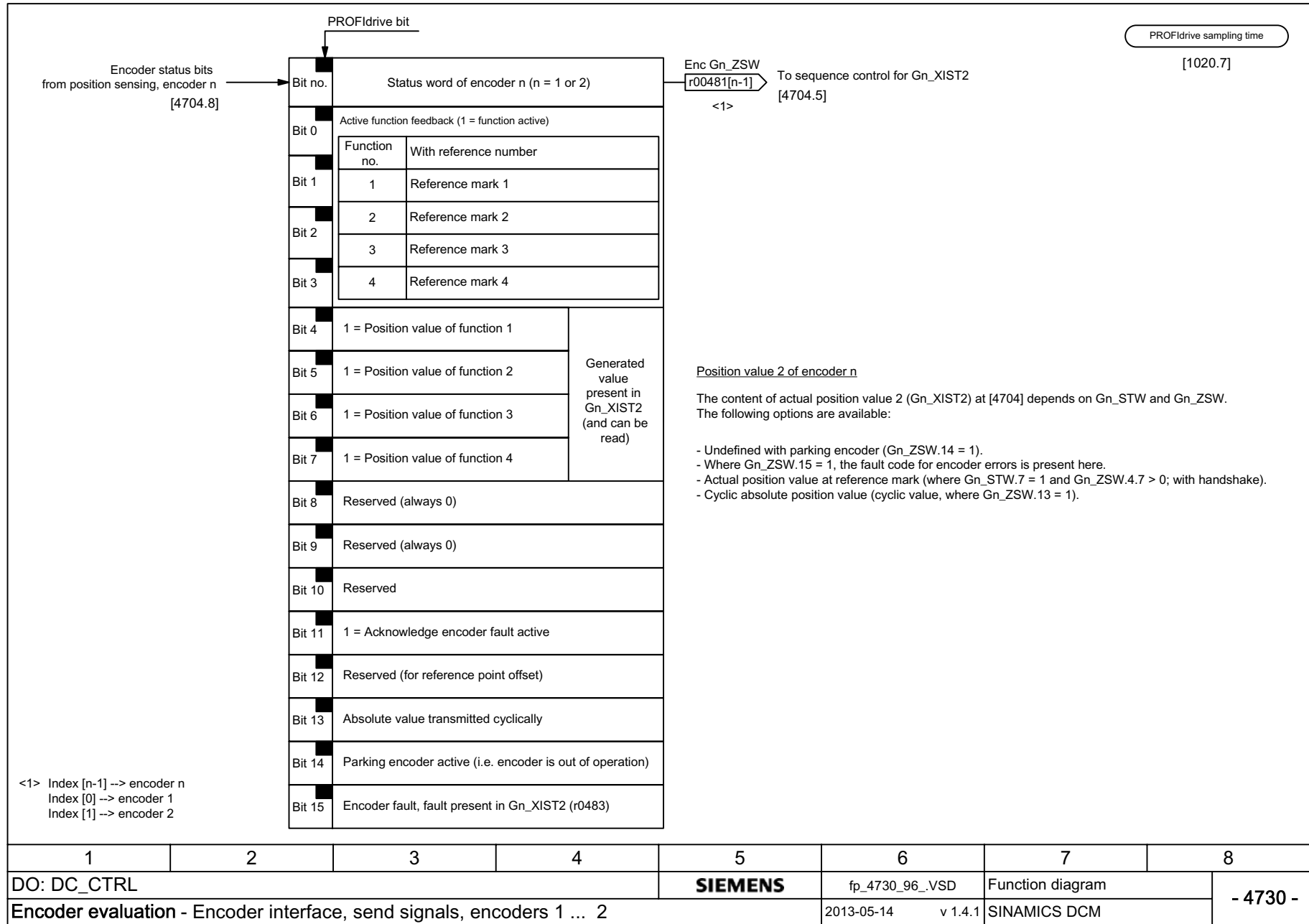
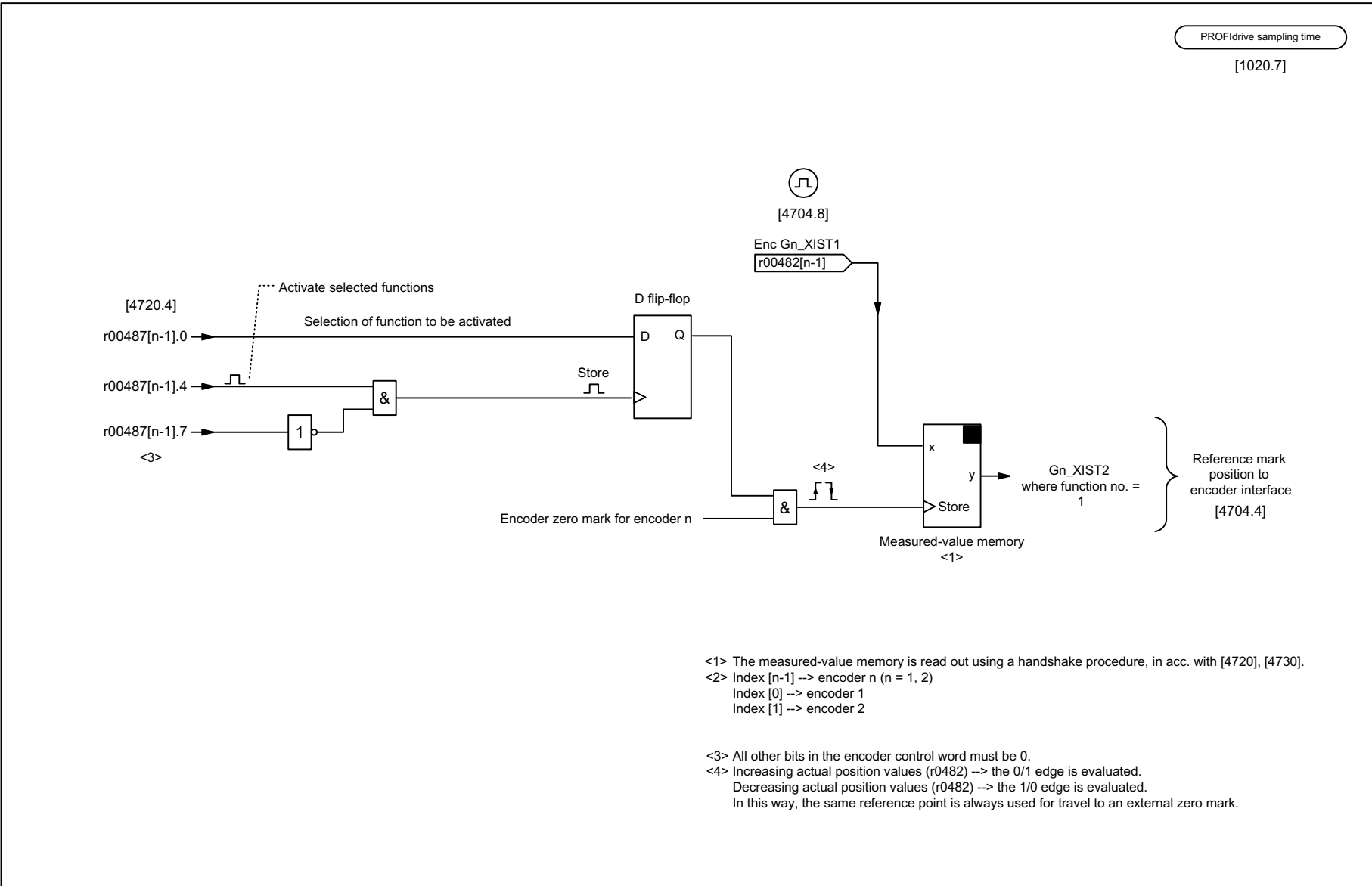


Fig. 3-79 4720 – Encoder interface, receive signals, encoders 1 ... 2

Fig. 3-80 4730 – Encoder interface, send signals, encoders 1 ... 2



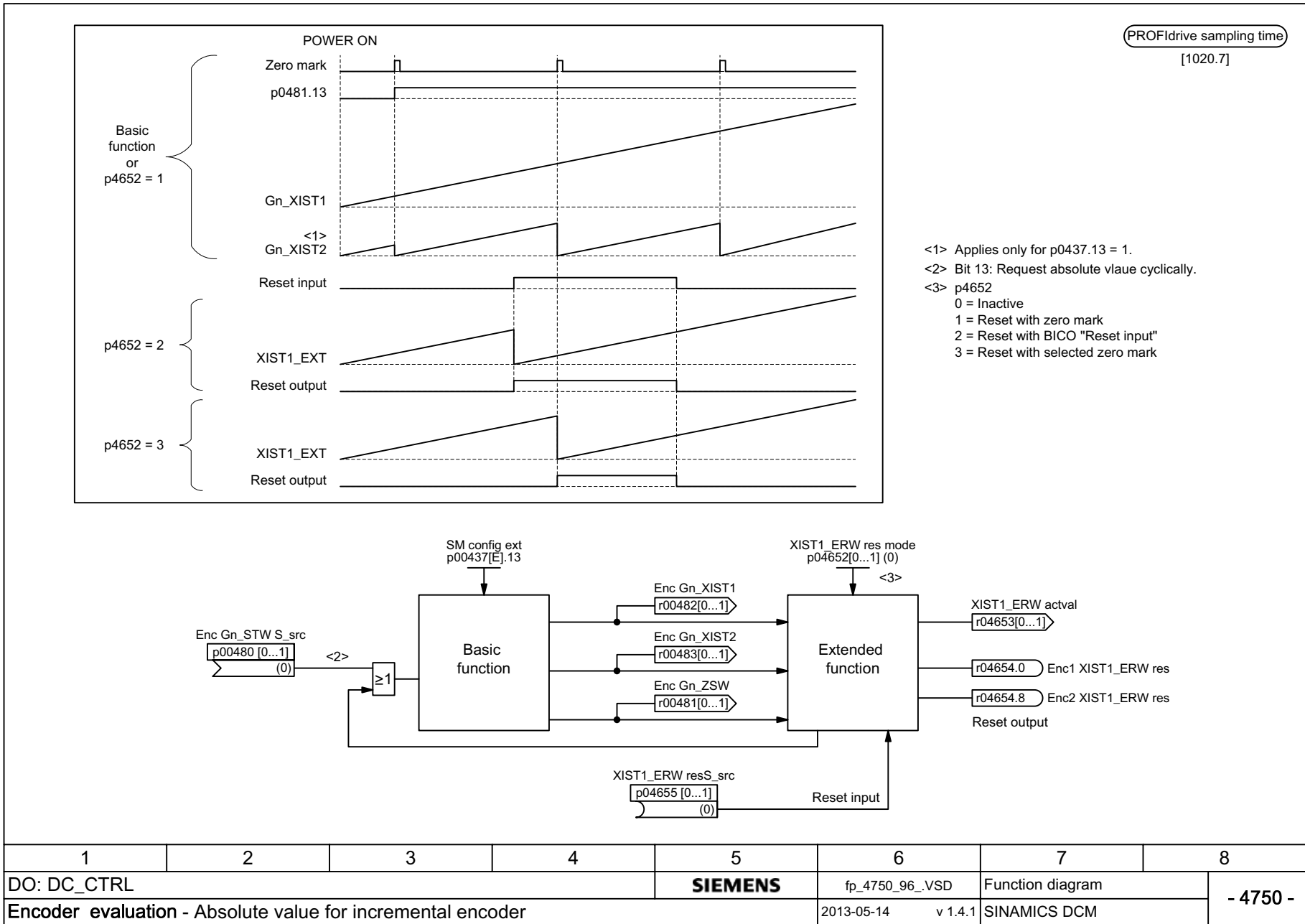


- <1> The measured-value memory is read out using a handshake procedure, in acc. with [4720], [4730].
- <2> Index [n-1] --> encoder n (n = 1, 2)
Index [0] --> encoder 1
Index [1] --> encoder 2
- <3> All other bits in the encoder control word must be 0.
- <4> Increasing actual position values (r0482) --> the 0/1 edge is evaluated.
Decreasing actual position values (r0482) --> the 1/0 edge is evaluated.
In this way, the same reference point is always used for travel to an external zero mark.

Fig. 3-81 4735 – Reference mark search, encoders 1 ... 2

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_4735_96_VSD | Function diagram | |
| Encoder evaluation - Find reference mark, encoder 11 ... 2 | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 4735 - |

Fig. 3-82 4750 – Absolute value for incremental encoder

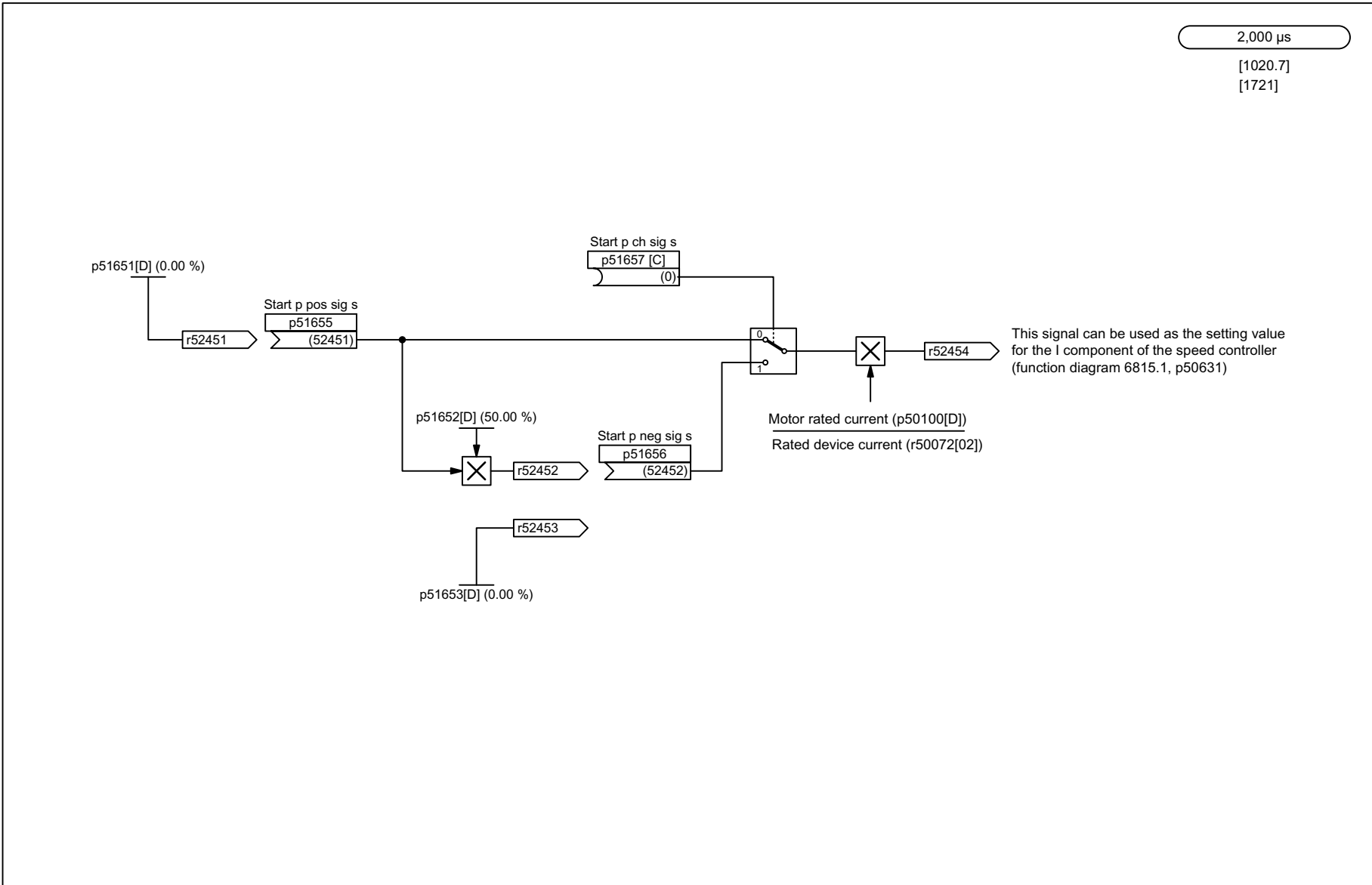


| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_4750_96_VSD | Function diagram | |
| Encoder evaluation - Absolute value for incremental encoder | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 4750 - |

3.12 Armature circuit control

Function diagrams

| | |
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| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6800_96_.VSD | Function diagram | |
| Armature circuit control - Speed controller start pulse | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6800 - |

Fig. 3-83 6800 – Speed controller start pulse

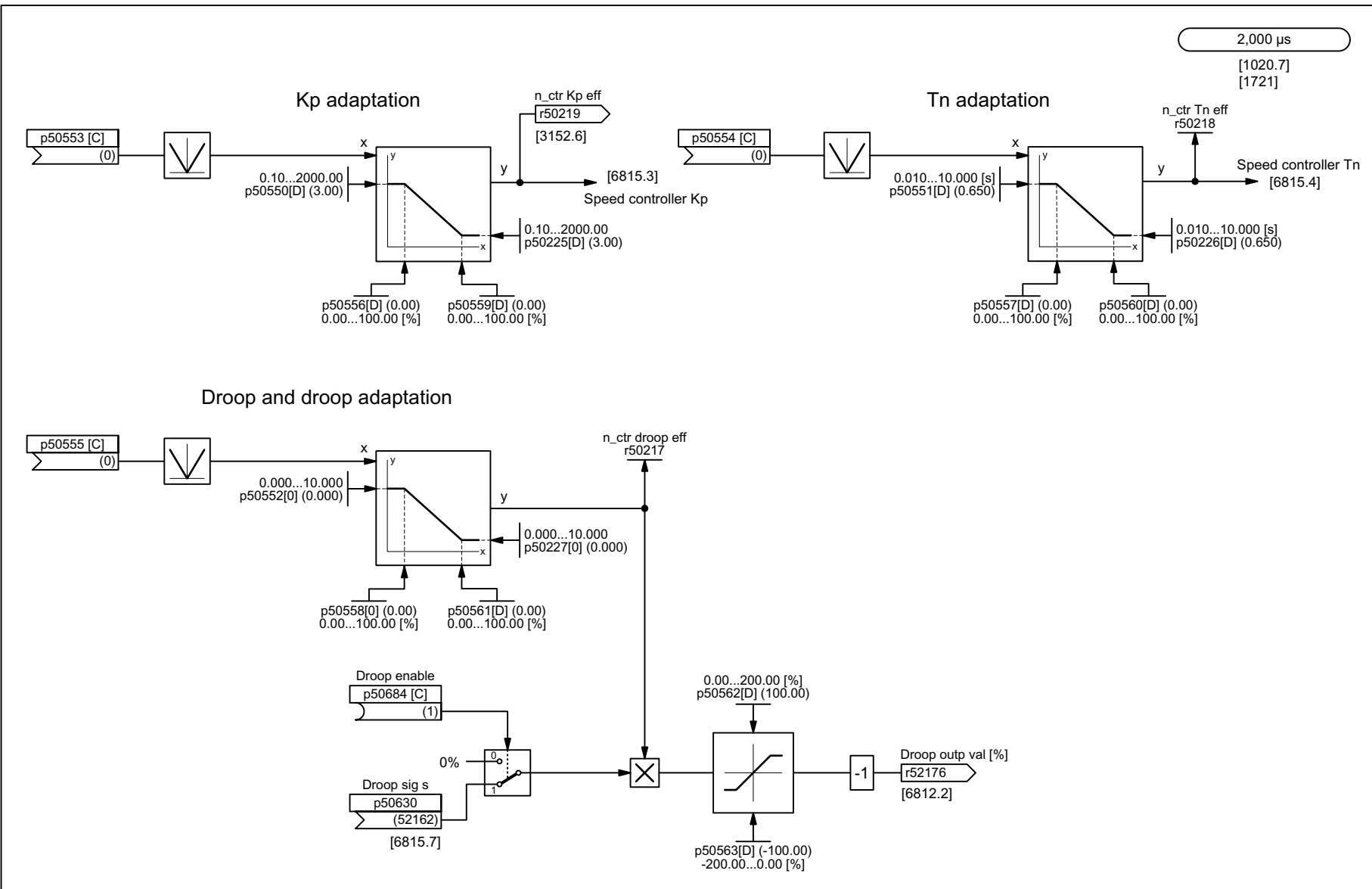
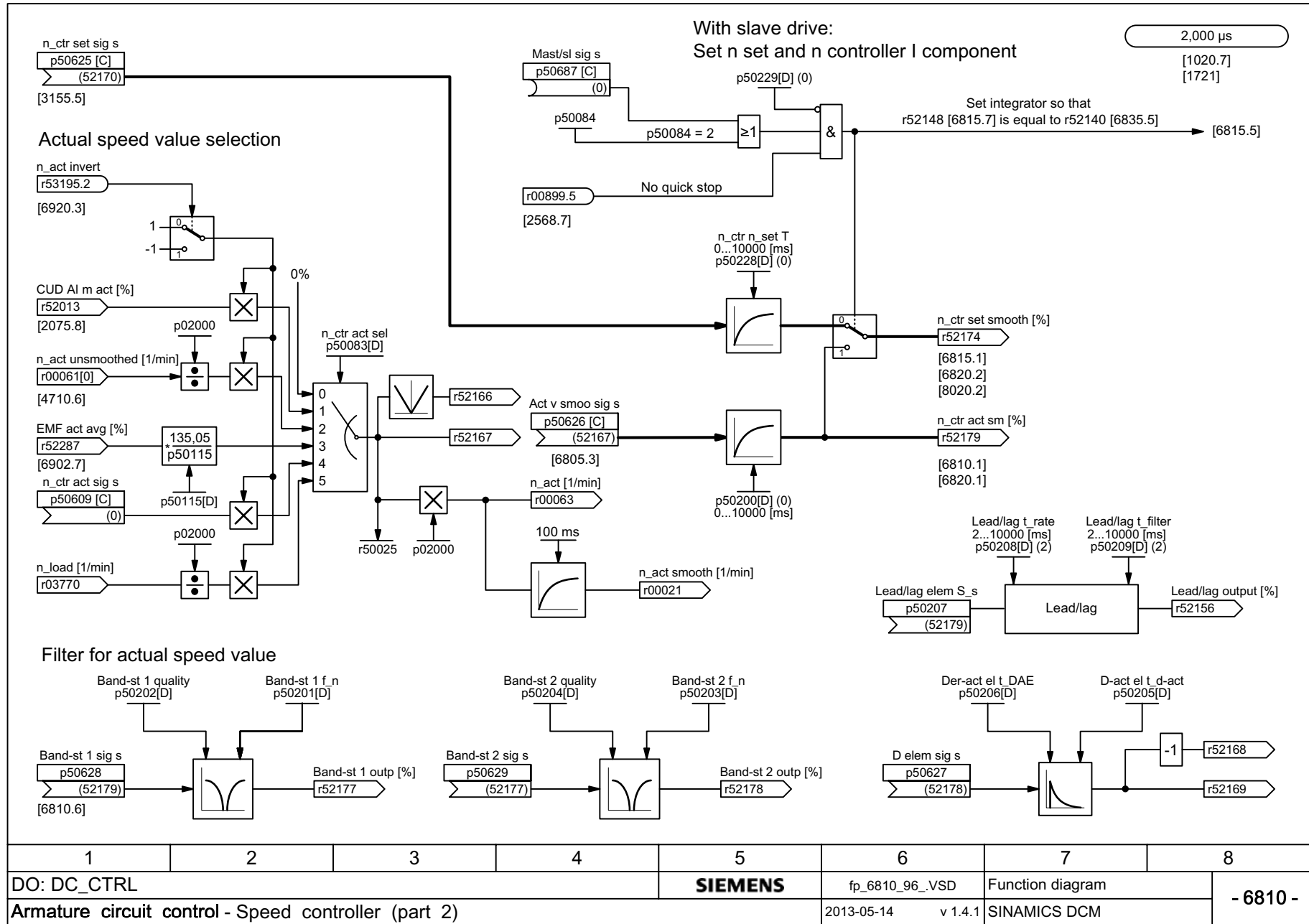


Fig. 3-84 6805 – Speed controller (part 1)

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6805_96_VSD | Function diagram | |
| Armature circuit control - Speed controller (part 1) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6805 - |

Fig. 3-85 68110 – Speed controller (part 2)



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6810_96_VSD | Function diagram | |
| Armature circuit control - Speed controller (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6810 - |

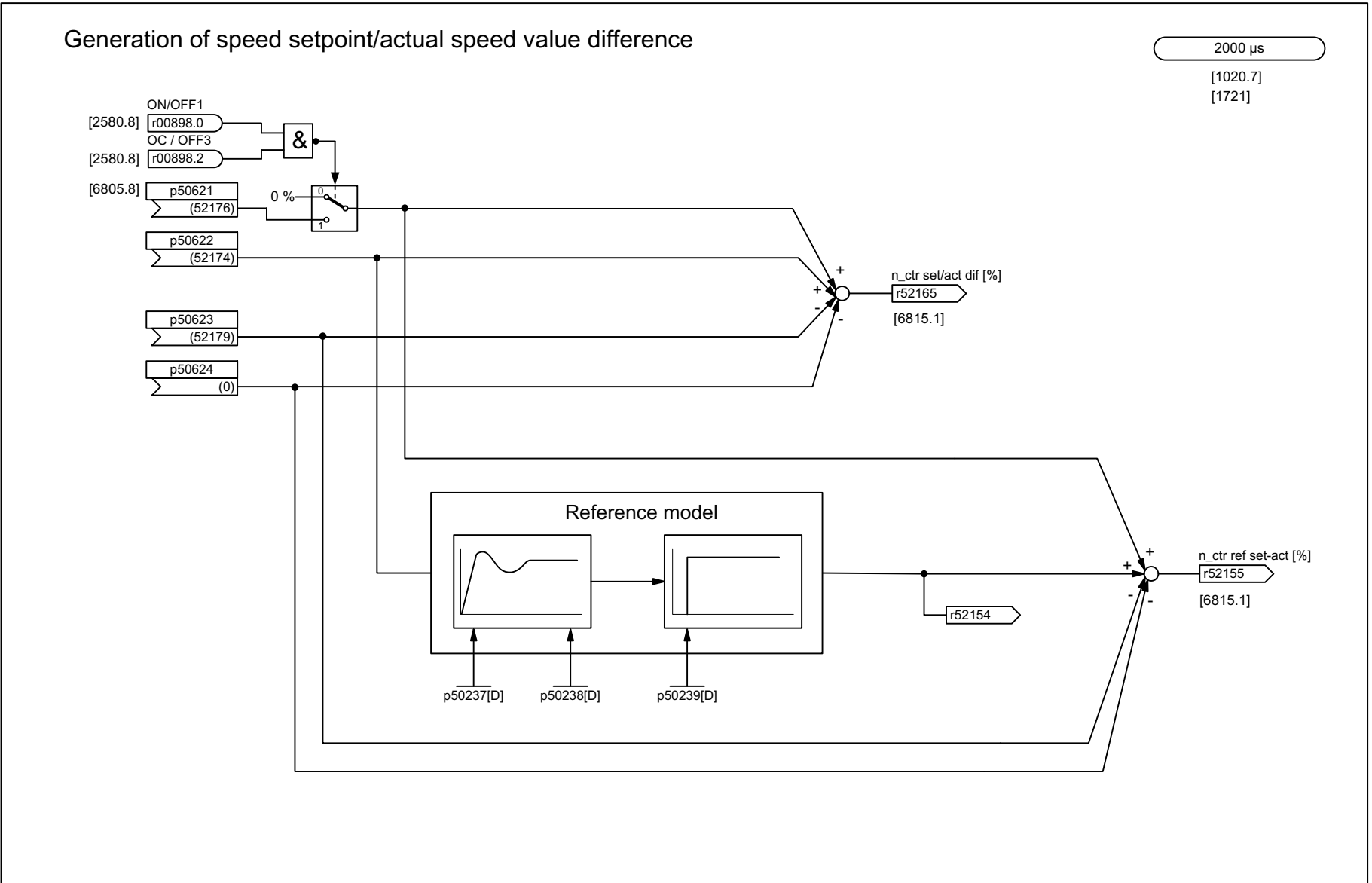
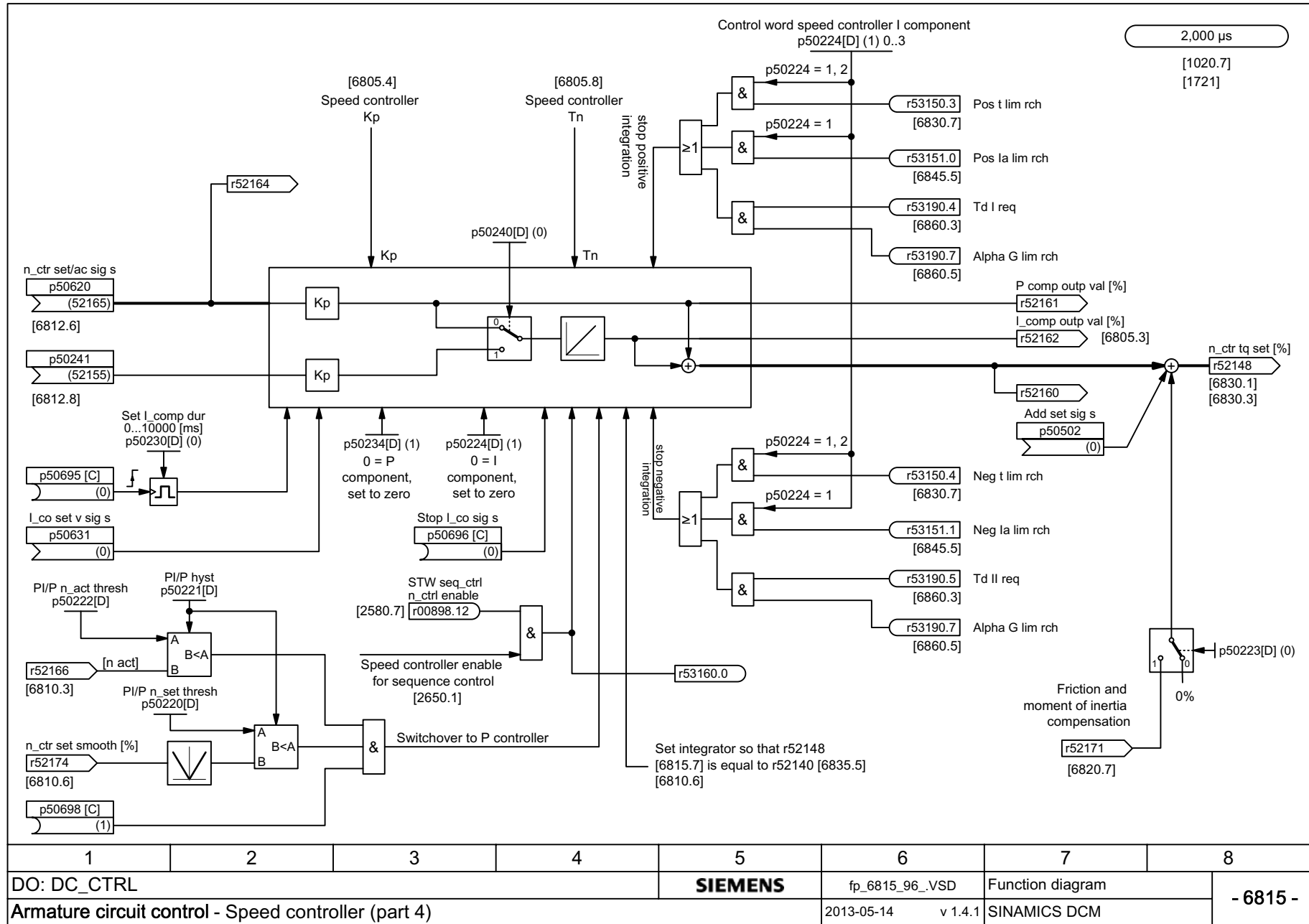


Fig. 3-86 6812 – Speed controller (part 3)

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6812_96_VSD | Function diagram | |
| Armature circuit control - Speed controller (part 3) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6812 - |

Fig. 3-87 6815 – Speed controller (part 4)



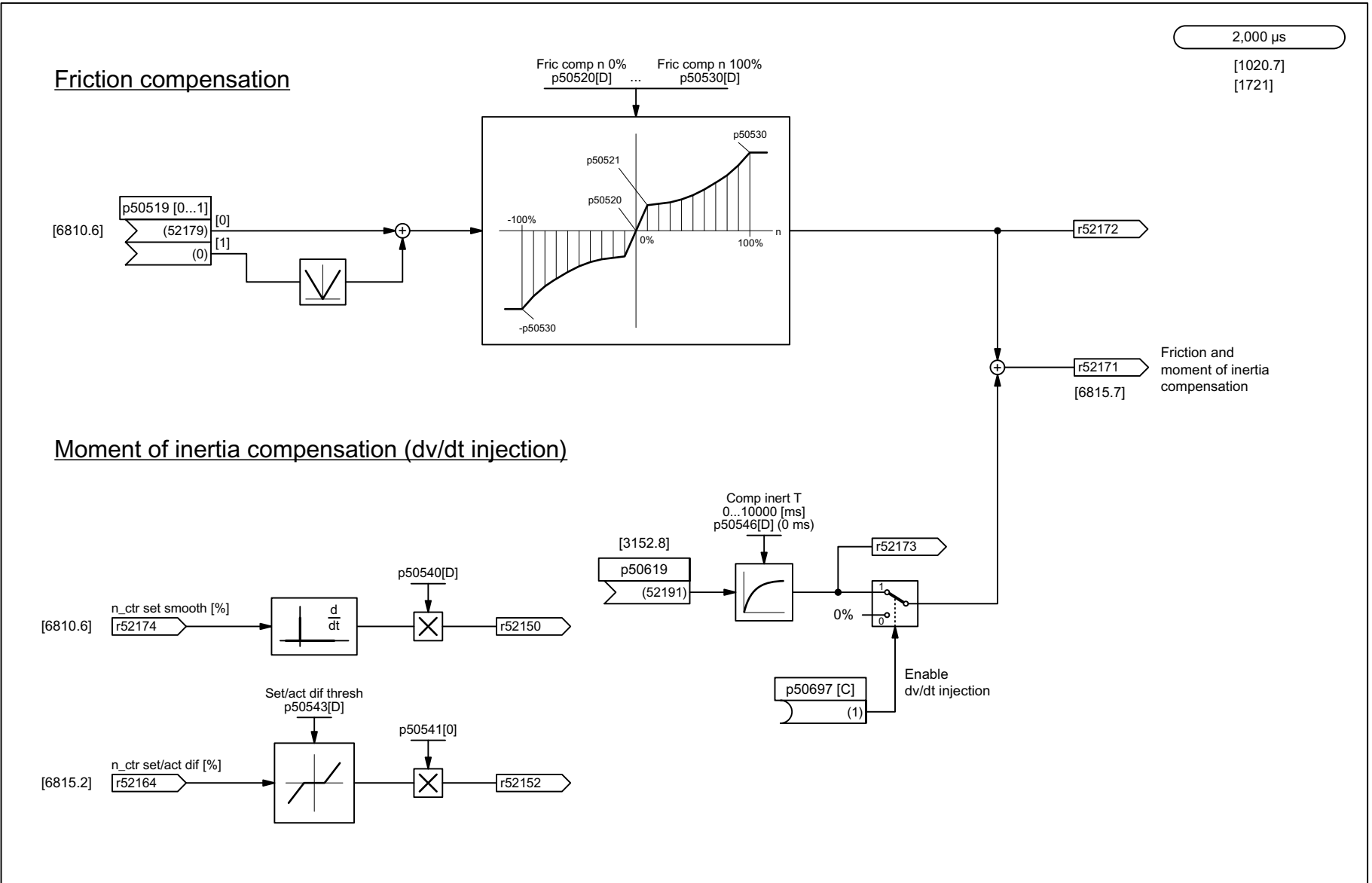
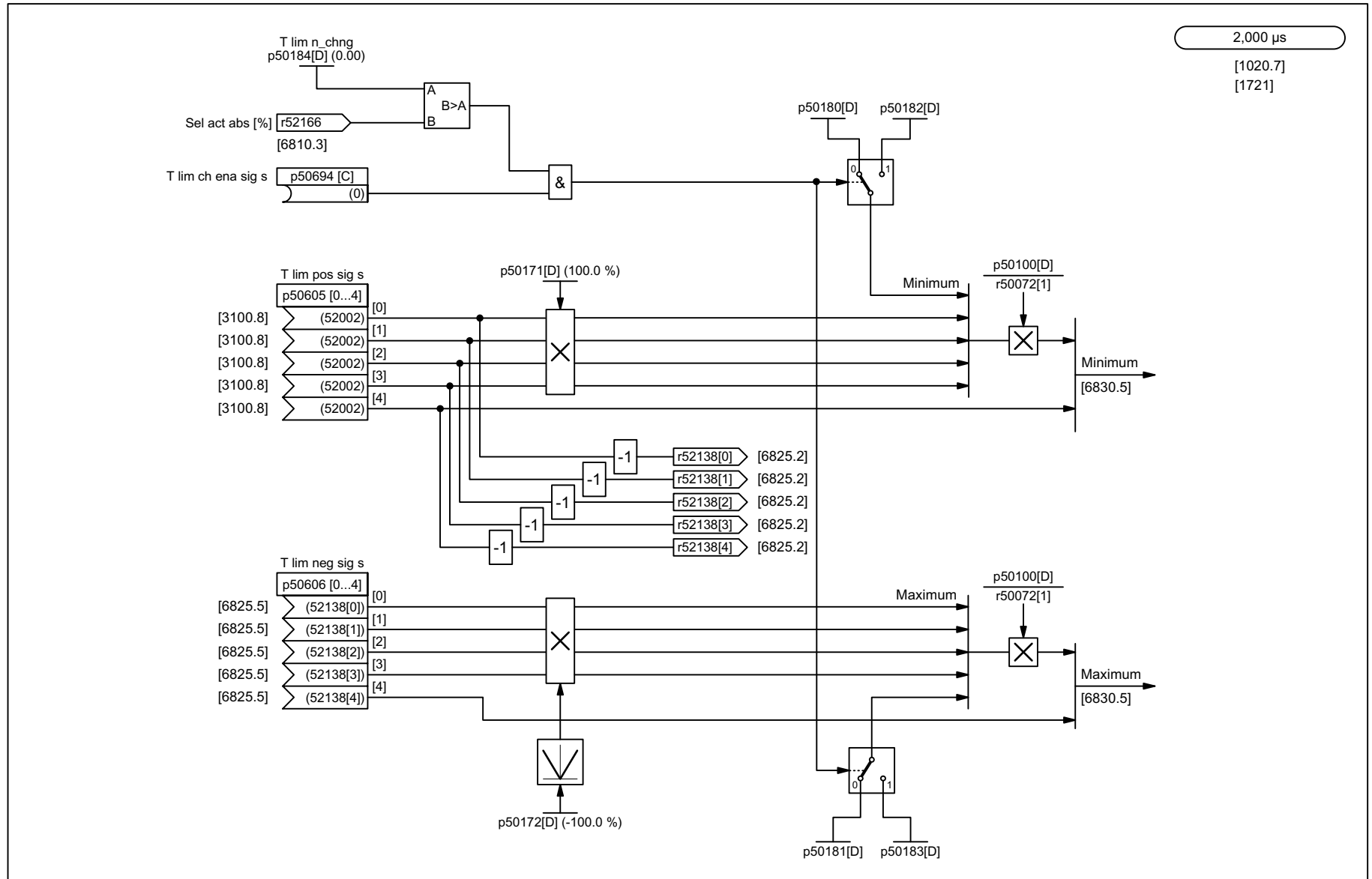


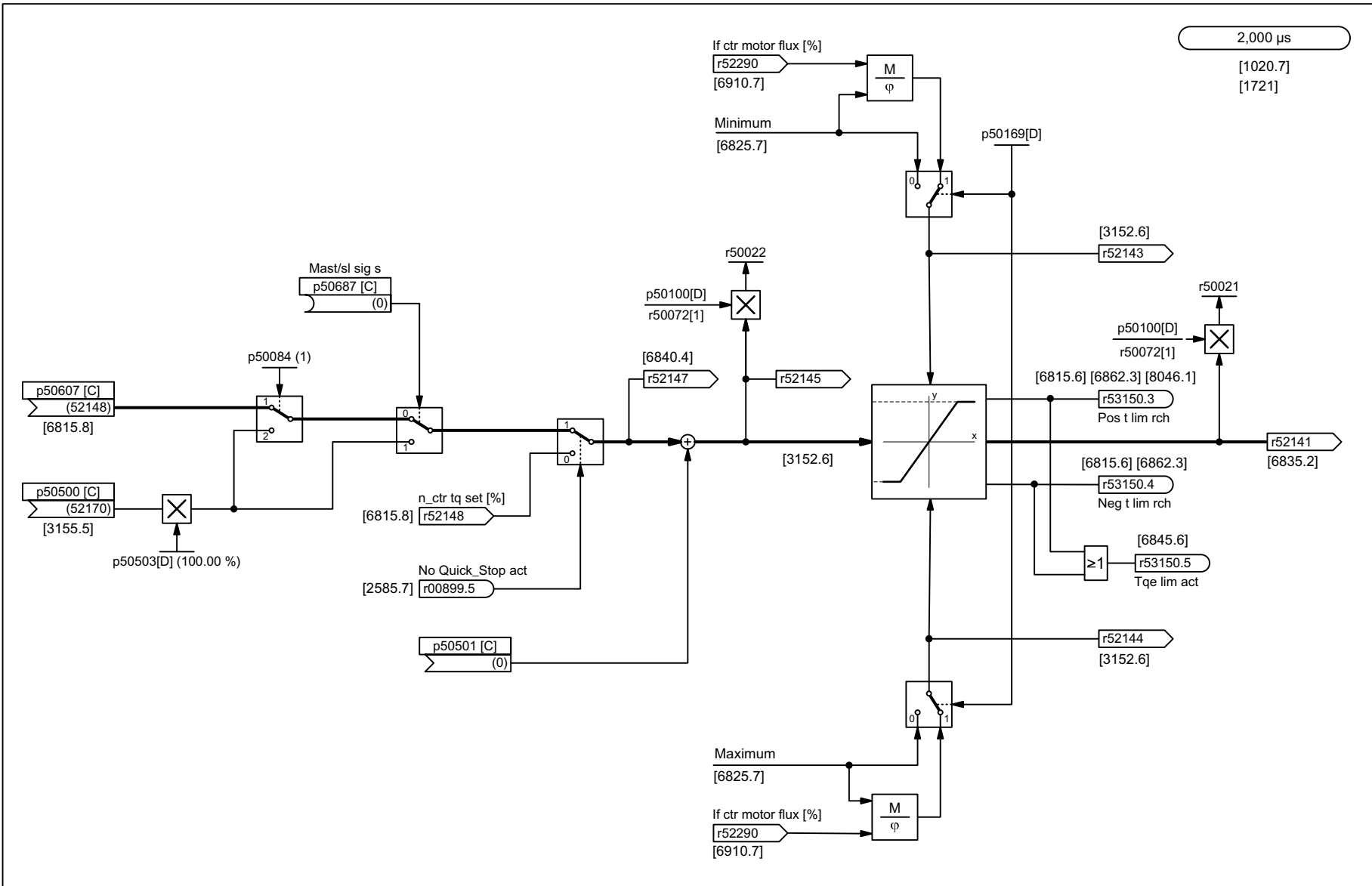
Fig. 3-88 6820 – Friction/moment of inertia compensation

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6820_96_VSD | Function diagram | |
| Armature circuit control - Friction/moment of inertia compensation | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6820 - |

Fig. 3-89 6825 – Torque limitation (part 1)

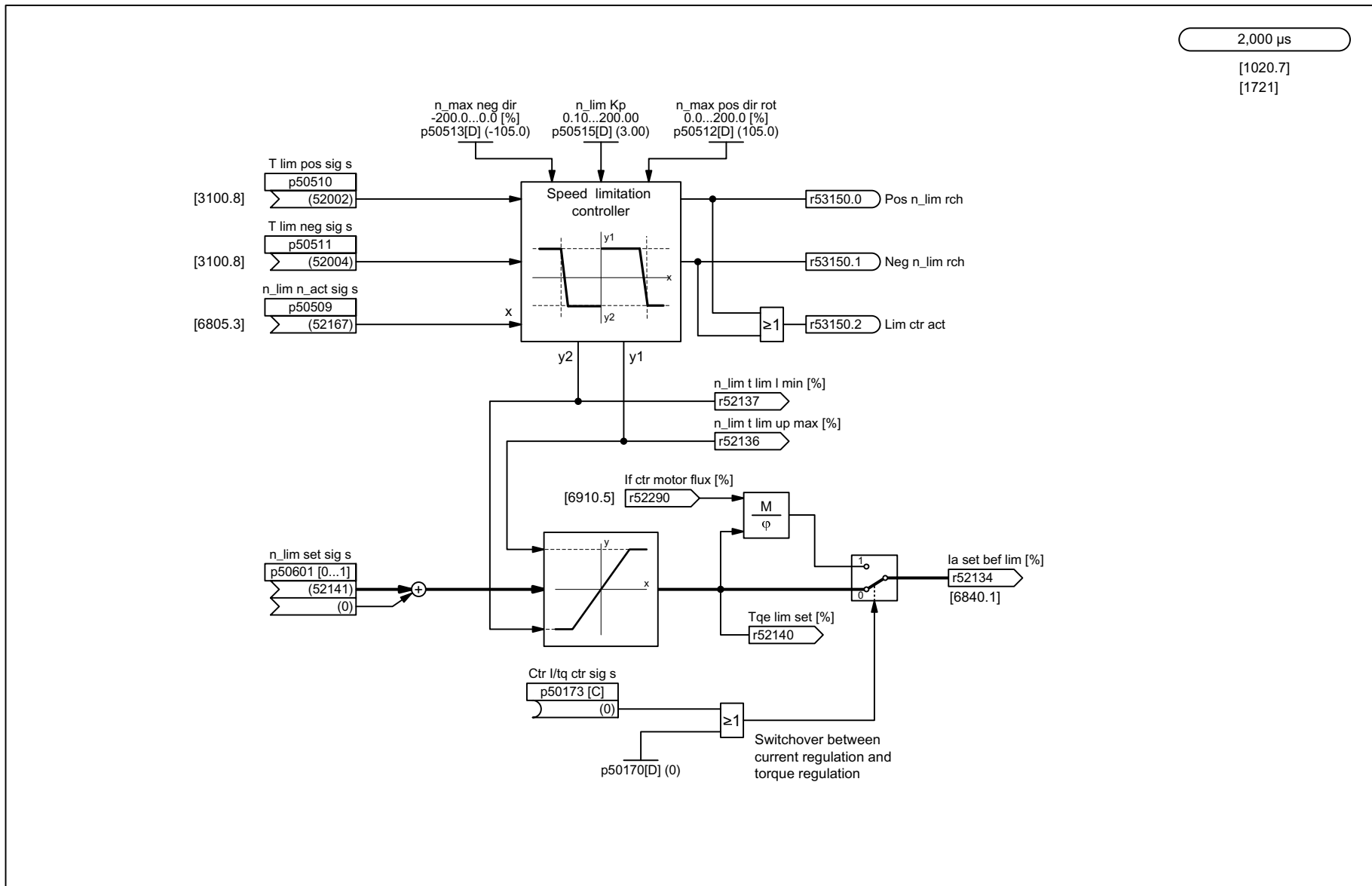


| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6825_96_VSD | Function diagram | |
| Armature circuit control - Torque limitation (part 1) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6825 - |



| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6830_96_VSD | Function diagram | |
| Armature circuit control - Torque limitation (part 2) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6830 - |

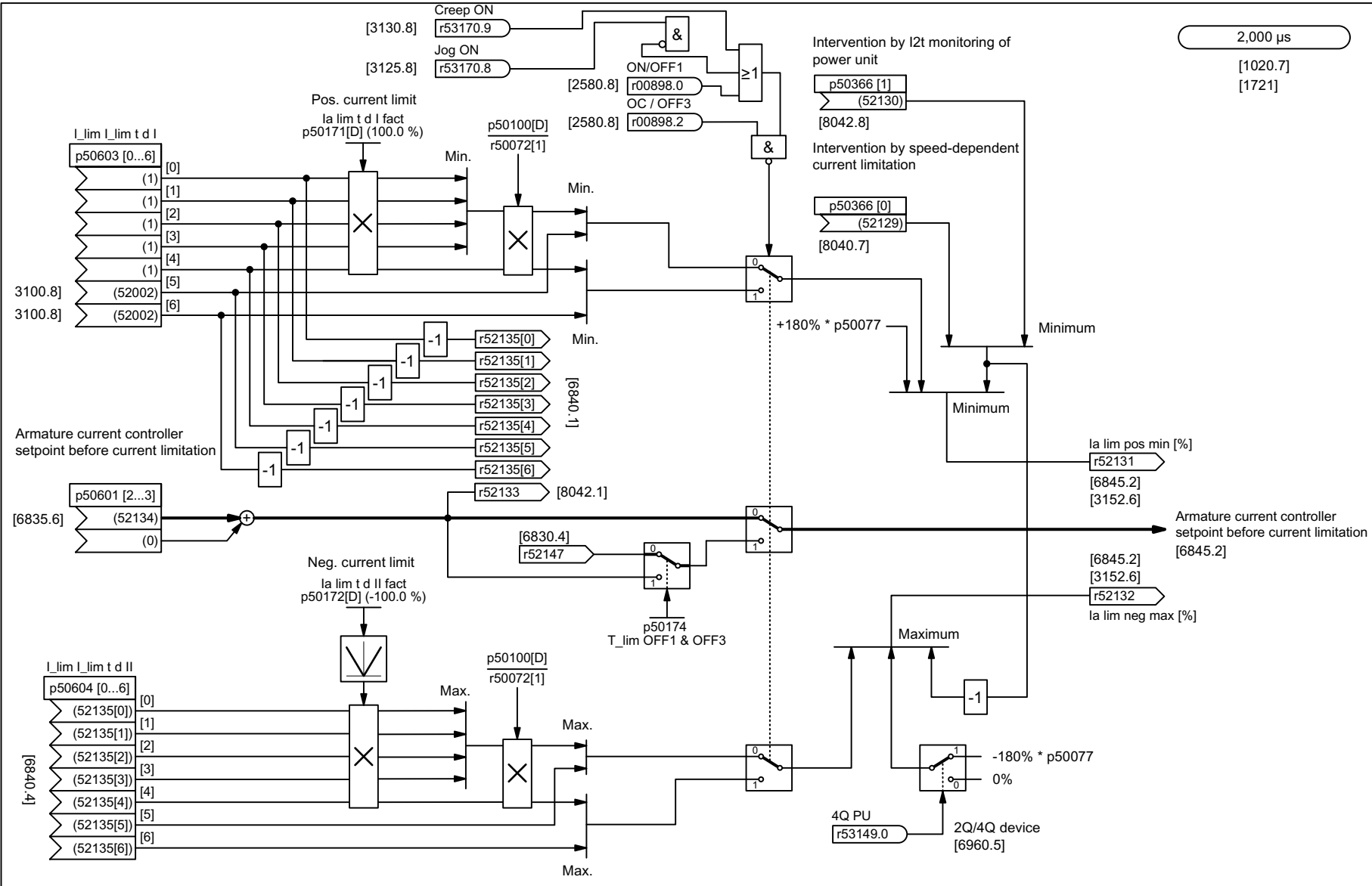
Fig. 3-90 6830 – Torque limitation (part 2)



2,000 μs
[1020.7]
[1721]

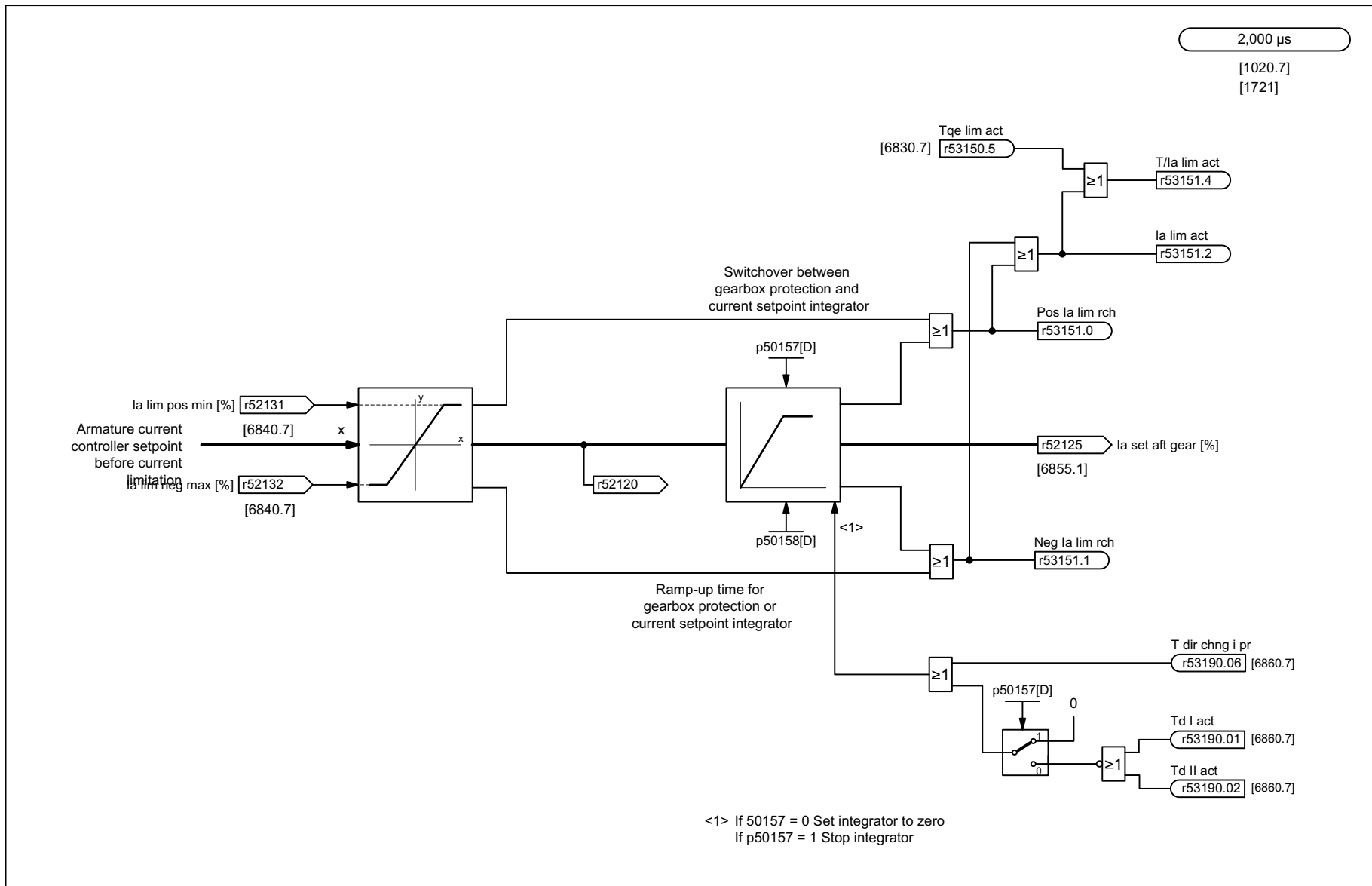
| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6835_96_VSD | Function diagram | |
| Armature circuit control - Speed limitation controller | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6835 - |

Fig. 3-91 6835 – Speed limitation controller



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6840_96_VSD | Function diagram | |
| Armature circuit control - Current limitation (part 1) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6840 - |

Fig. 3-92 6840 – Current limitation (part 1)



<1> If 50157 = 0 Set integrator to zero
If p50157 = 1 Stop integrator

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6845_96_VSD | Function diagram | |
| Armature circuit control - Current limitation (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6845 - |

Fig. 3-93 6845 – Current limitation (part 2)

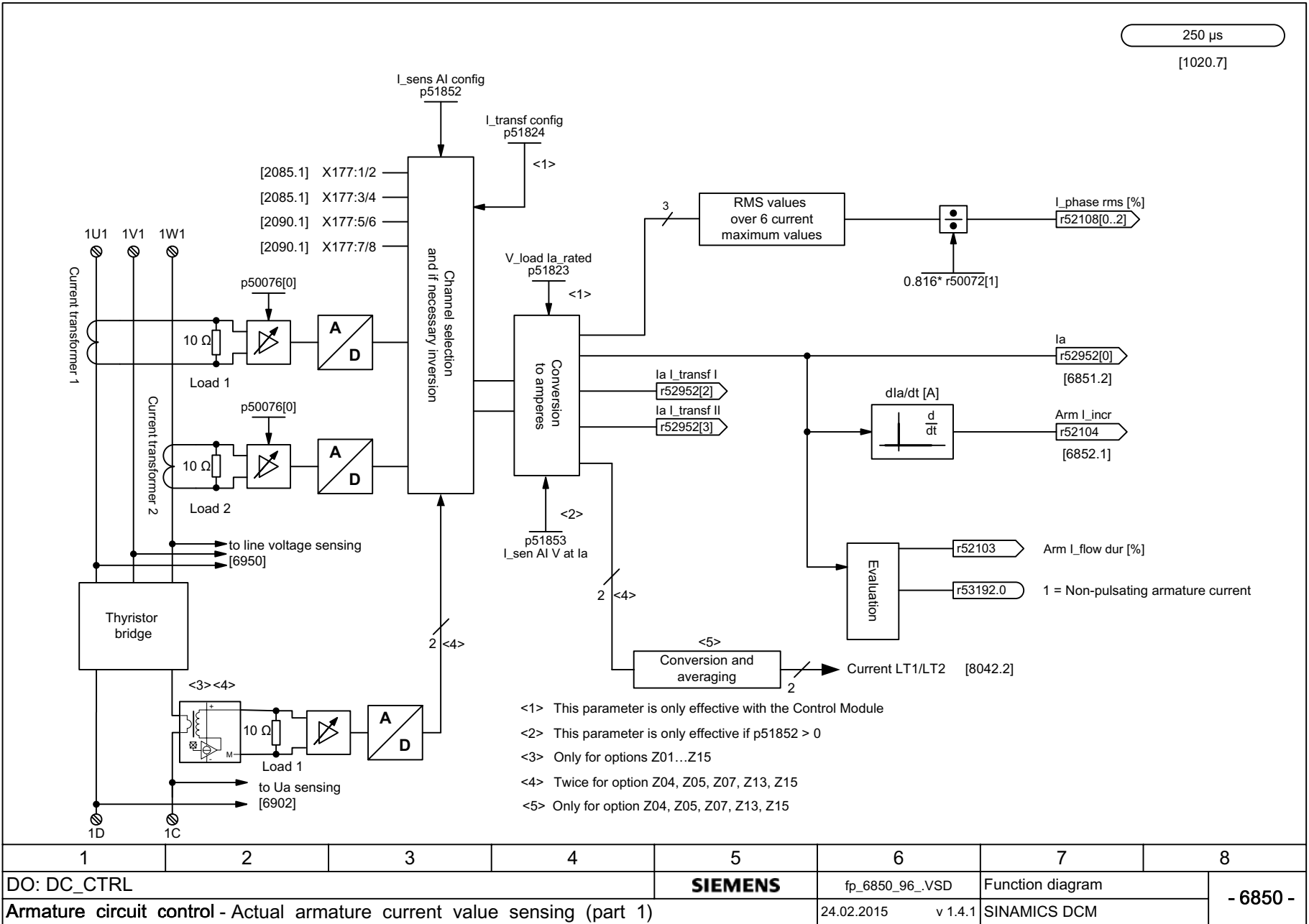
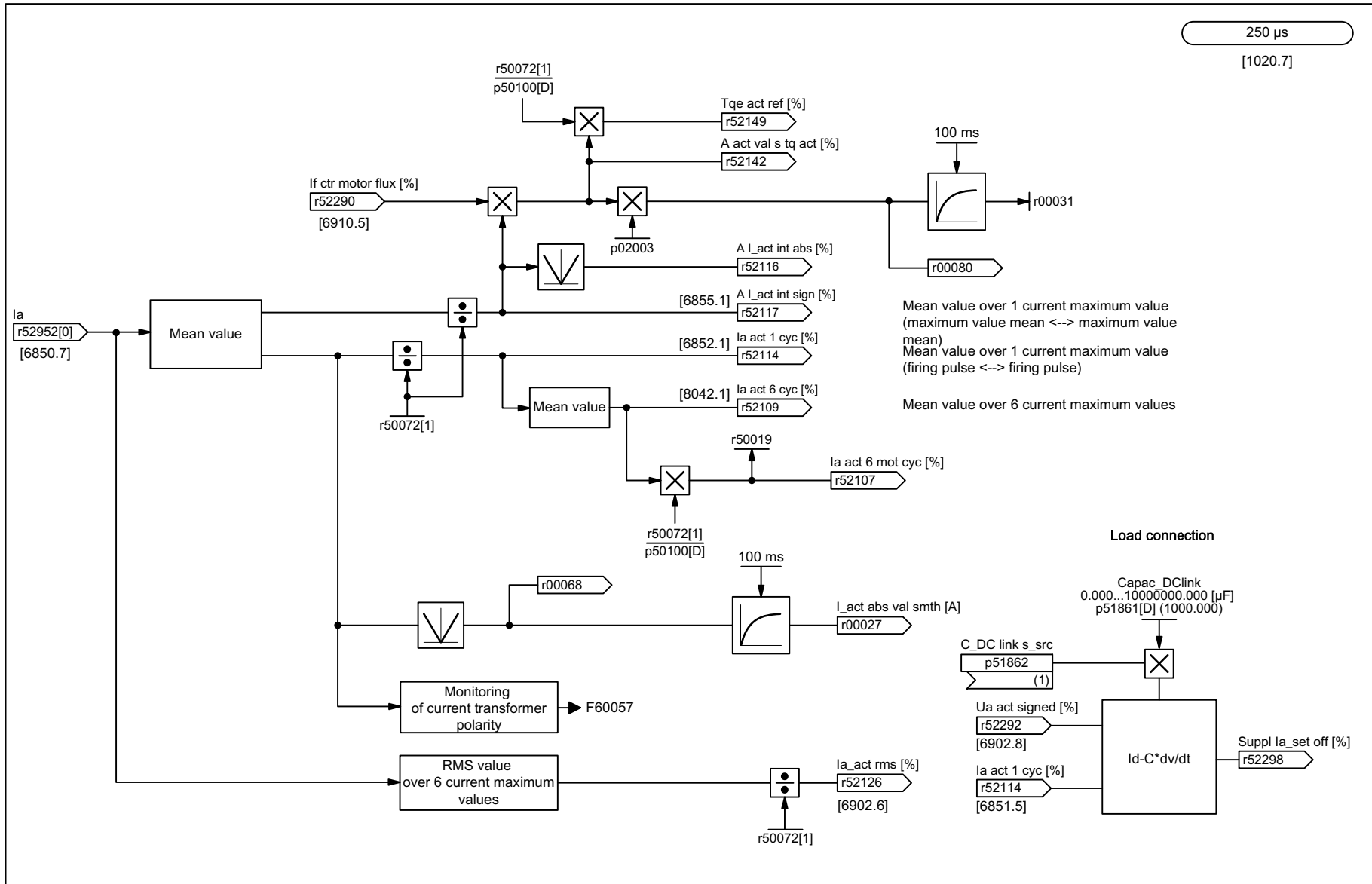


Fig. 3-94 6850 – Actual armature current value sensing (part 1)

Fig. 3-95 6851 – Actual armature current value sensing (part 2)



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6851_96_VSD | Function diagram | |
| Armature circuit control - Actual armature current value sensing (part 2) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6851 - |

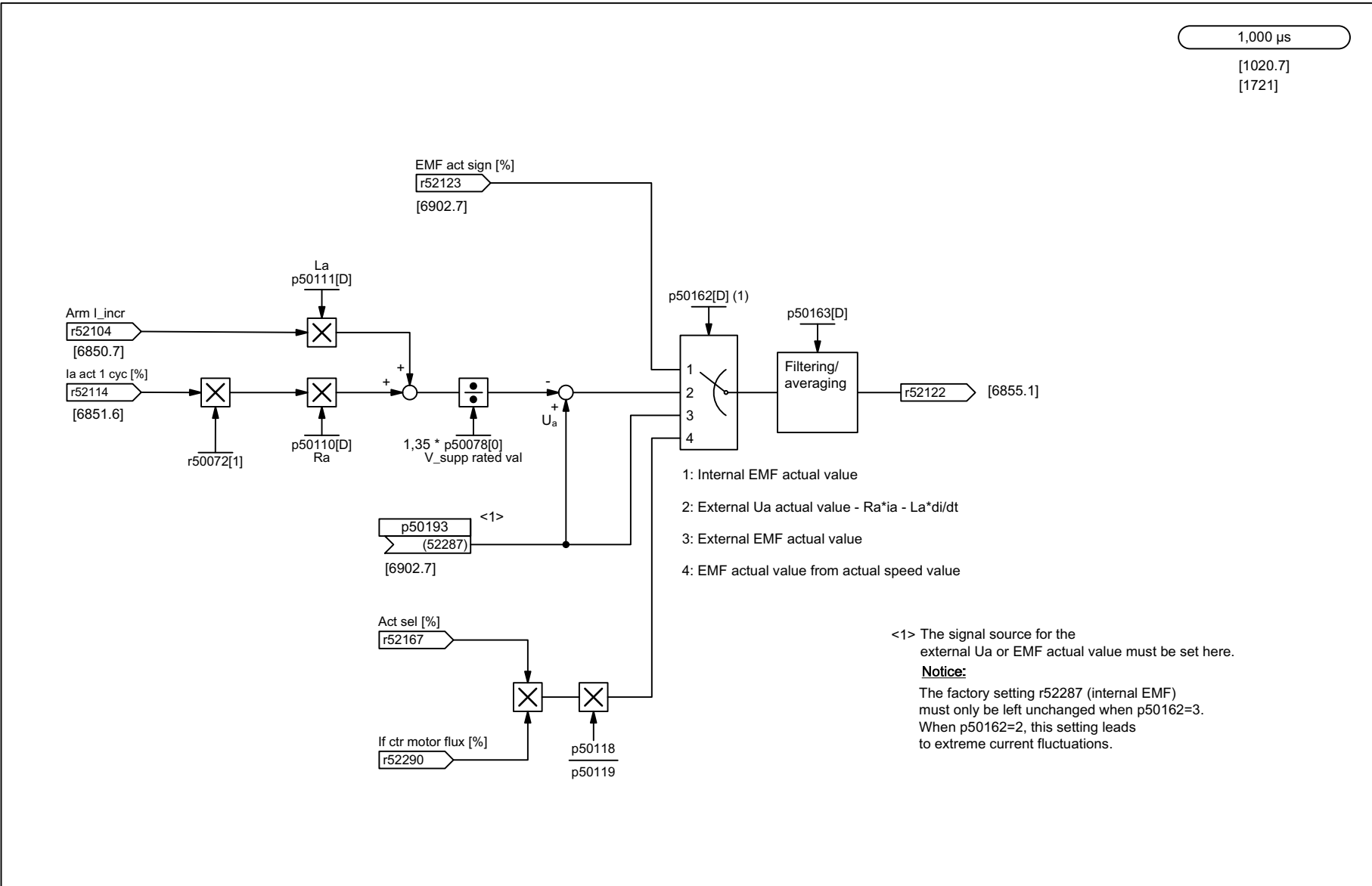
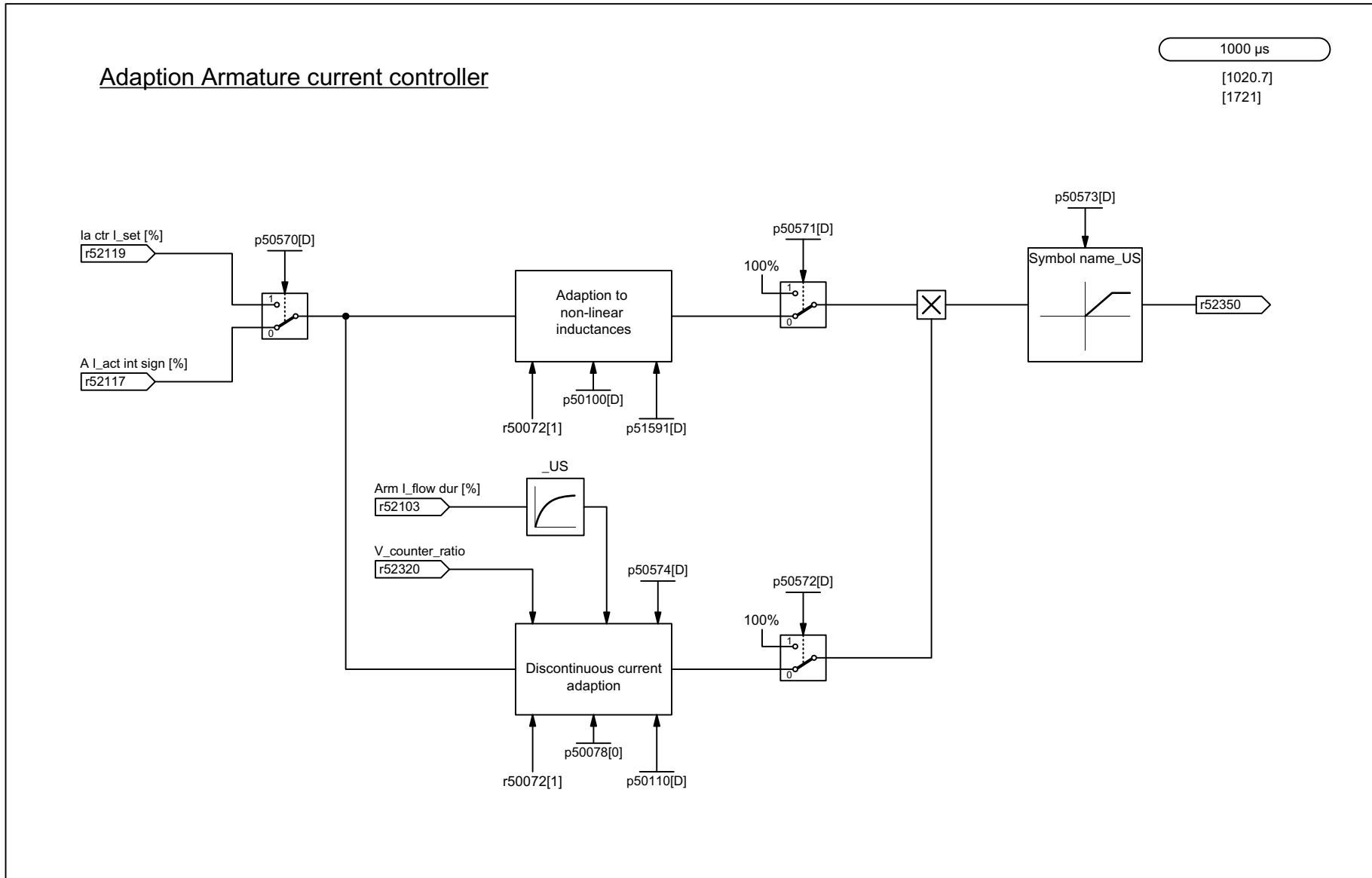


Fig. 3-96 6852 – Selection of EMF actual value for armature current pre-control

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6852_96_VSD | Function diagram | |
| Armature circuit control - Selection of EMF actual value for armature current pre-control | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6852 - |

Fig. 3-97 6853 – Armature current controller adaptation



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6853_96_VSD | Function diagram | |
| Armature circuit control - Armature current controller adaption | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6853 - |

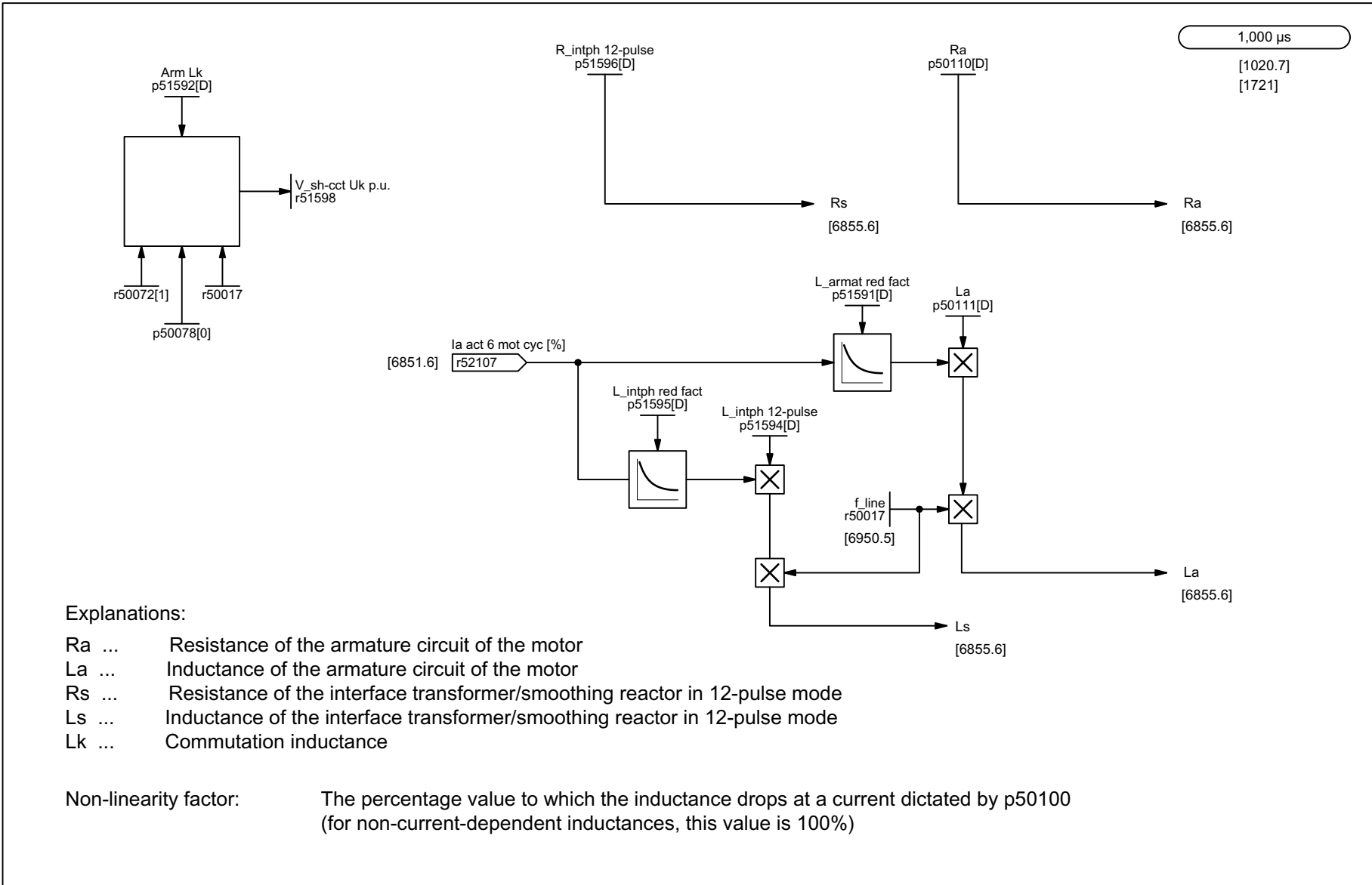
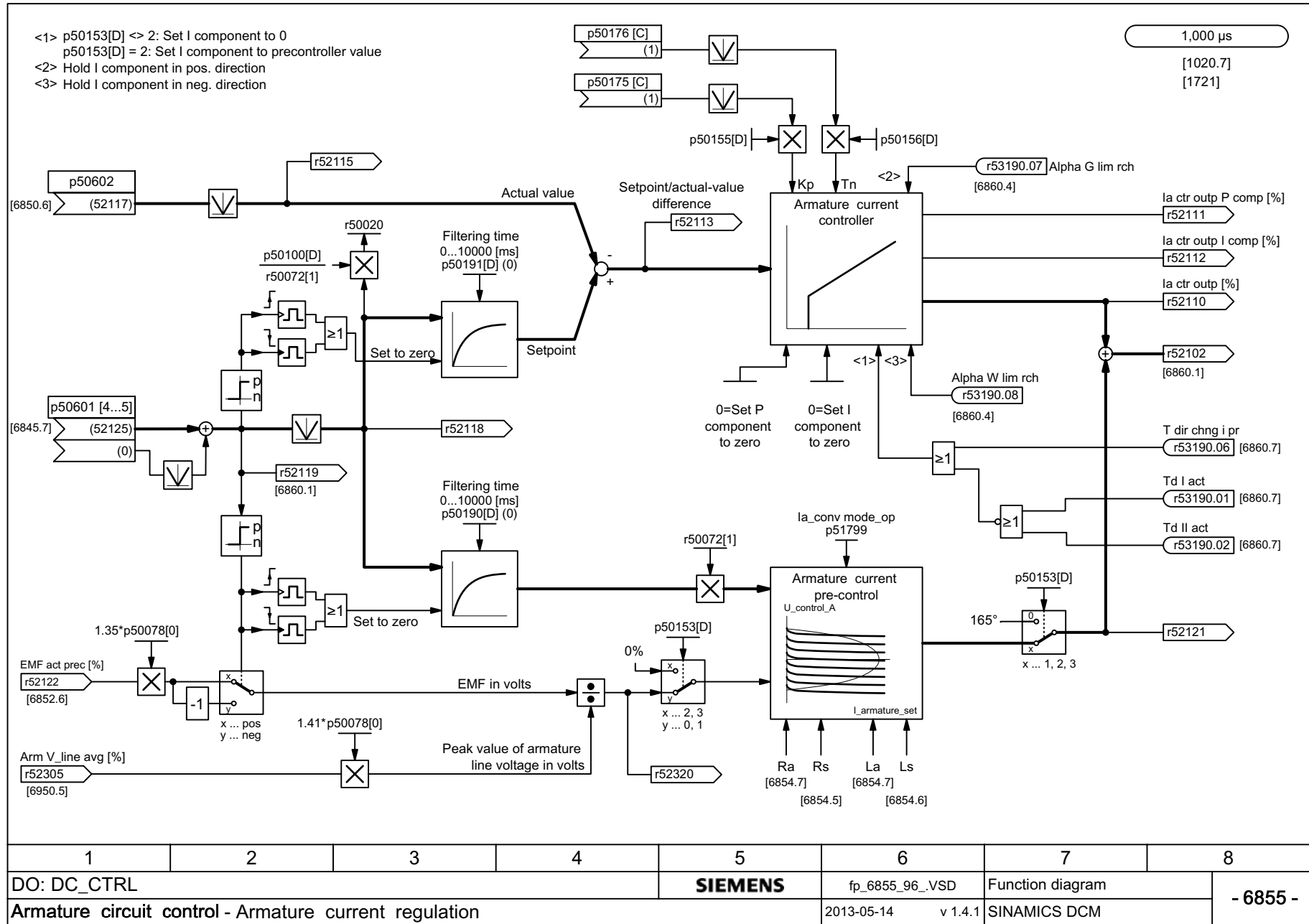
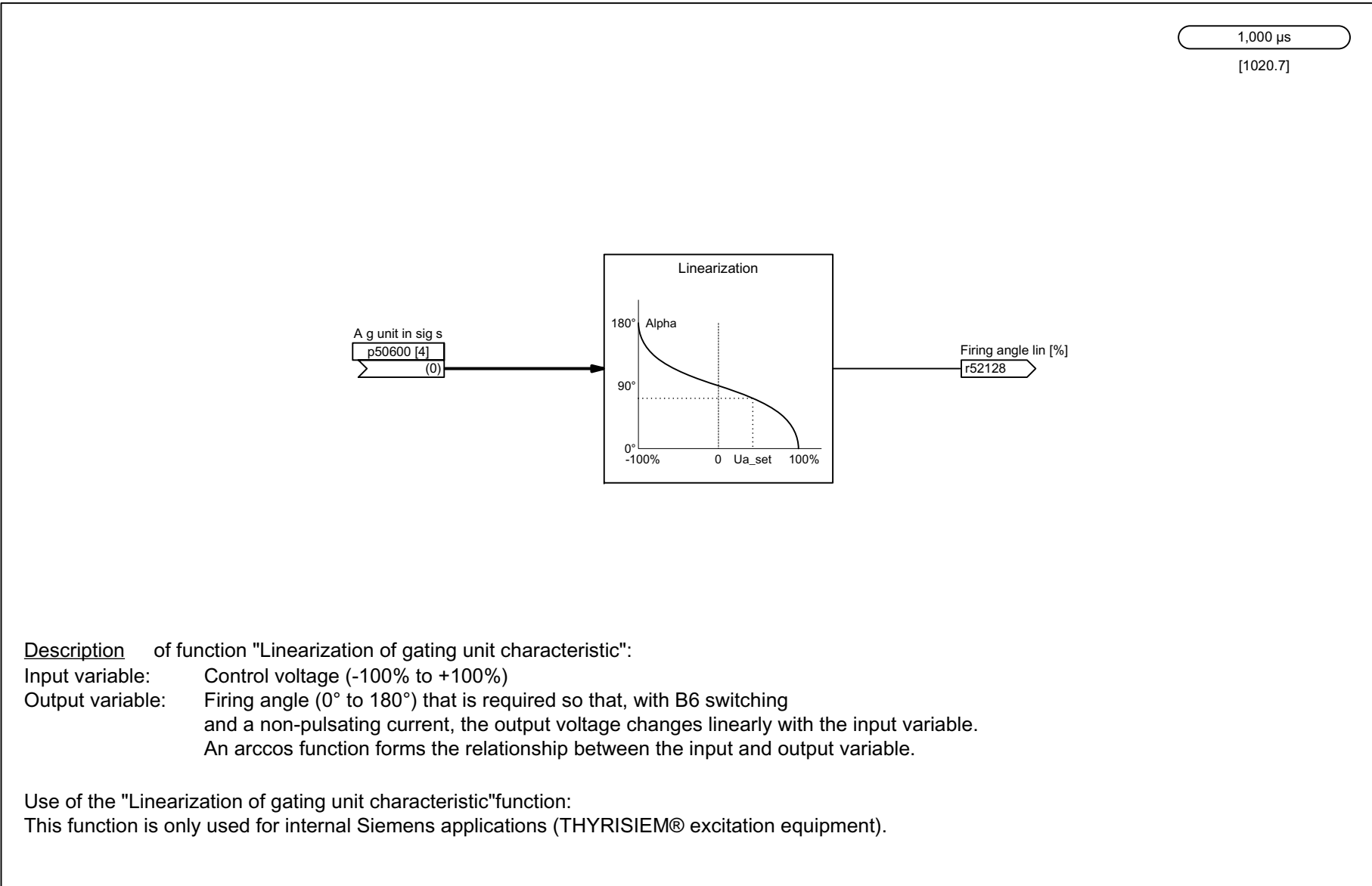


Fig. 3-98 6854 – Armature circuit model parameters

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6854_96_VSD | Function diagram | |
| Armature circuit control - Armature circuit model parameters | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6854 - |

Fig. 3-99 6855 – Armature current regulation





Description of function "Linearization of gating unit characteristic":

Input variable: Control voltage (-100% to +100%)

Output variable: Firing angle (0° to 180°) that is required so that, with B6 switching and a non-pulsating current, the output voltage changes linearly with the input variable. An arccos function forms the relationship between the input and output variable.

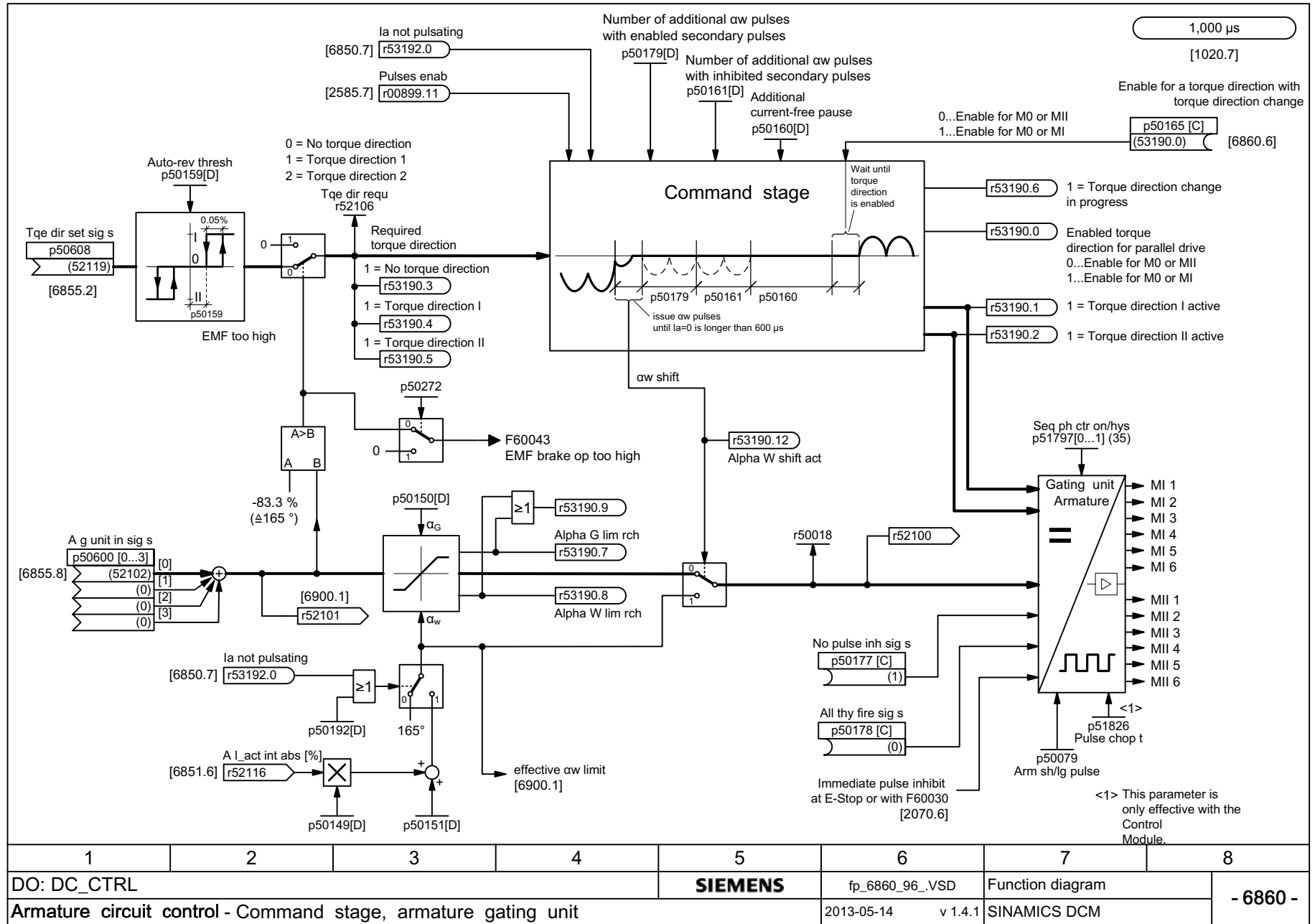
Use of the "Linearization of gating unit characteristic"function:

This function is only used for internal Siemens applications (THYRISIEM® excitation equipment).

| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6858_96_.VSD | Function diagram | |
| Armature circuit control - Gating unit characteristic linearization | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6858 - |

Fig. 3-100 6858 – Gating unit characteristic linearization

Fig. 3-101 6860 – Command stage, armature gating unit



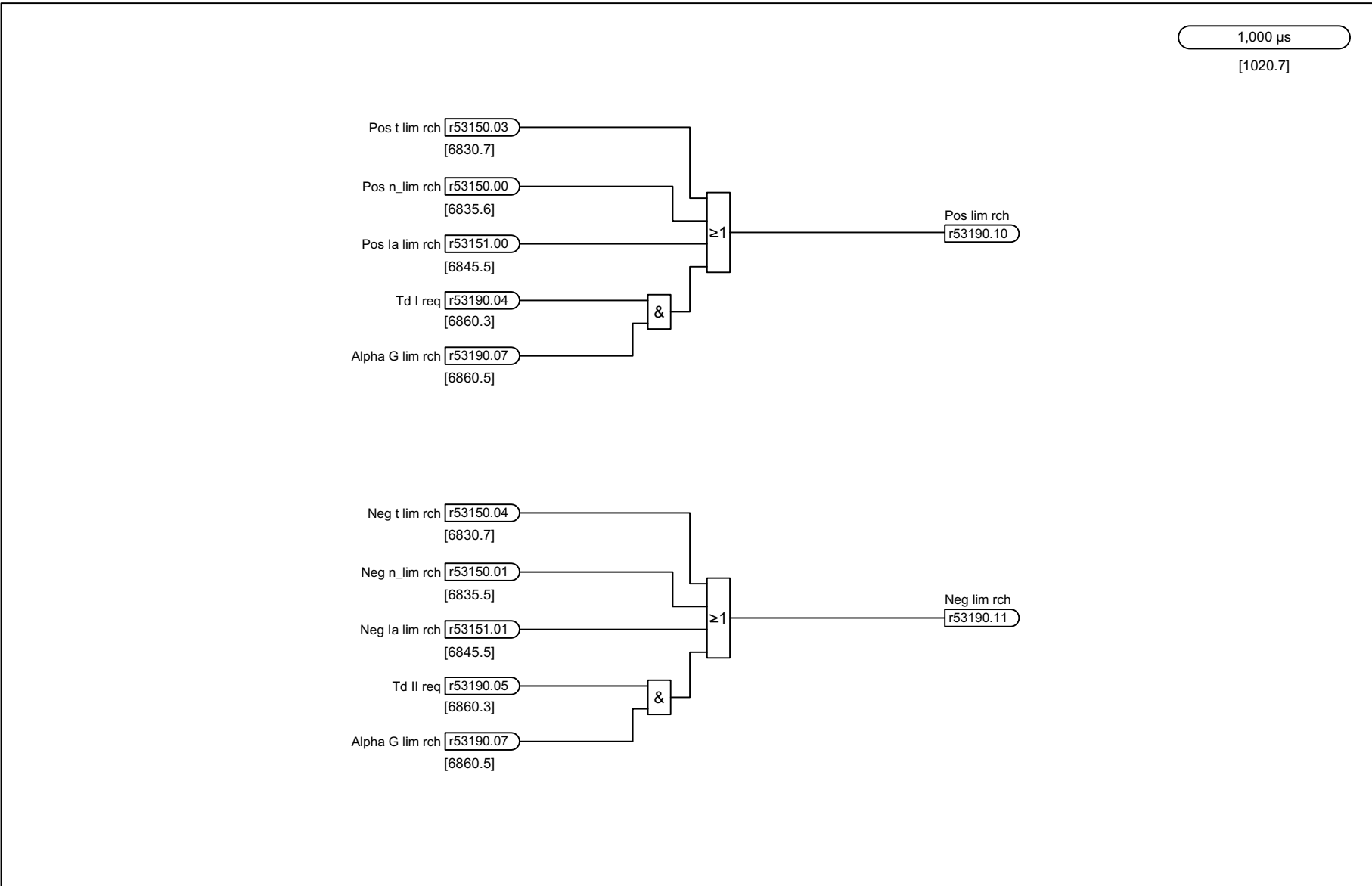
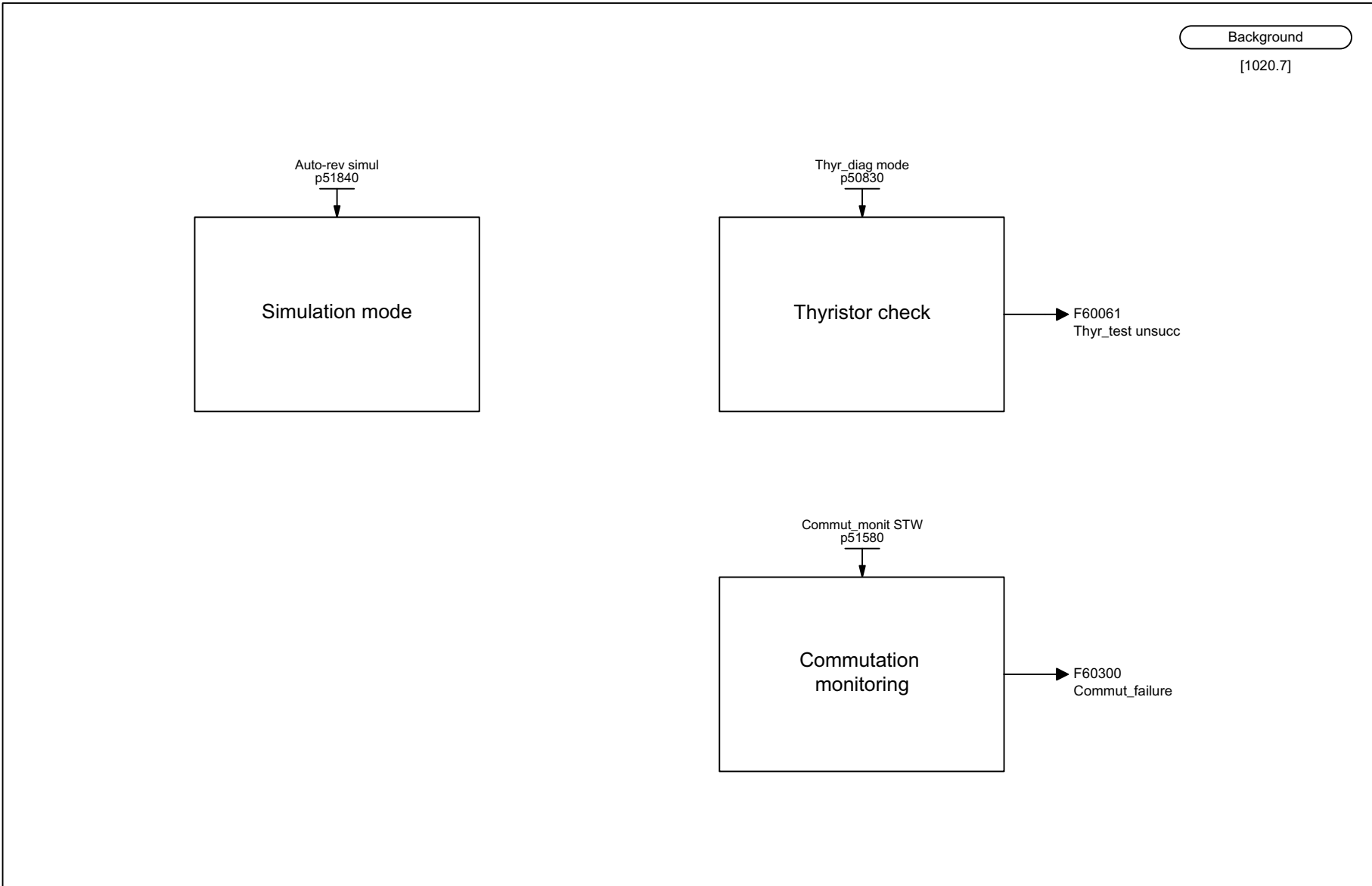


Fig. 3-102 6862 – State limits

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6862_96_VSD | Function diagram | |
| Armature circuit control - State limits | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6862 - |



| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6865_96_.VSD | Function diagram | |
| Armature closed-loop control - Simulation mode/thyristor check/commutation monitoring | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6865 - |

Fig. 3-103 6865 – Simulation mode/thyristor check/commutation monitoring

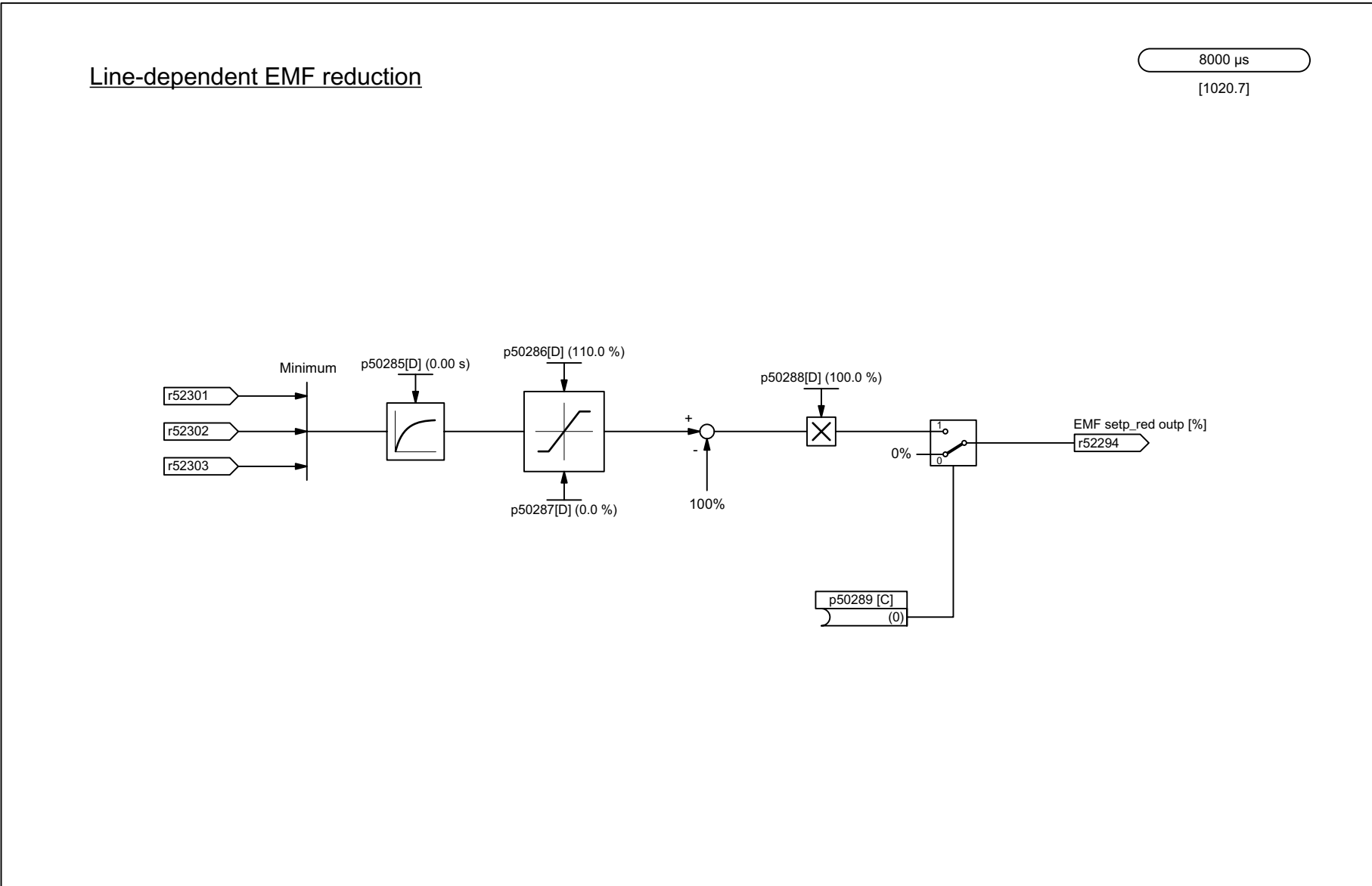


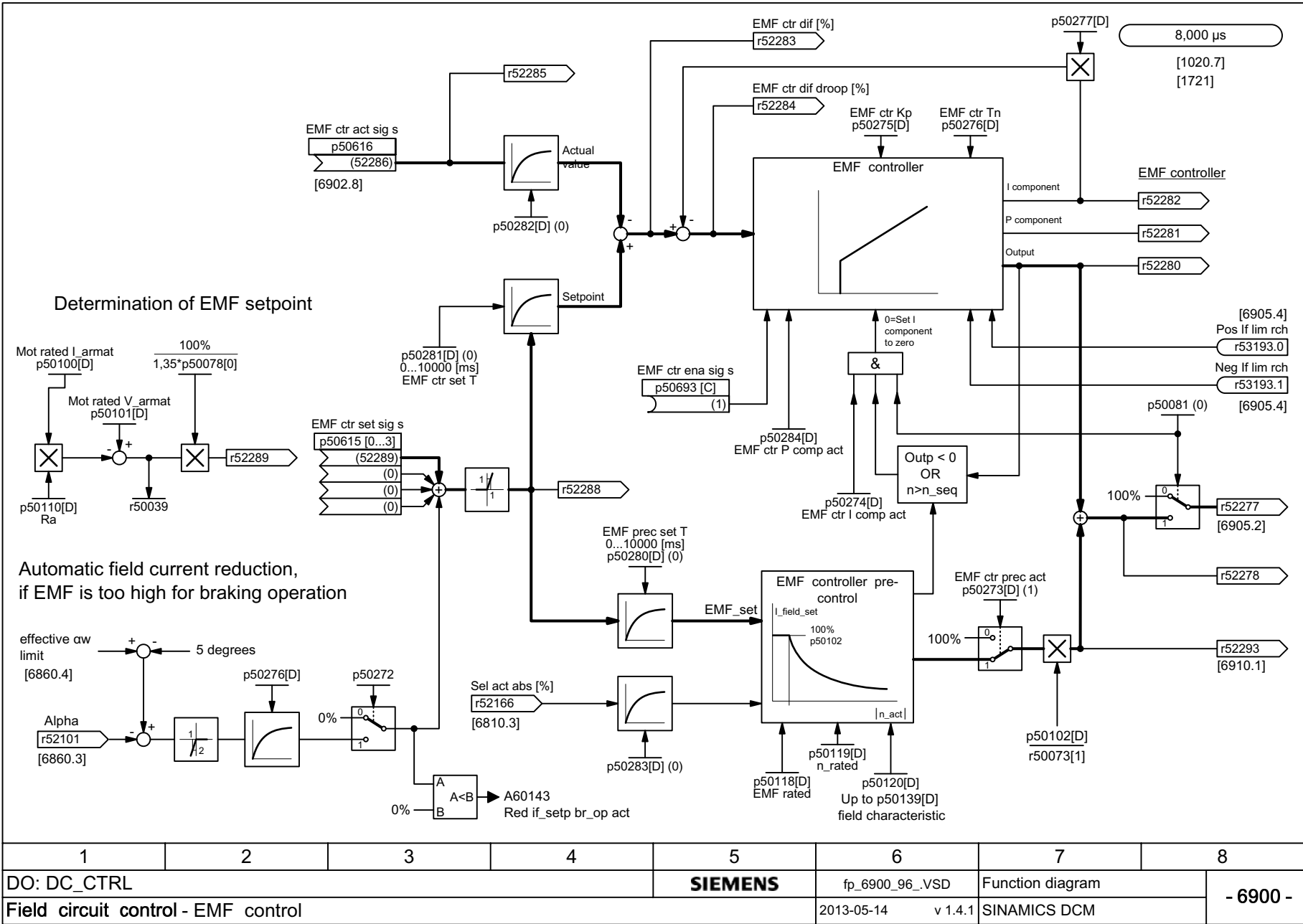
Fig. 3-104 6895 – Line-dependent EMF reduction

| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6895_96_.VSD | Function diagram | |
| Armature circuit control - Line-dependent EMF reduction | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6895 - |

3.13 Field circuit control

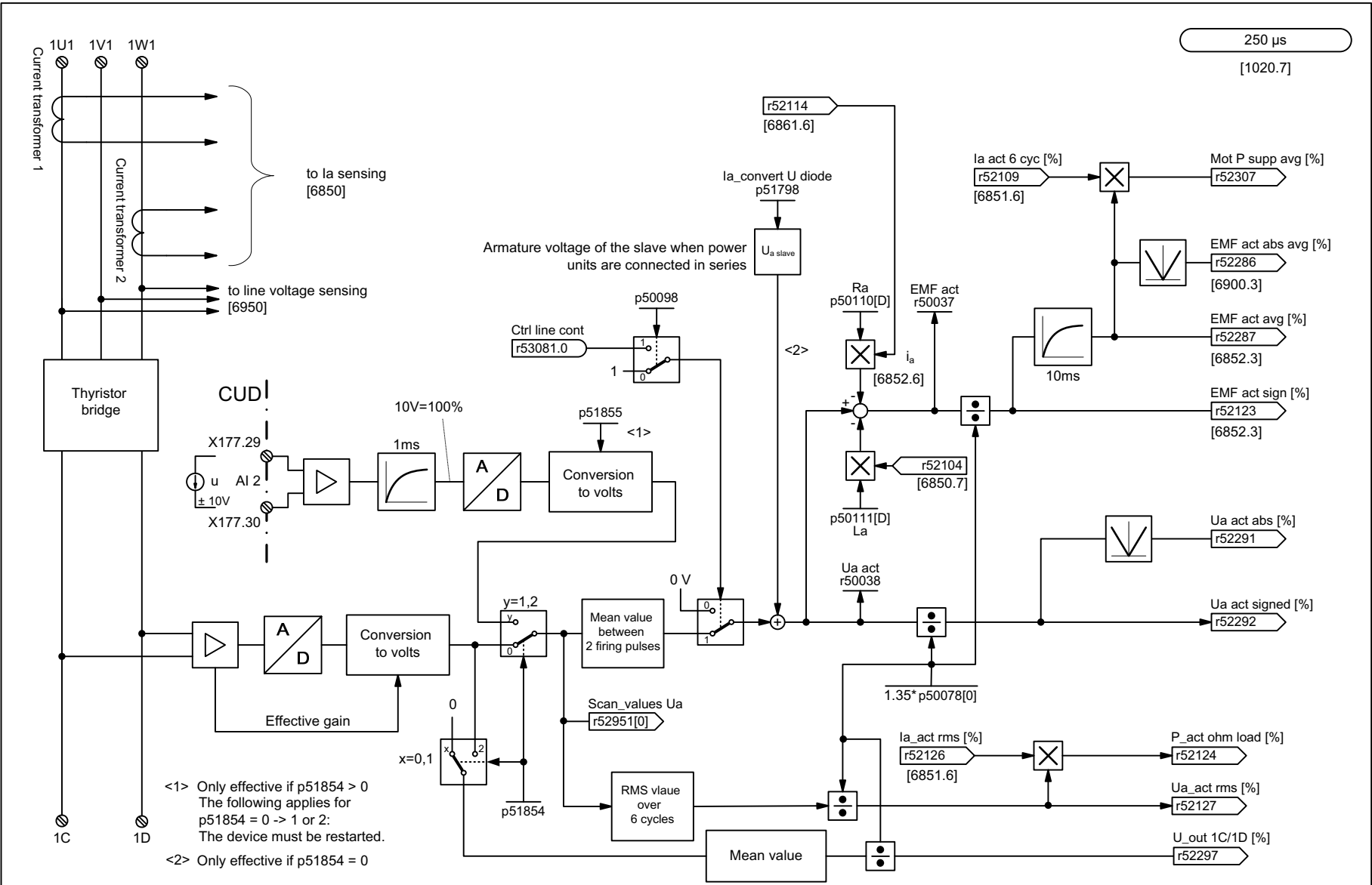
Function diagrams

| | |
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| 6902 – Armature voltage/EMF actual value sensing | 785 |
| 6905 – Field current setpoint limitation | 786 |
| 6908 – Field current controller adaptation | 787 |
| 6910 – Field current regulation | 788 |
| 6912 – Actual field current value sensing | 789 |
| 6915 – Field gating unit | 790 |
| 6920 – Field reversal | 791 |



| | | | | | | | |
|-------------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6900_96_VSD | Function diagram | |
| Field circuit control - EMF control | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6900 - |

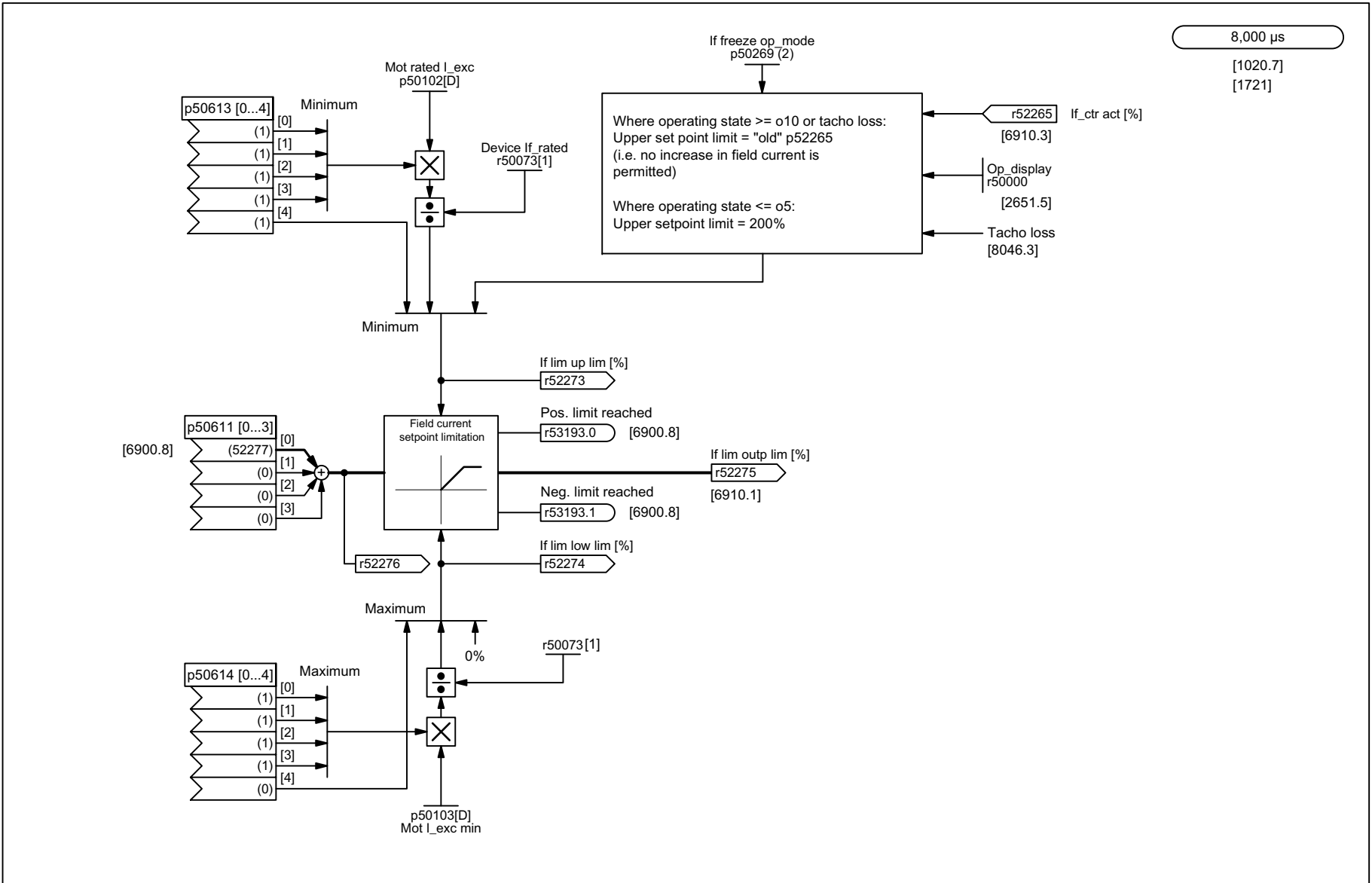
Fig. 3-105 6900 – EMF control



<1> Only effective if p51854 > 0
The following applies for
p51854 = 0 -> 1 or 2:
The device must be restarted.

<2> Only effective if p51854 = 0

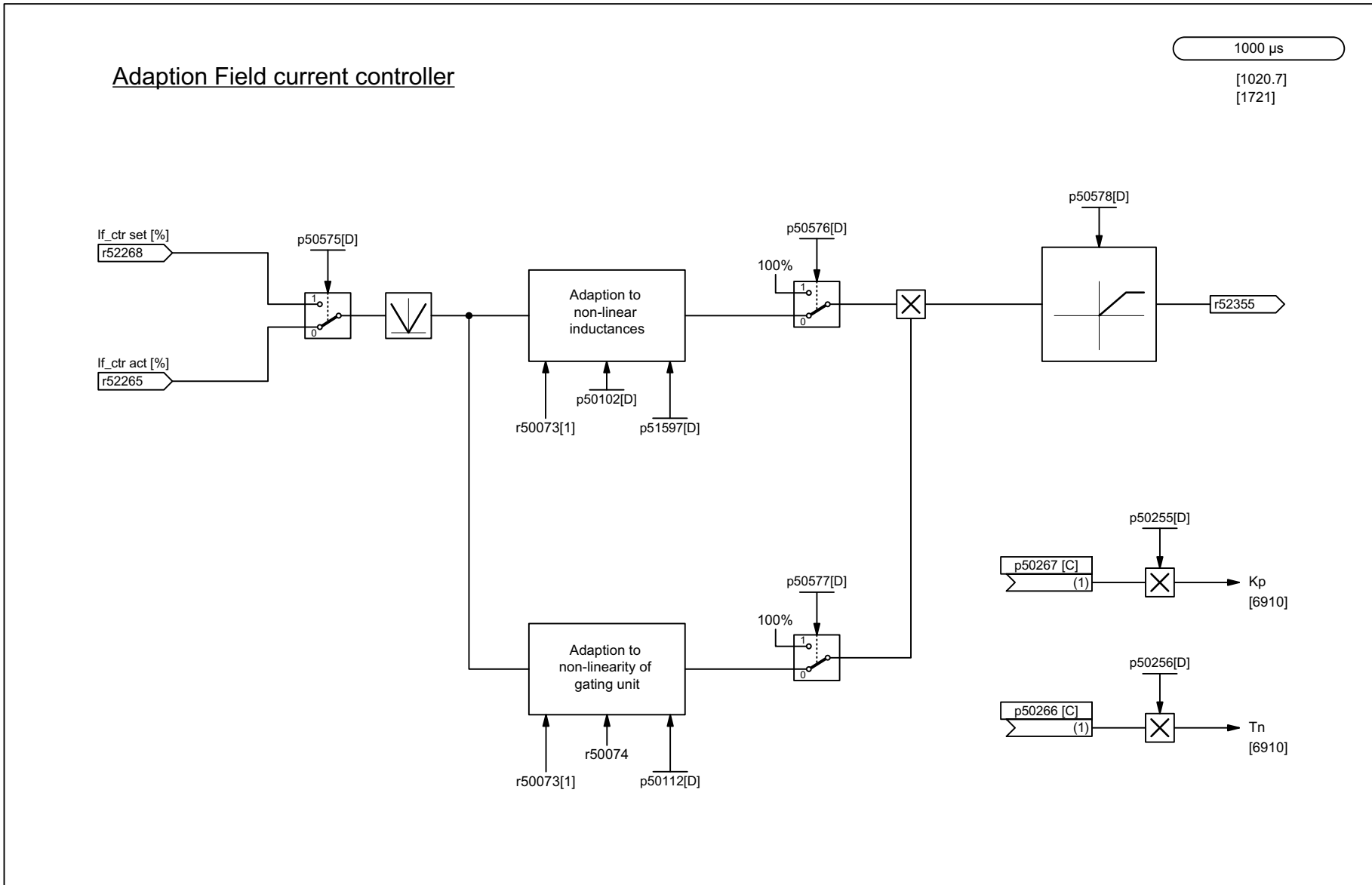
| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6902_96_VSD | Function diagram | |
| Field circuit control - Armature voltage/EMF actual value sensing | | | | 05.02.2015 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6902 - |



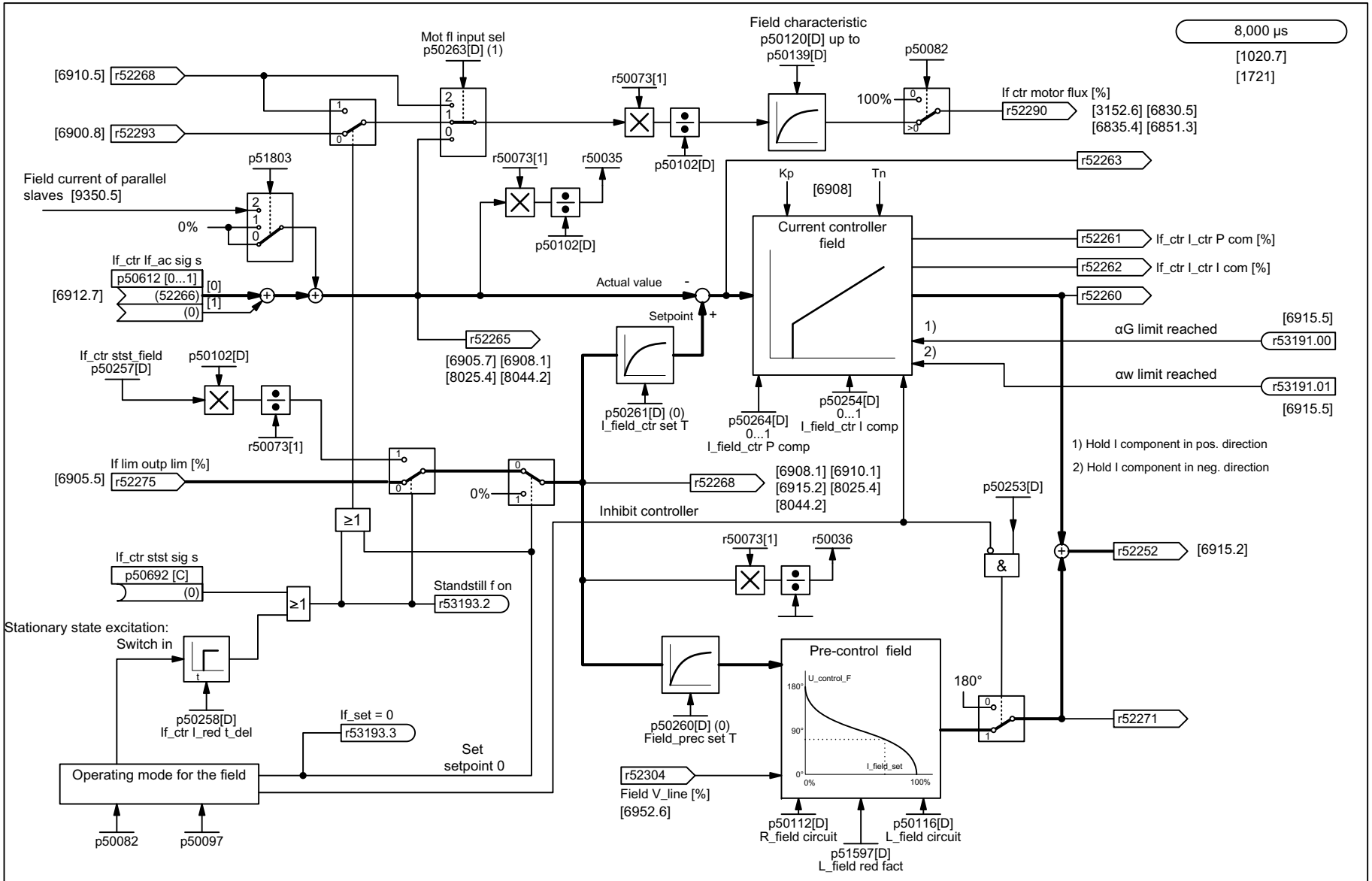
| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6905_96_VSD | Function diagram | |
| Field circuit control - Field current setpoint limitation | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6905 - |

Fig. 3-107 6905 – Field current setpoint limitation

Fig. 3-108 6908 – Field current controller adaptation



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6908_96_VSD | Function diagram | |
| Field circuit control - Field current controller adaption | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6908 - |



| | | | | | | | |
|--|---|---|---|----------------|---|----------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | | fp_6910_96_VSD | |
| Field circuit control - Field current regulation | | | | 14.05.2013 | | v 1.4.1 | |
| Function diagram | | | | | | - 6910 - | |
| SINAMICS DCM | | | | | | SINAMICS DCM | |

Fig. 3-109 6910 – Field current regulation

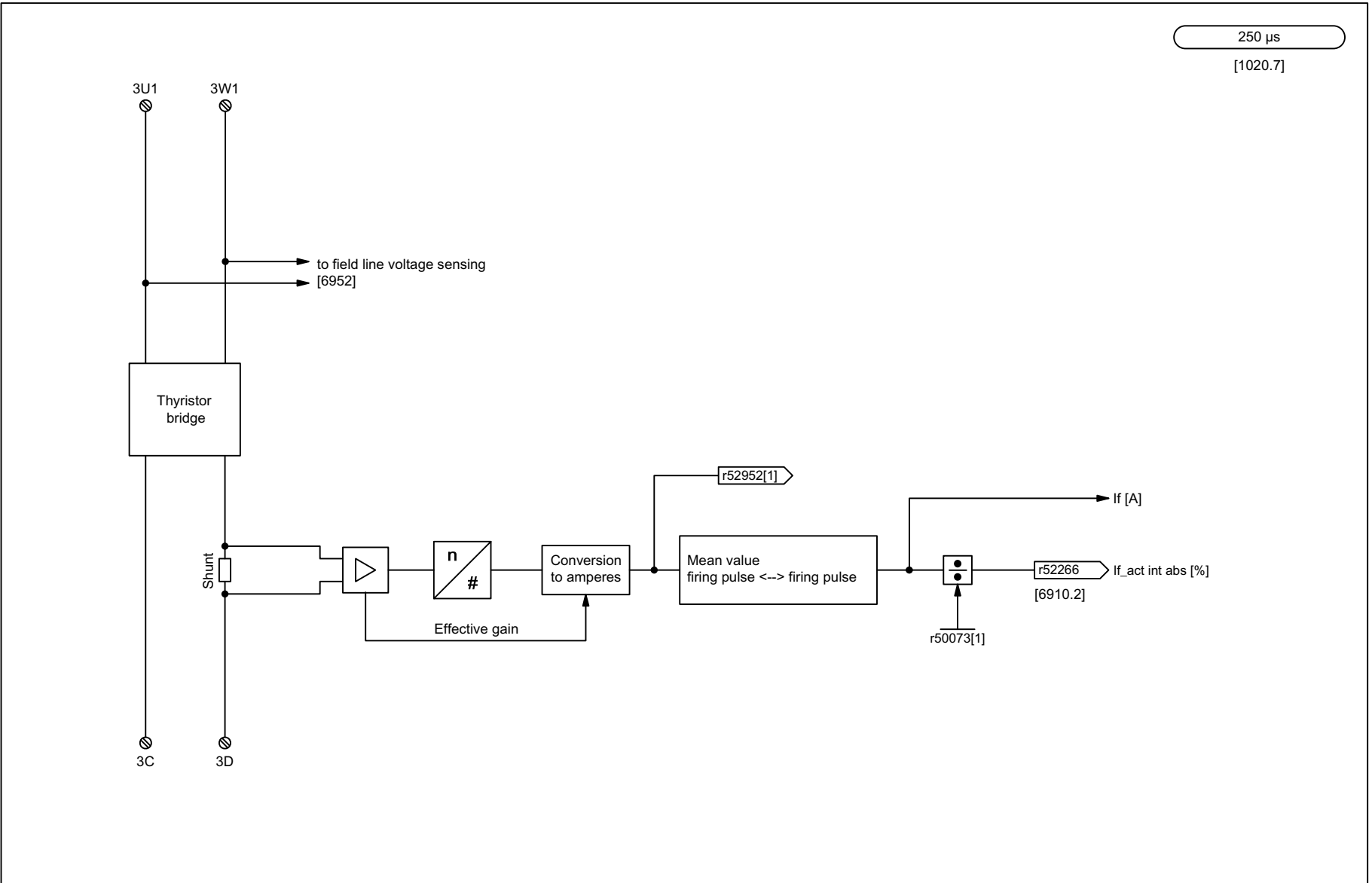


Fig. 3-110 6912 – Actual field current value sensing

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6912_96_VSD | Function diagram | |
| Field circuit control - Actual field current value sensing | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6912 - |

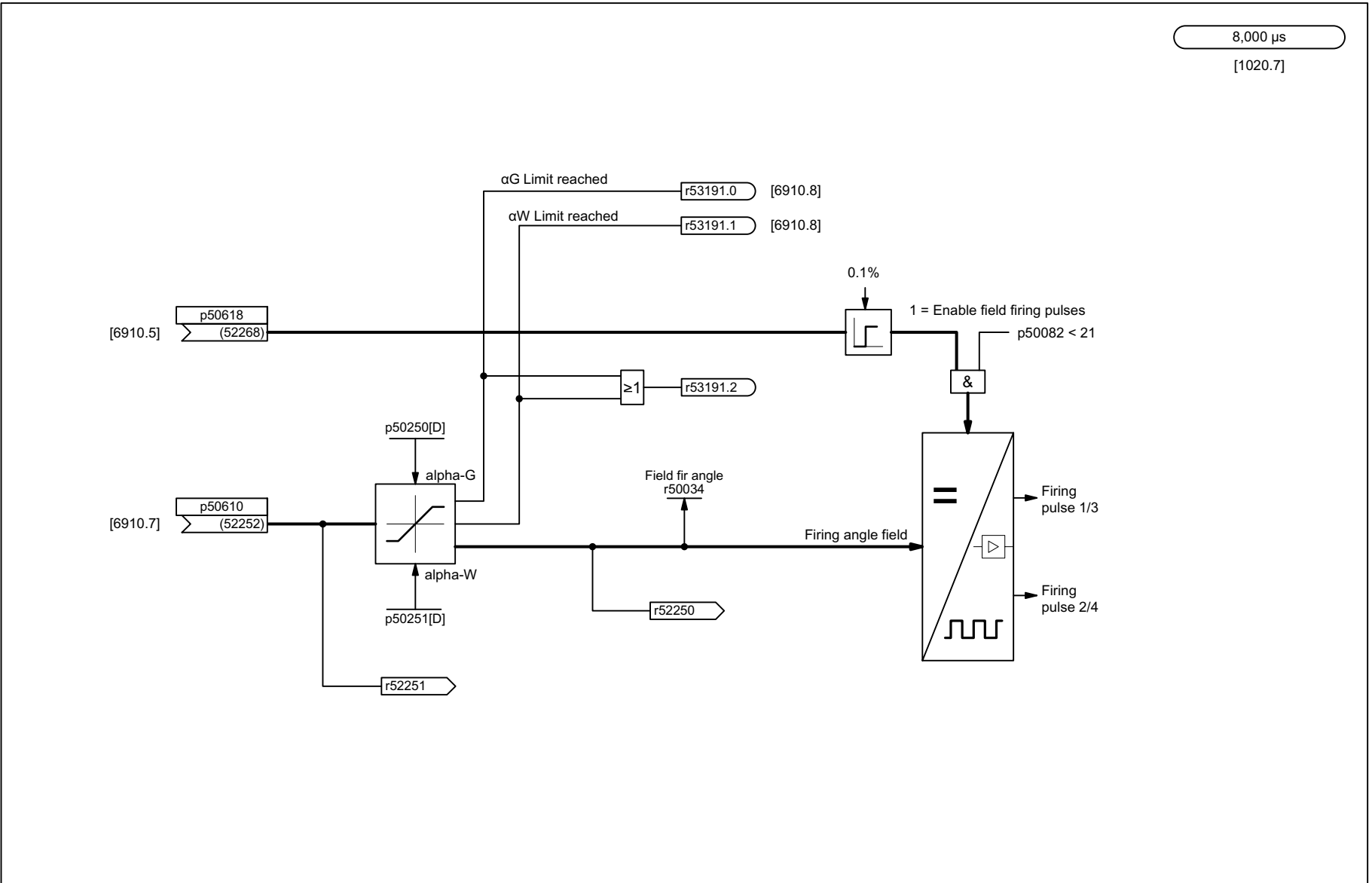
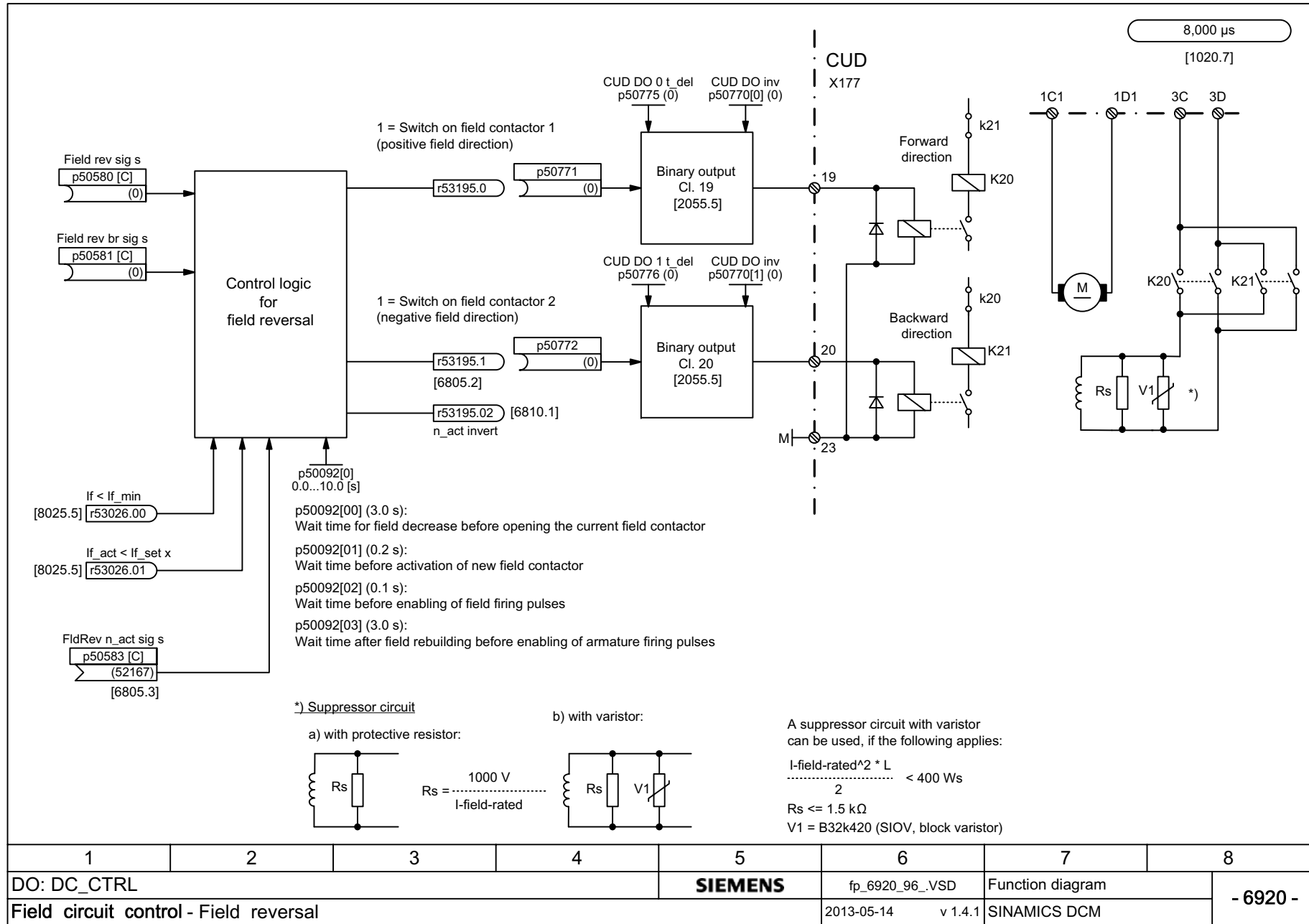


Fig. 3-111 6915 – Field gating unit

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6915_96_VSD | Function diagram | |
| Field circuit control - Field gating unit | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6915 - |

Fig. 3-112 6920 – Field reversal

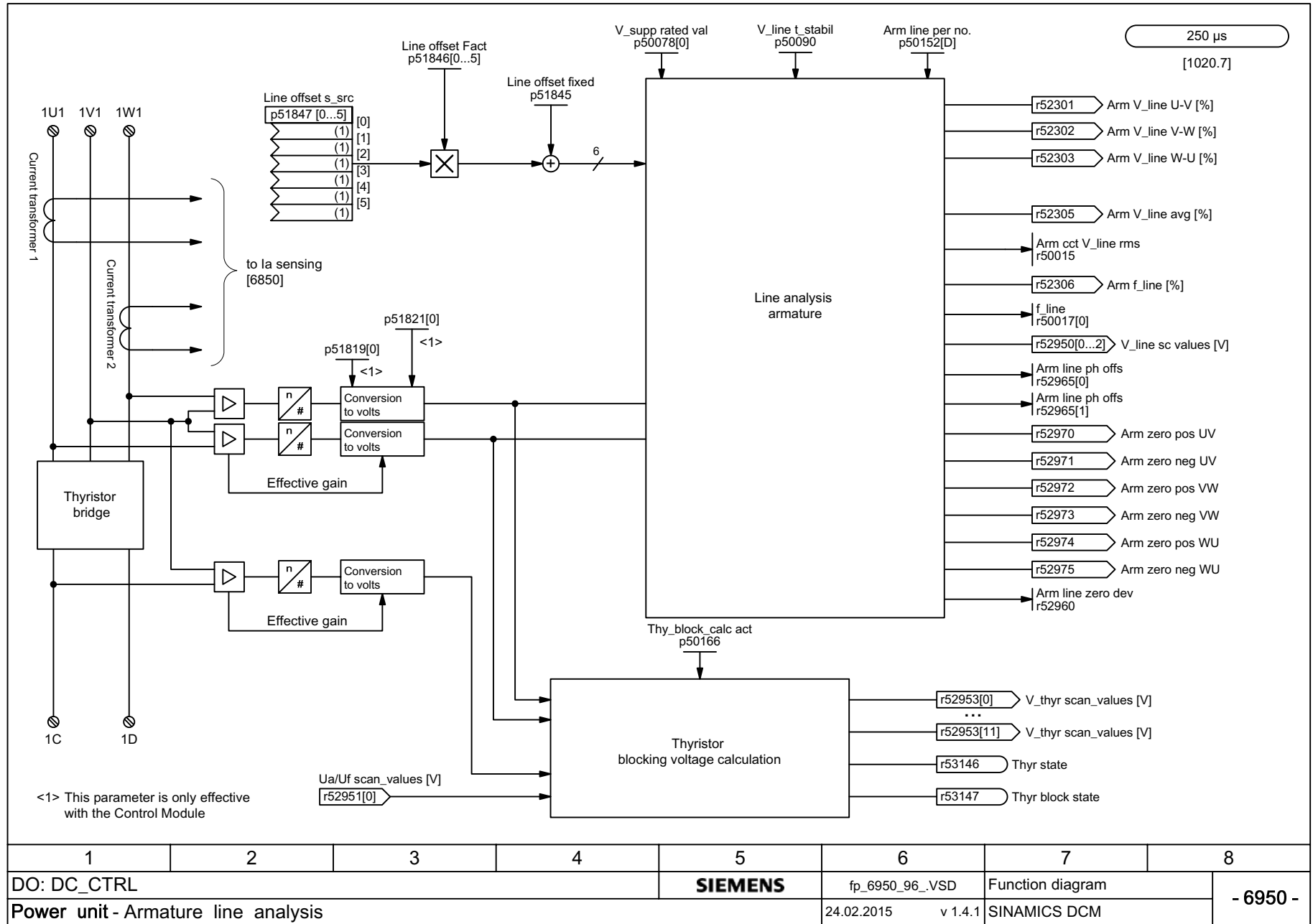


3.14 Power unit

Function diagrams

| | |
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| 6950 – Armature line analysis | 793 |
| 6952 – Field line analysis | 794 |
| 6954 – Line monitoring | 795 |
| 6956 – Fuse monitoring (DC converter) | 796 |
| 6957 – Fuse monitoring (Control Module) | 797 |
| 6960 – Power unit properties | 798 |
| 6965 – Adaptation to external power unit (Control Module) | 799 |
| 6970 – Converter Commutation Protector (CCP) | 800 |

Fig. 3-113 6950 – Armature line analysis



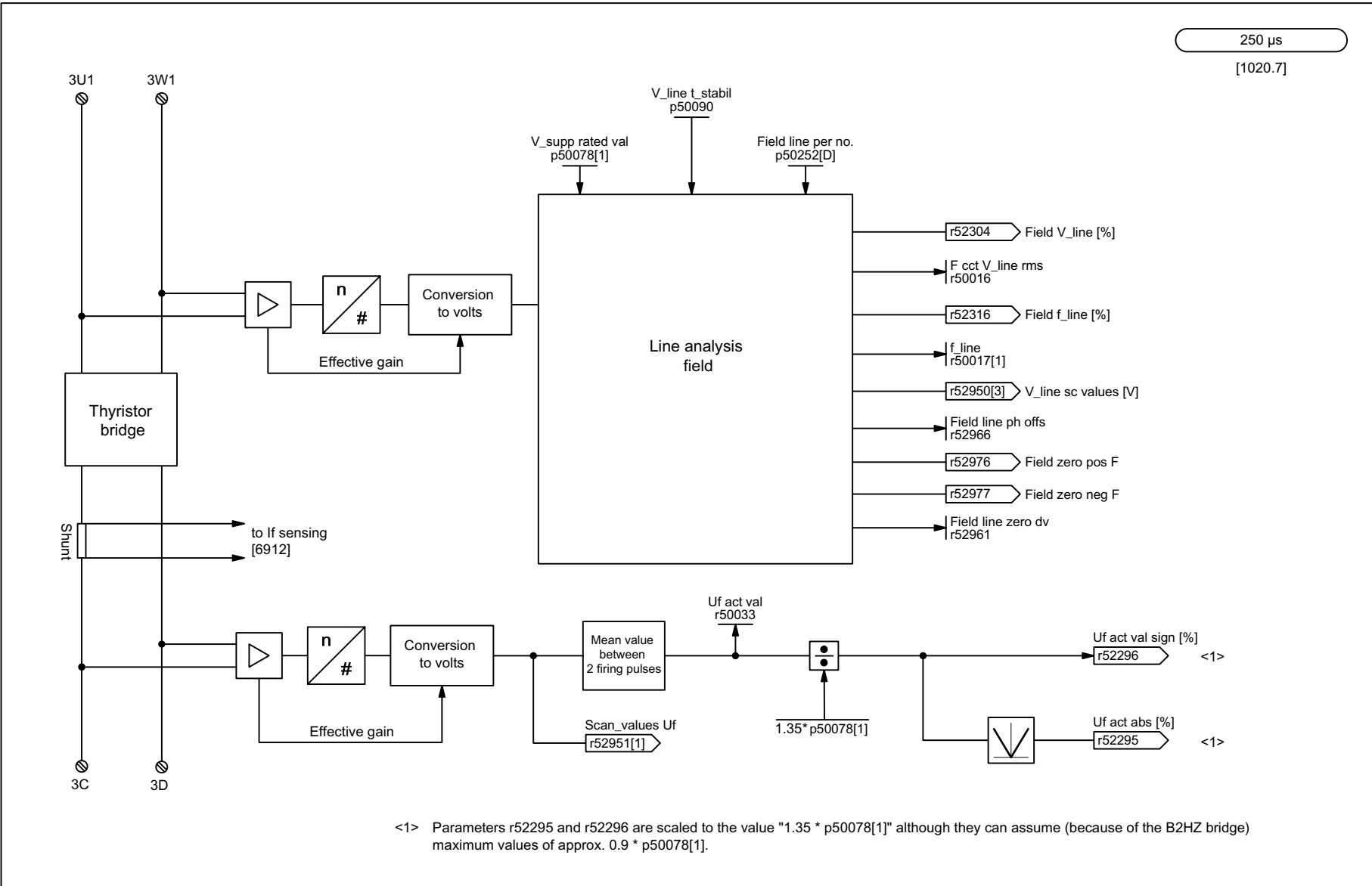
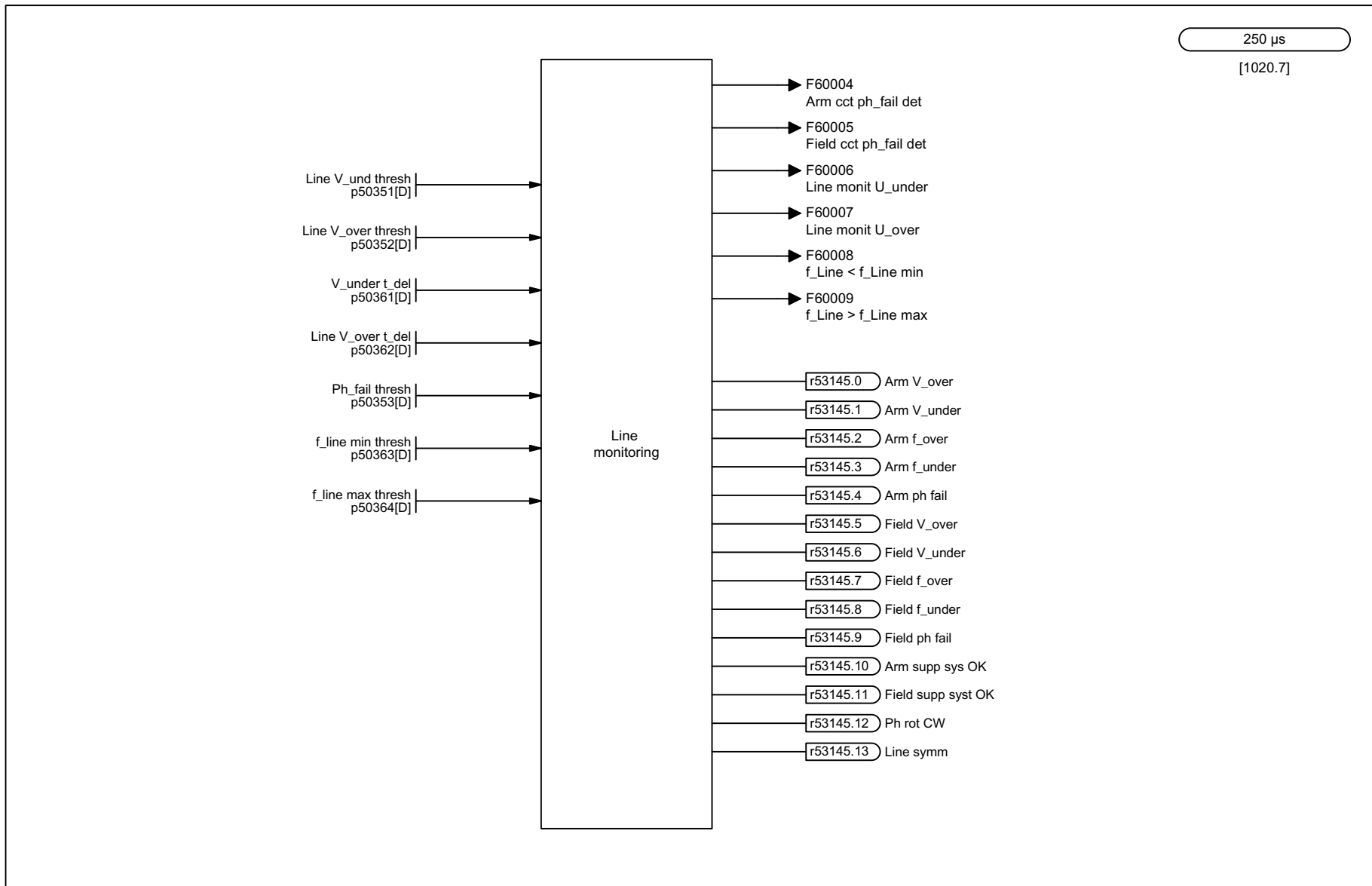


Fig. 3-114 6952 – Field line analysis

| | | | | | | | |
|----------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6952_96_VSD | Function diagram | |
| Power unit - Field line analysis | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6952 - |



| | | | | | | | |
|------------------------------|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6954_96_VSD | Function diagram | |
| Power unit - Line monitoring | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6954 - |

Fig. 3-115 6954 – Line monitoring

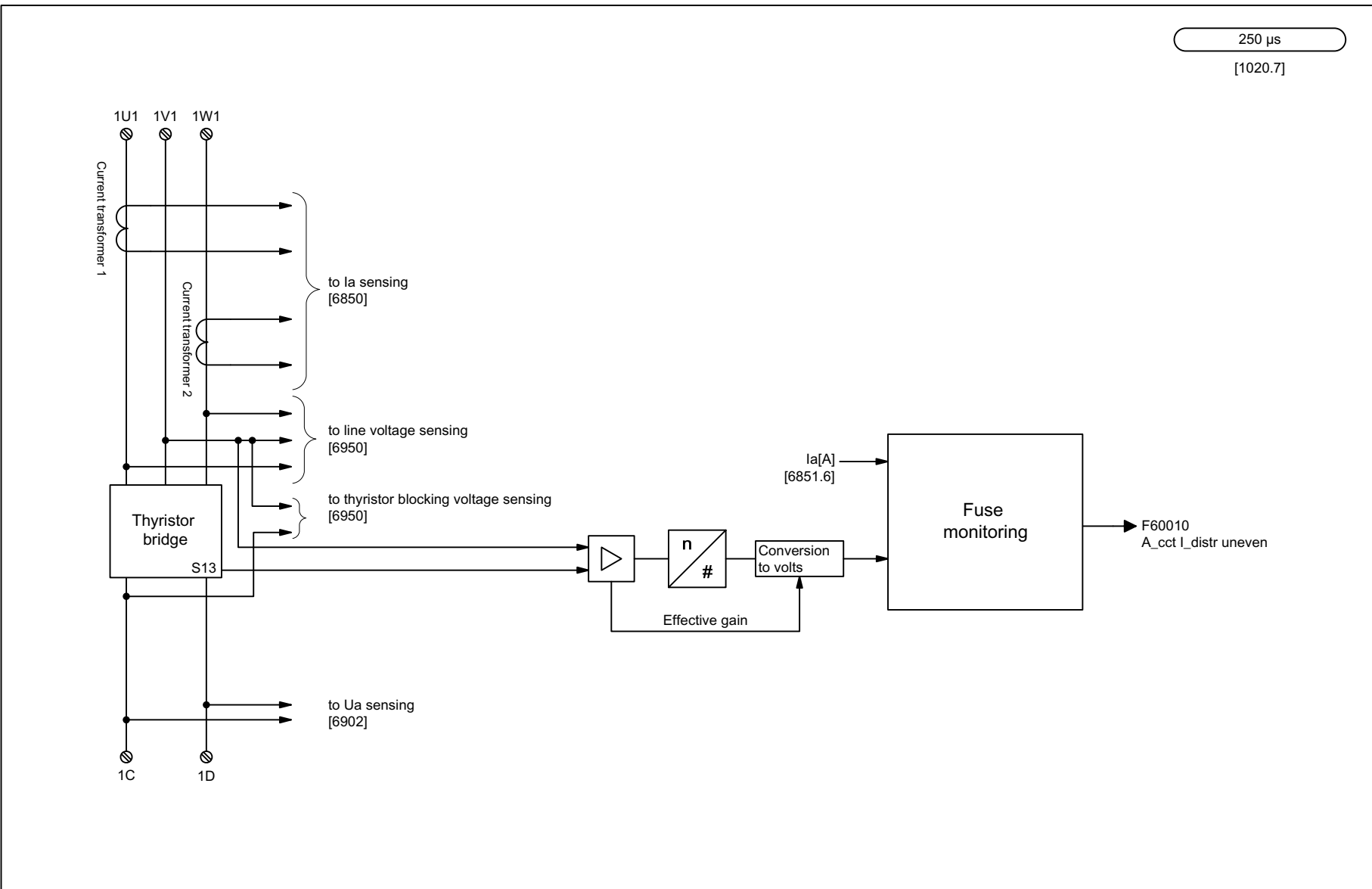
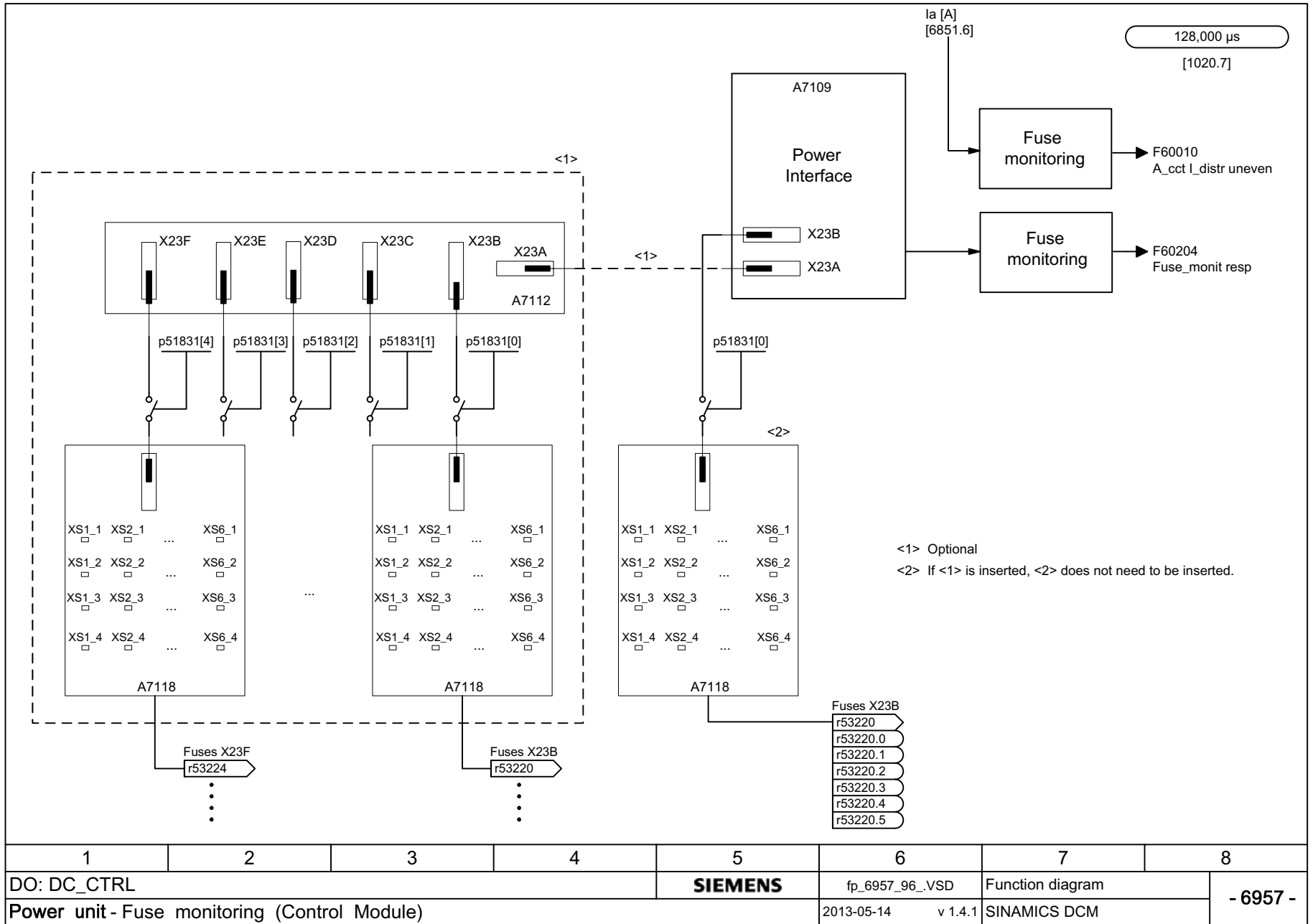
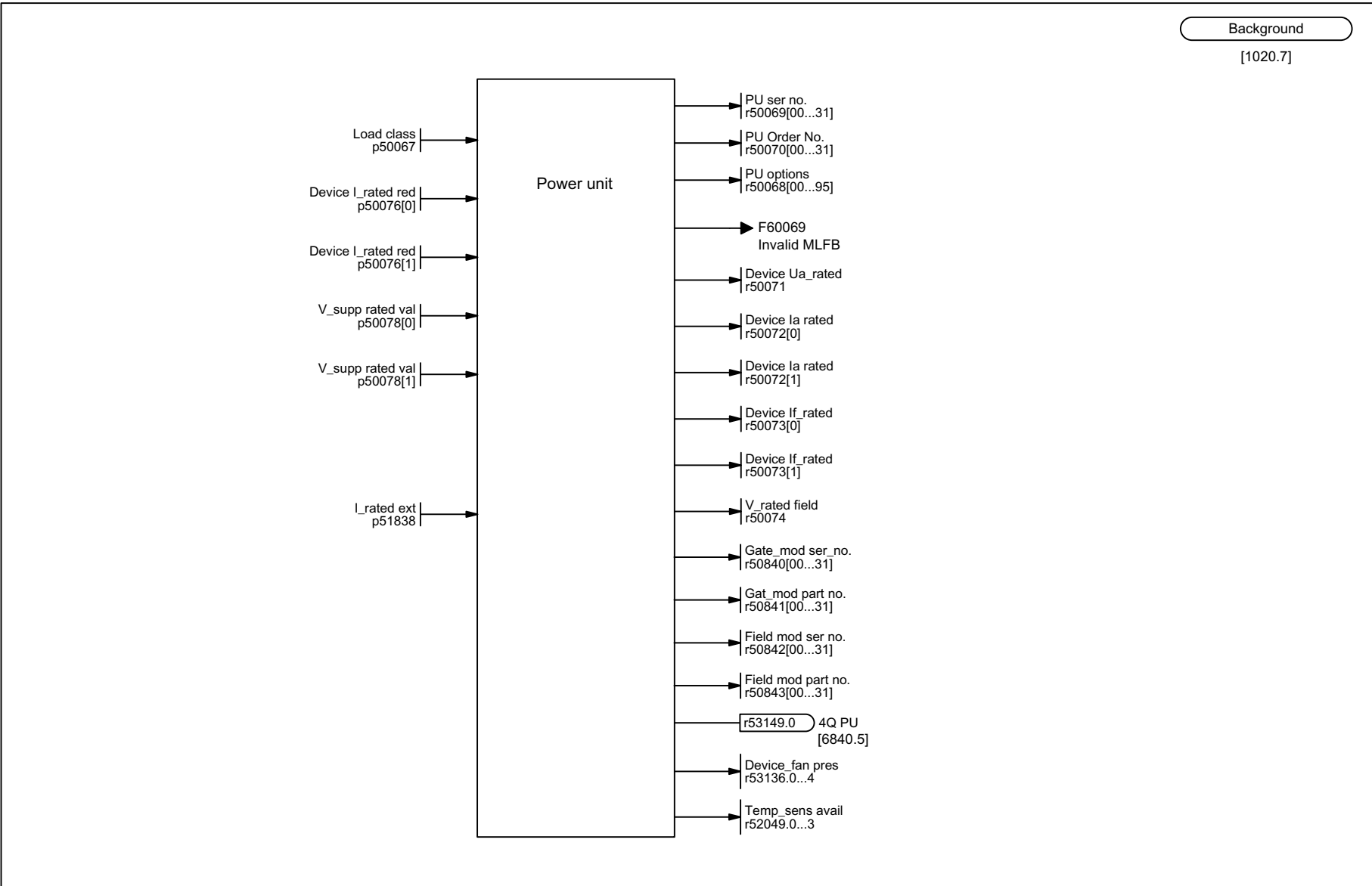


Fig. 3-116 6956 – Fuse monitoring (DC converter)

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6956_96_VSD | Function diagram | |
| Power unit - Fuse monitoring (DC converter) | | | | 05.02.2015 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6956 - |

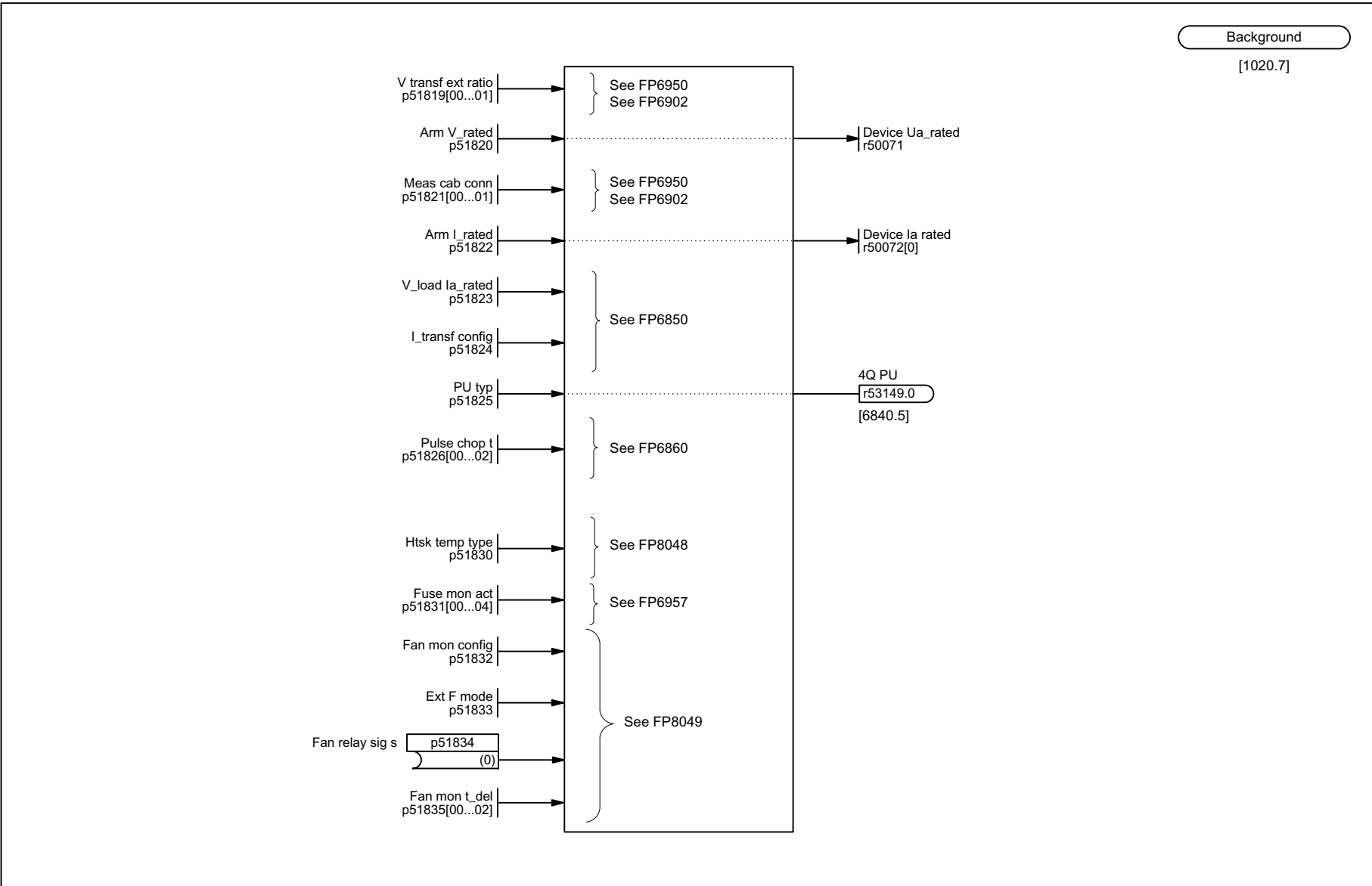
Fig. 3-117 6957 – Fuse monitoring (Control Module)





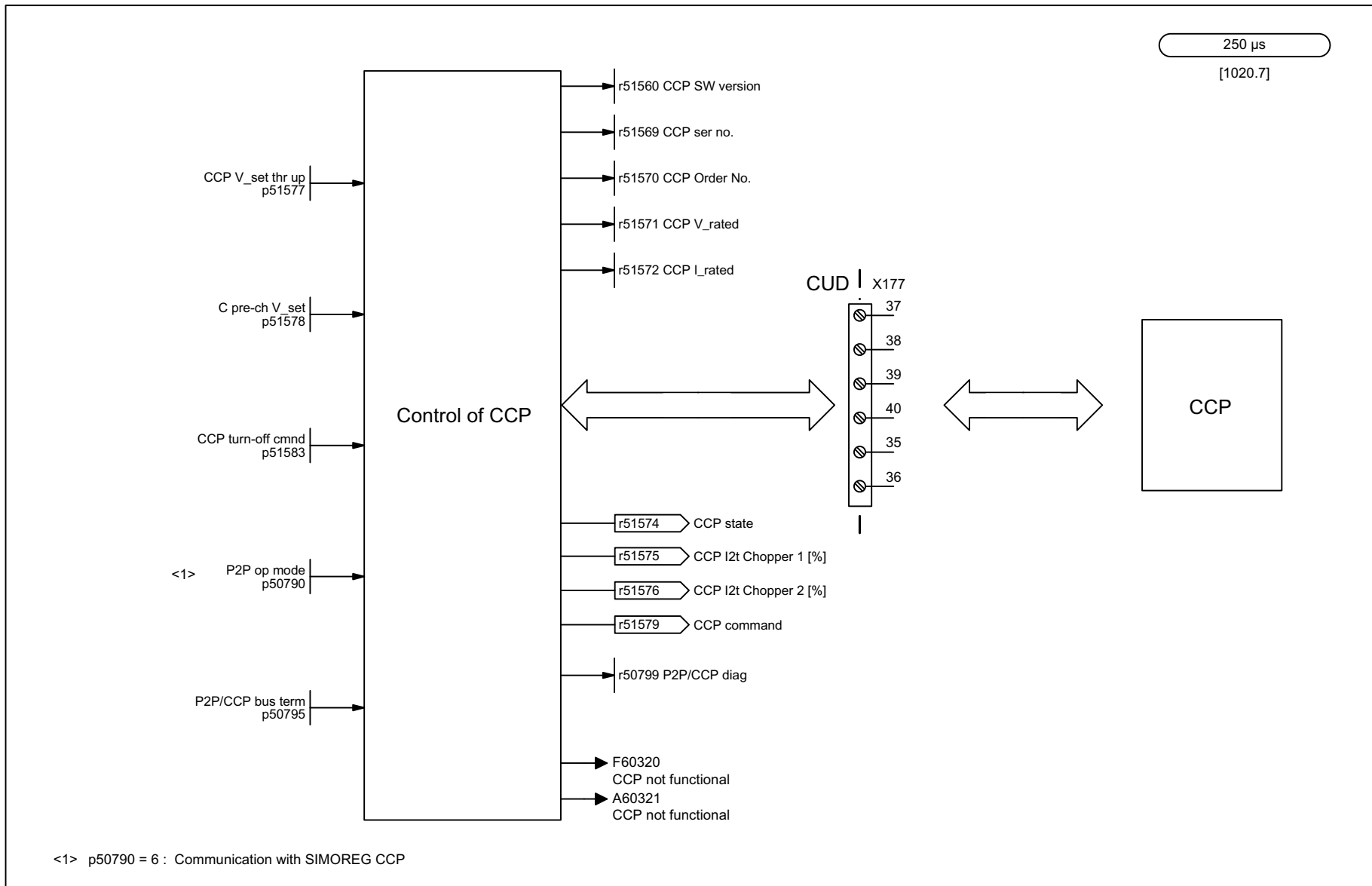
| | | | | | | | |
|------------------------------------|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6960_96_VSD | Function diagram | |
| Power unit - Power unit properties | | | | | 05.02.2015 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6960 - |

Fig. 3-118 6960 – Power unit properties



| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6965_96_.VSD | Function diagram | |
| Power unit - Adaptation to external power unit (Control Module) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 6965 - |

Fig. 3-119 6965 – Adaptation to external power unit (Control Module)



| | | | | | | | |
|--|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_6970_96_.VSD | Function diagram | |
| Power unit - Converter Commutation Protector (CCP) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 6970 - |

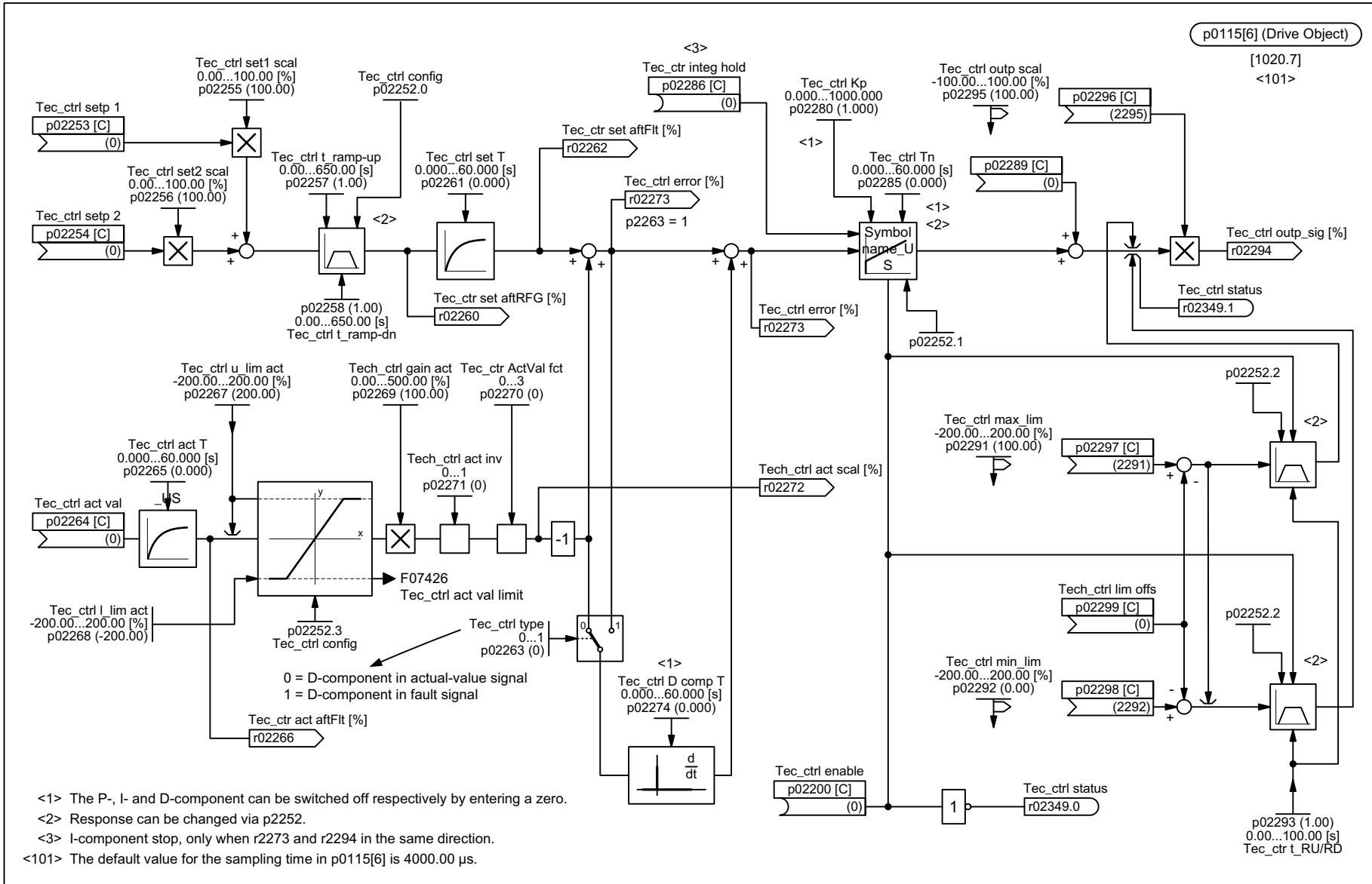
Fig. 3-120 6970 – Converter Commutation Protector (CCP)

3.15 Technology controller

Function diagrams

7958 – Control (r0108.16 = 1)

802



| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_7958_96_VSD | Function diagram | |
| Technology controller - Control (r0108.16 = 1) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |

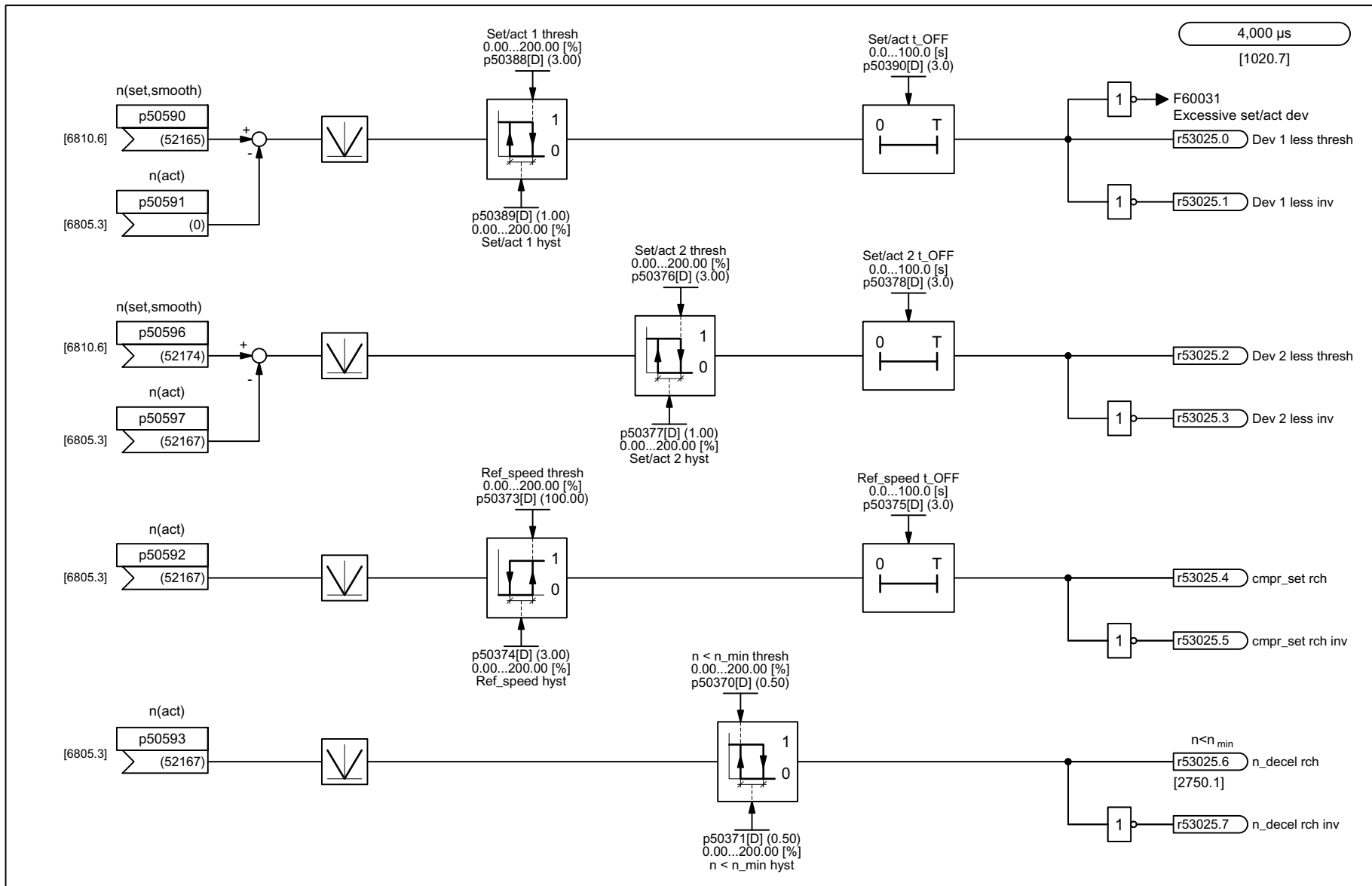
- 7958 -

Fig. 3-121 7958 - Control (r0108.16 = 1)

3.16 Signals and monitoring functions

Function diagrams

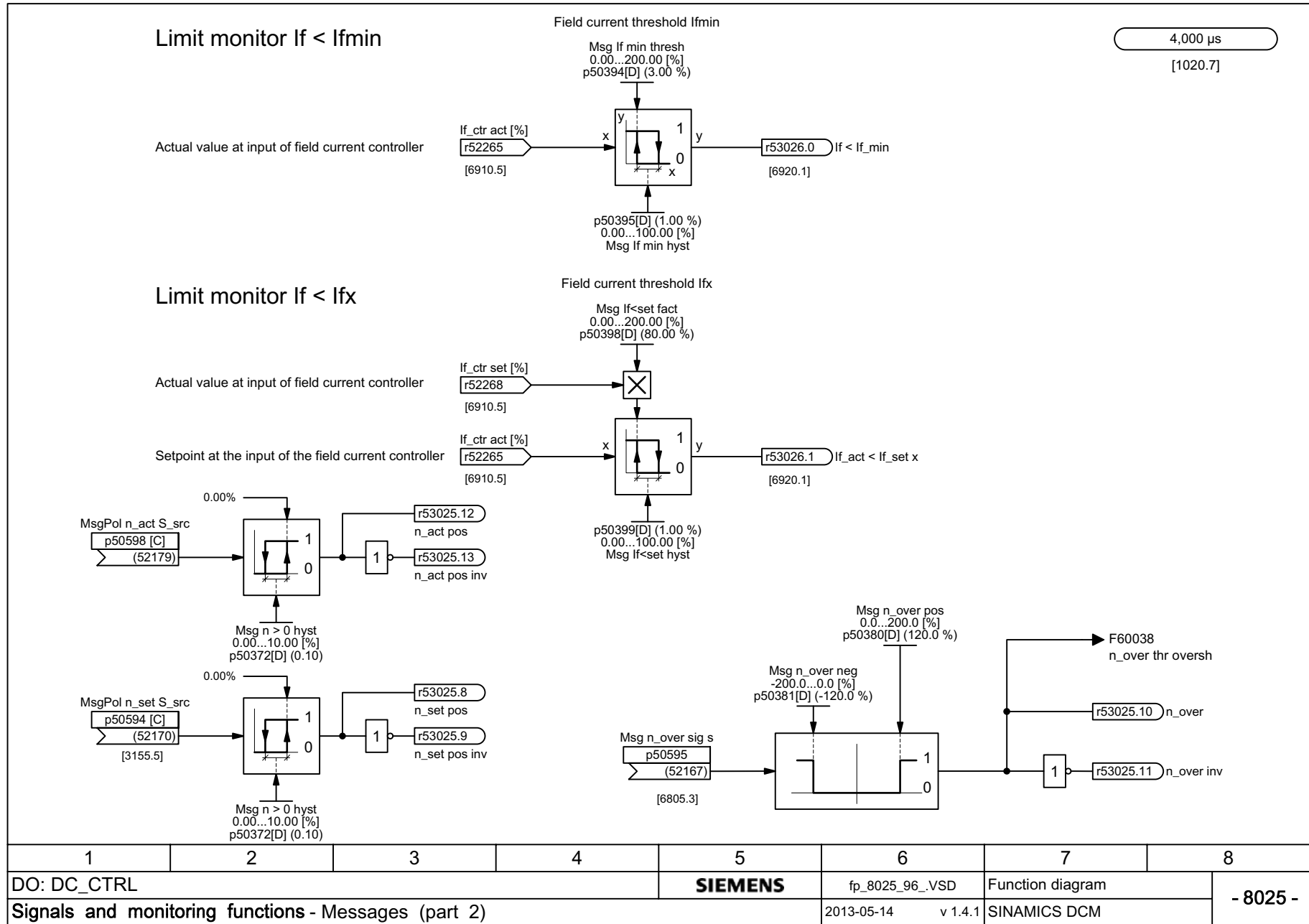
| | |
|--|-----|
| 8020 – Messages (part 1) | 804 |
| 8025 – Messages (part 2) | 805 |
| 8030 – Motor interface (part 1, X177.53/54/55) | 806 |
| 8035 – Motor interface (part 2) | 807 |
| 8038 – I2t monitoring, motor | 808 |
| 8040 – Speed-dependent current limitation | 809 |
| 8042 – Power unit I2t monitoring | 810 |
| 8044 – Field current monitoring | 811 |
| 8045 – Device fan, operating hours counter | 812 |
| 8046 – Blocking protection/tacho loss monitoring | 813 |
| 8047 – Device fan (DC Converter) | 814 |
| 8048 – Device-internal monitoring functions | 815 |
| 8049 – Device fan (Control Module) | 816 |
| 8050 – Trend recorder function | 817 |
| 8052 – Diagnostic memory | 818 |
| 8054 – Internal diagnostics | 819 |

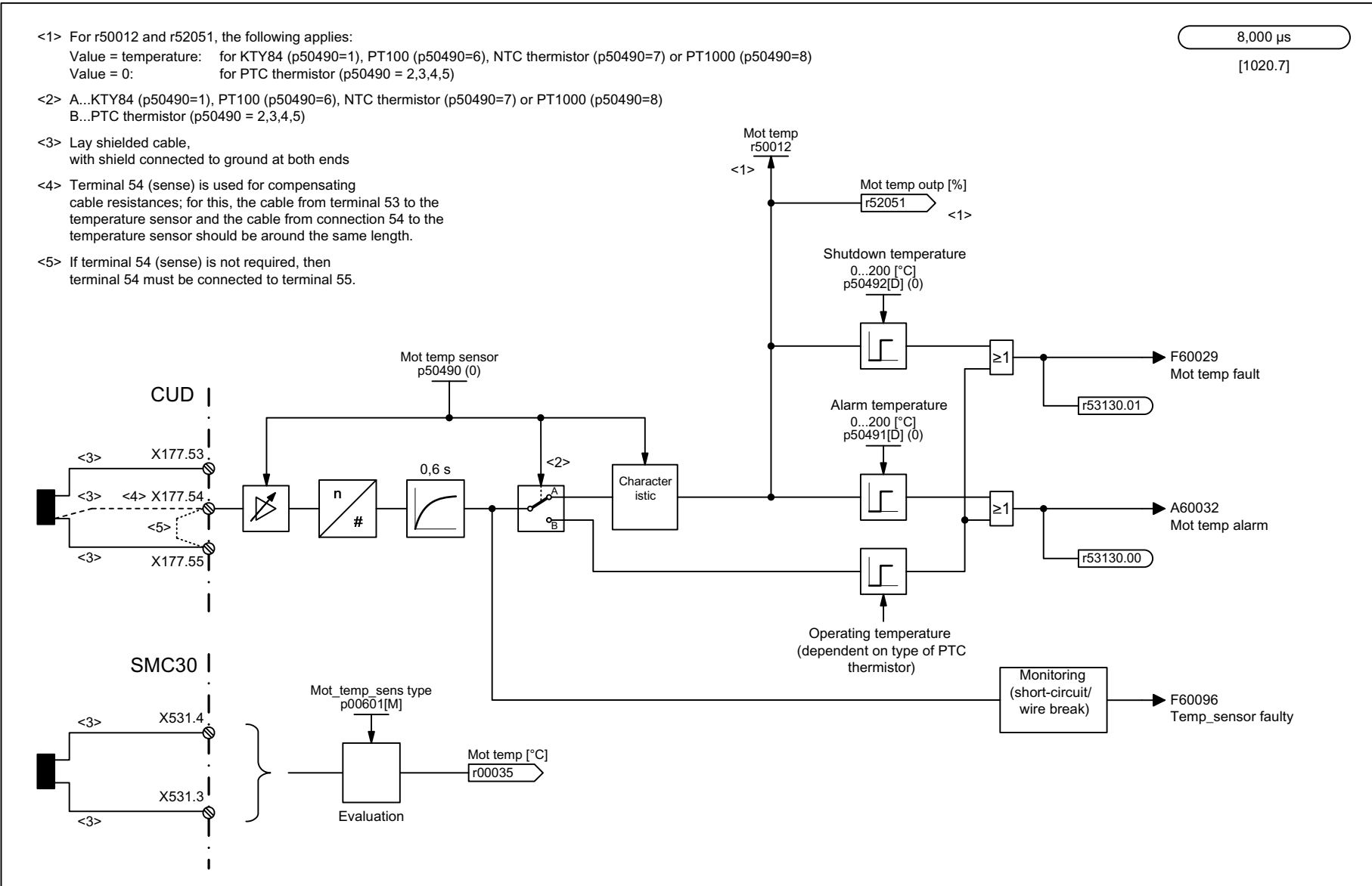


| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8020_96_VSD | Function diagram | |
| Signals and monitoring functions - Messages (part 1) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8020 - |

Fig. 3-122 8020 – Messages (part 1)

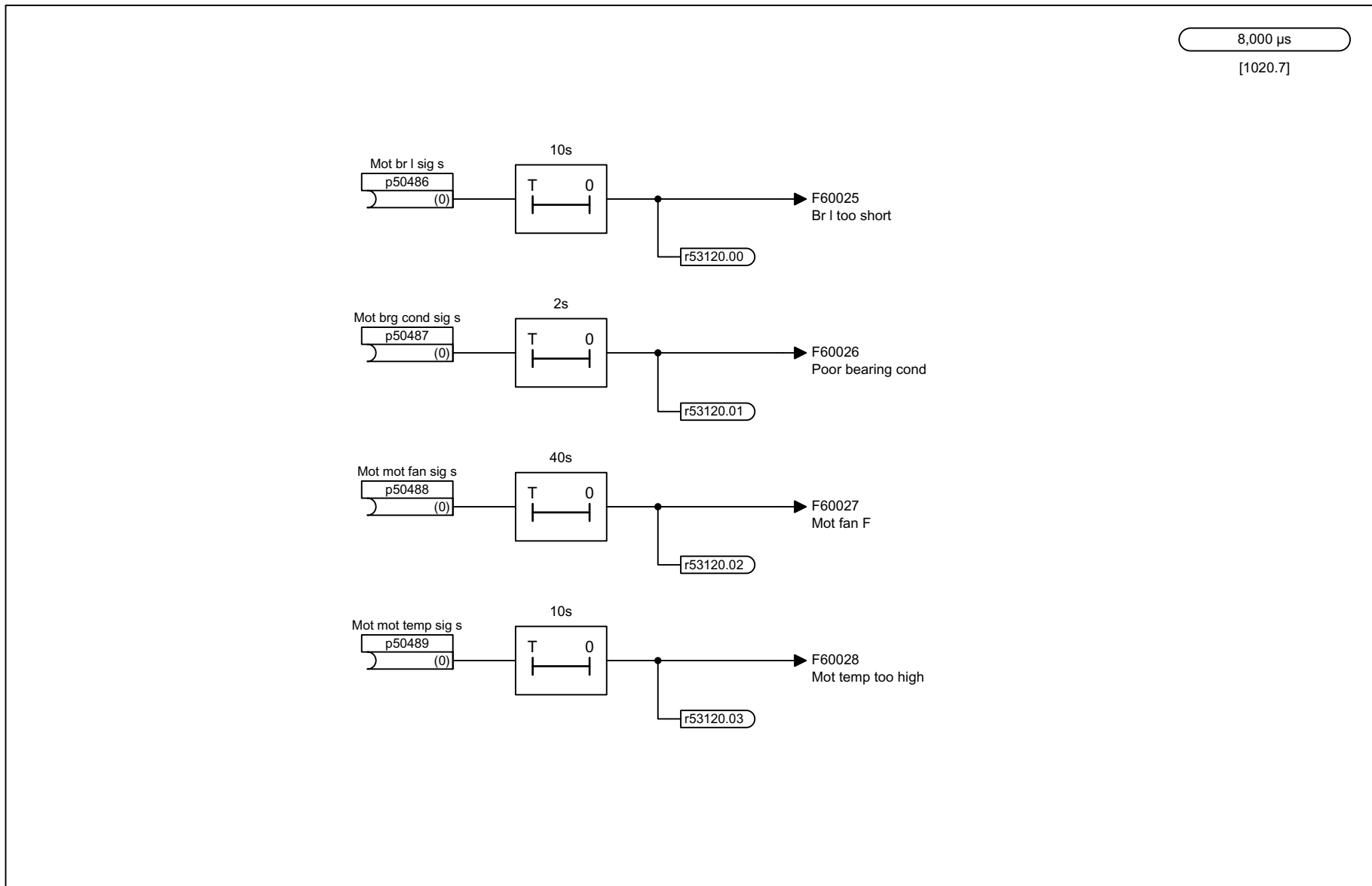
Fig. 3-123 8025 – Messages (part 2)





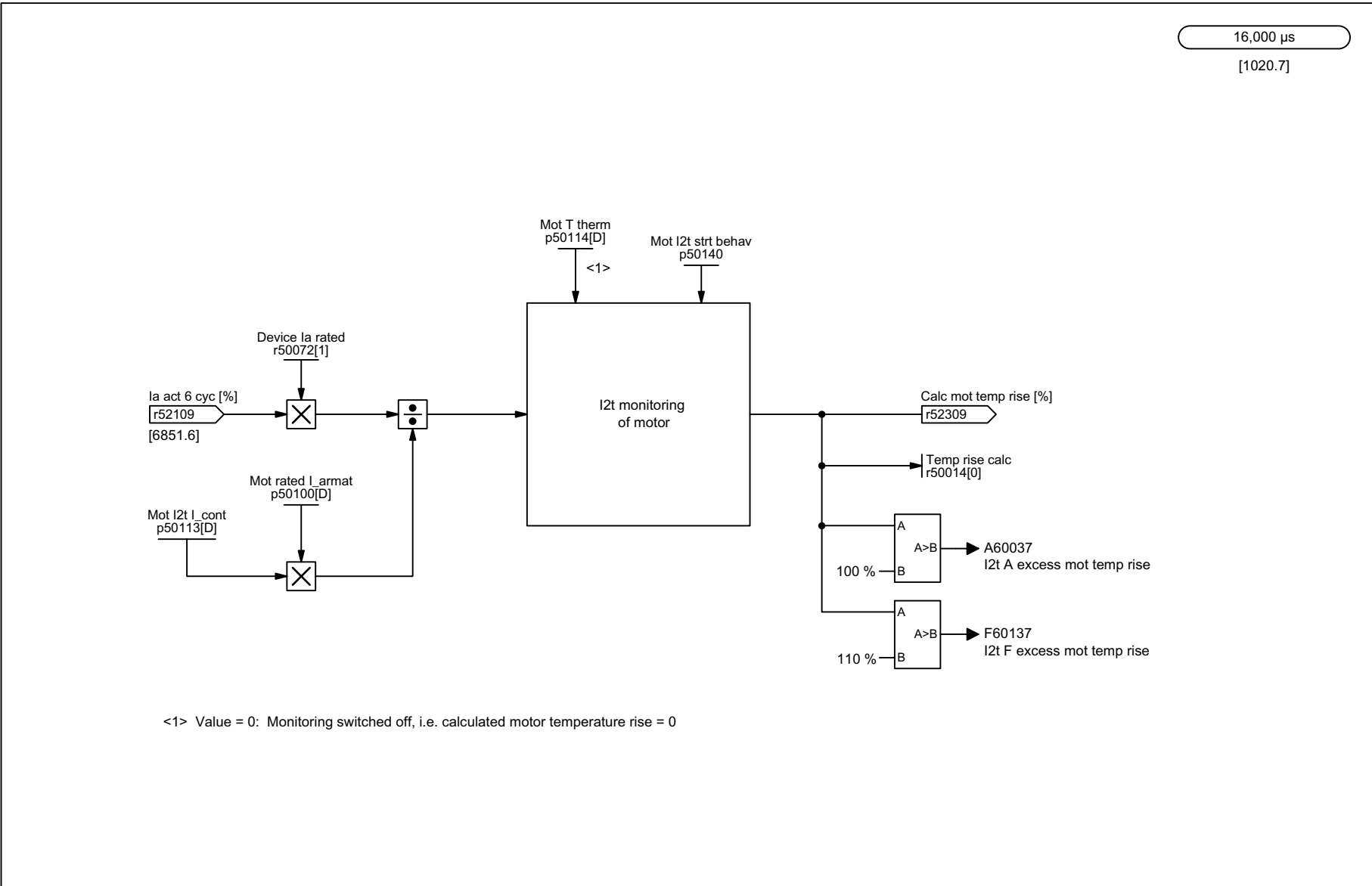
| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8030_96_VSD | Function diagram | |
| Signals and monitoring functions - Motor interface (part 1, X177.53/54/55) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8030 - |

Fig. 3-124 8030 – Motor interface (part 1, X177.53/54/55)



| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8035_96_.VSD | Function diagram | |
| Signals and monitoring functions - Motor interface (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8035 - |

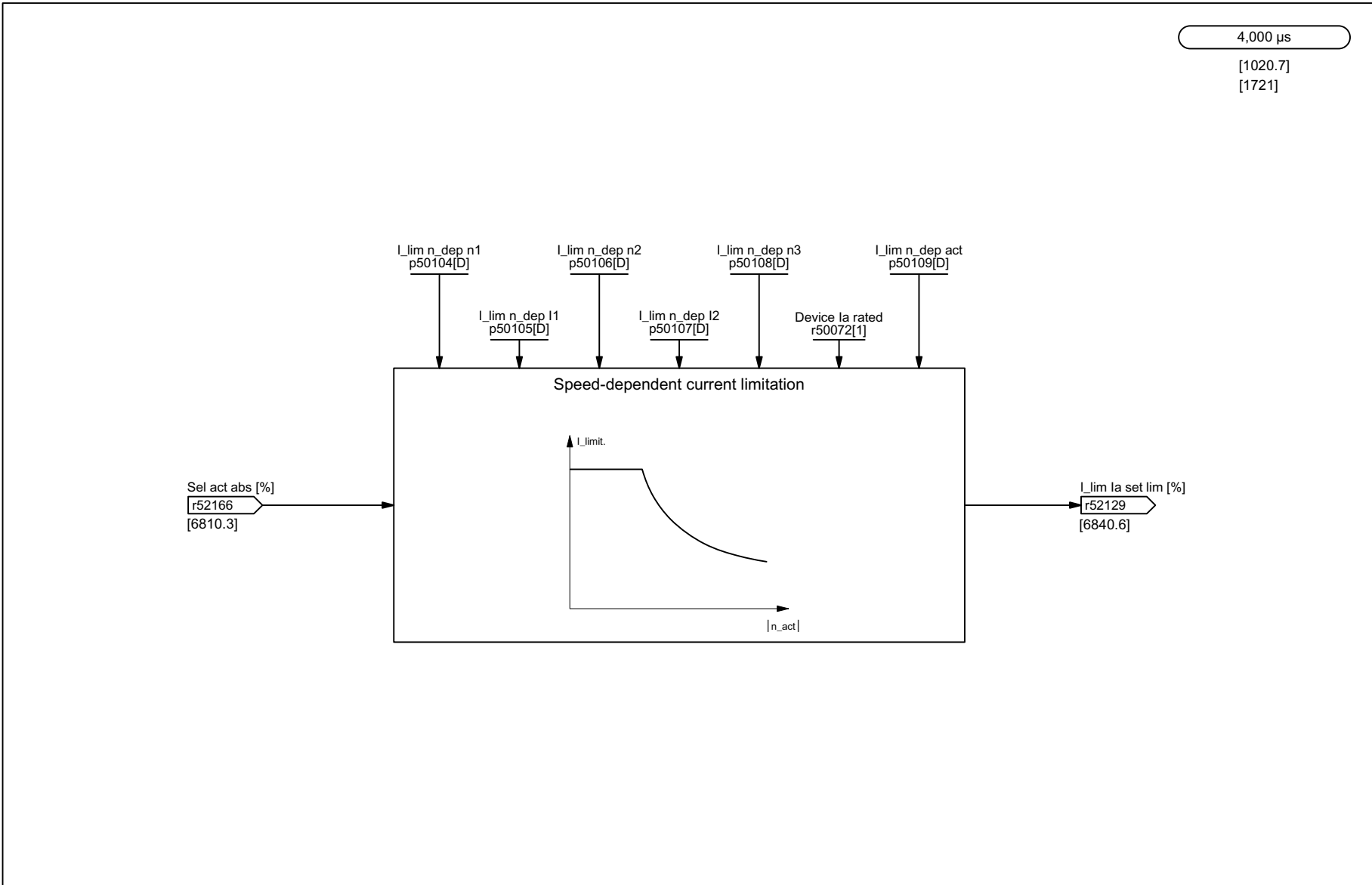
Fig. 3-125 8035 – Motor interface (part 2)



<1> Value = 0: Monitoring switched off, i.e. calculated motor temperature rise = 0

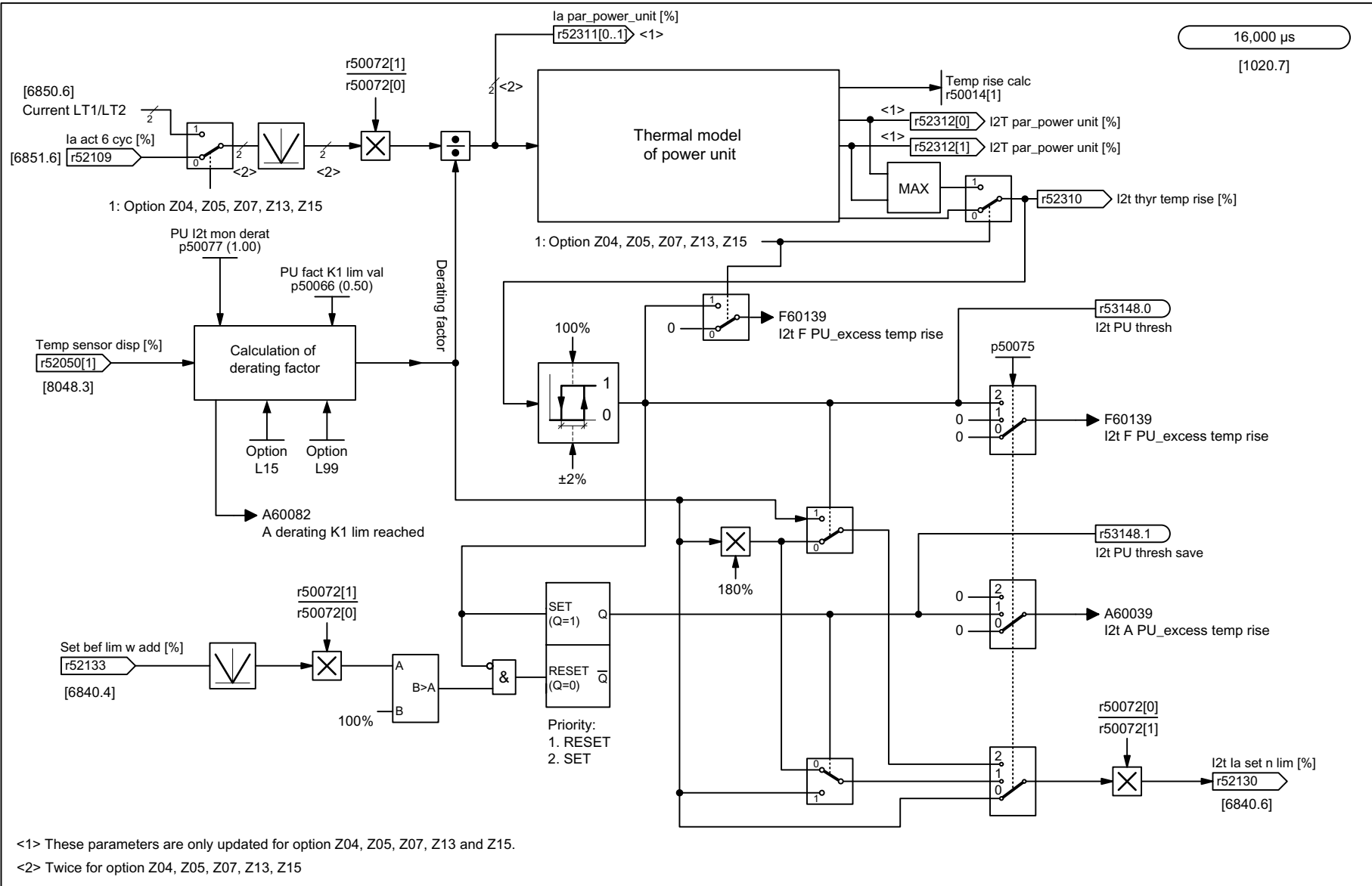
| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8038_96_VSD | Function diagram | |
| Signals and monitoring functions - I2t monitoring, motor | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8038 - |

Fig. 3-126 8038 – I2t monitoring, motor



| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8040_96_.VSD | Function diagram | |
| Signals and monitoring functions - Speed-dependent current limitation | | | | | 14.02.2015 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8040 - |

Fig. 3-127 8040 – Speed-dependent current limitation



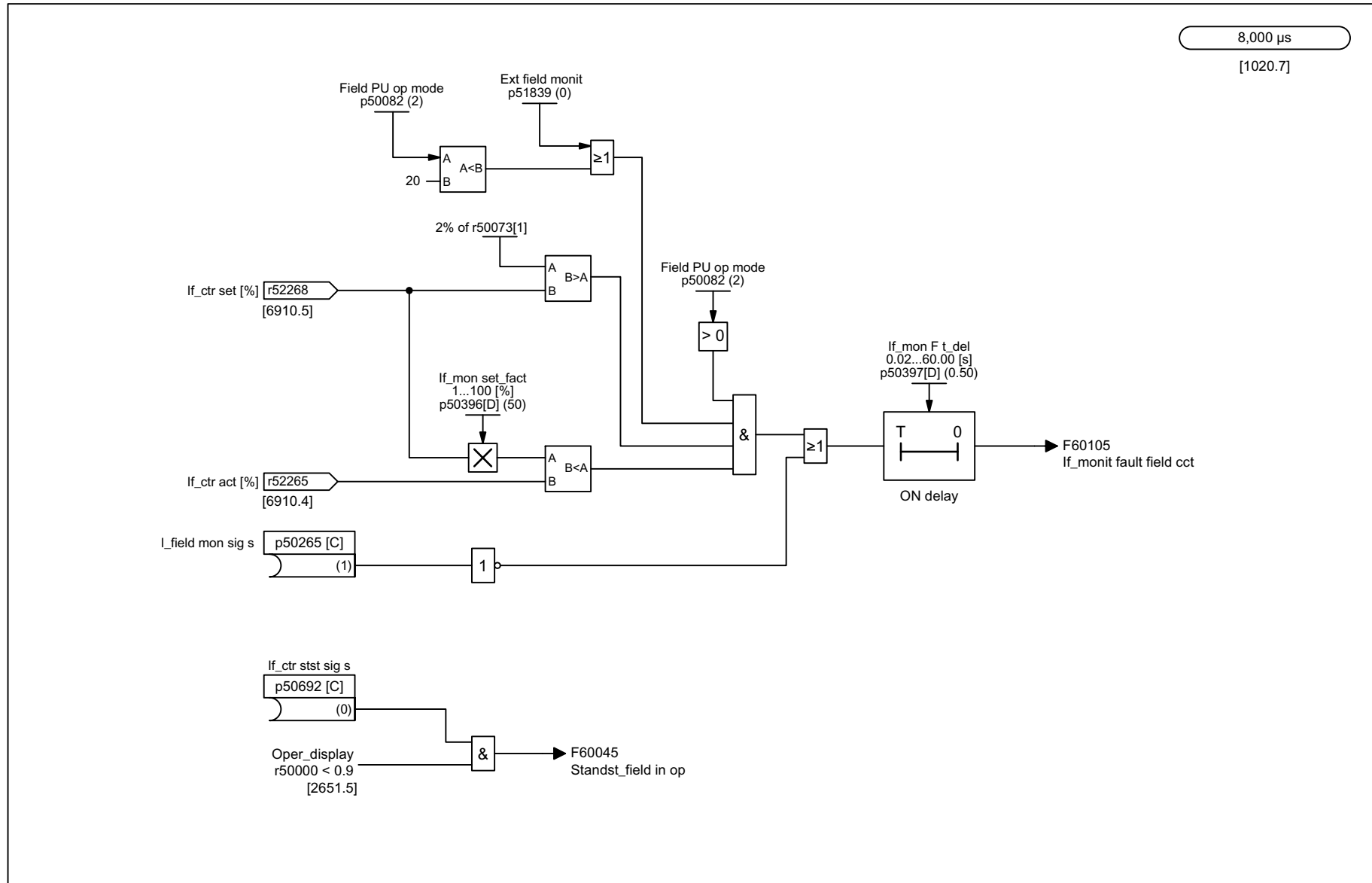
<1> These parameters are only updated for option Z04, Z05, Z07, Z13 and Z15.

<2> Twice for option Z04, Z05, Z07, Z13, Z15

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8042_96_VSD | Function diagram | |
| Signals and monitoring functions - Power unit I2t monitoring | | | | 24.02.2015 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8042 - |

Fig. 3-128 8042 – Power unit I2t monitoring

Fig. 3-129 8044 – Field current monitoring



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8044_96_VSD | Function diagram | |
| Signals and monitoring functions - Field current monitoring | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8044 - |

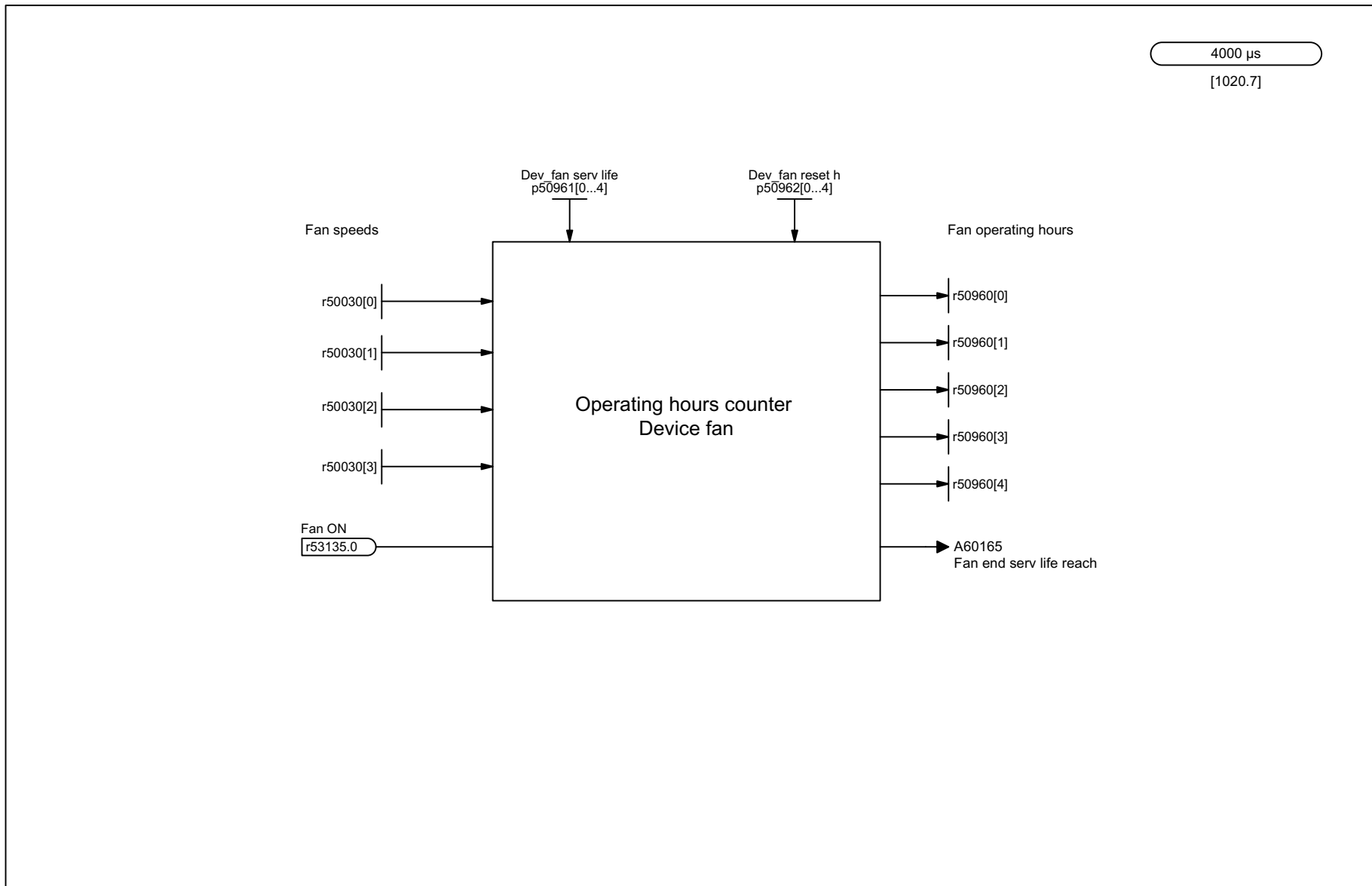
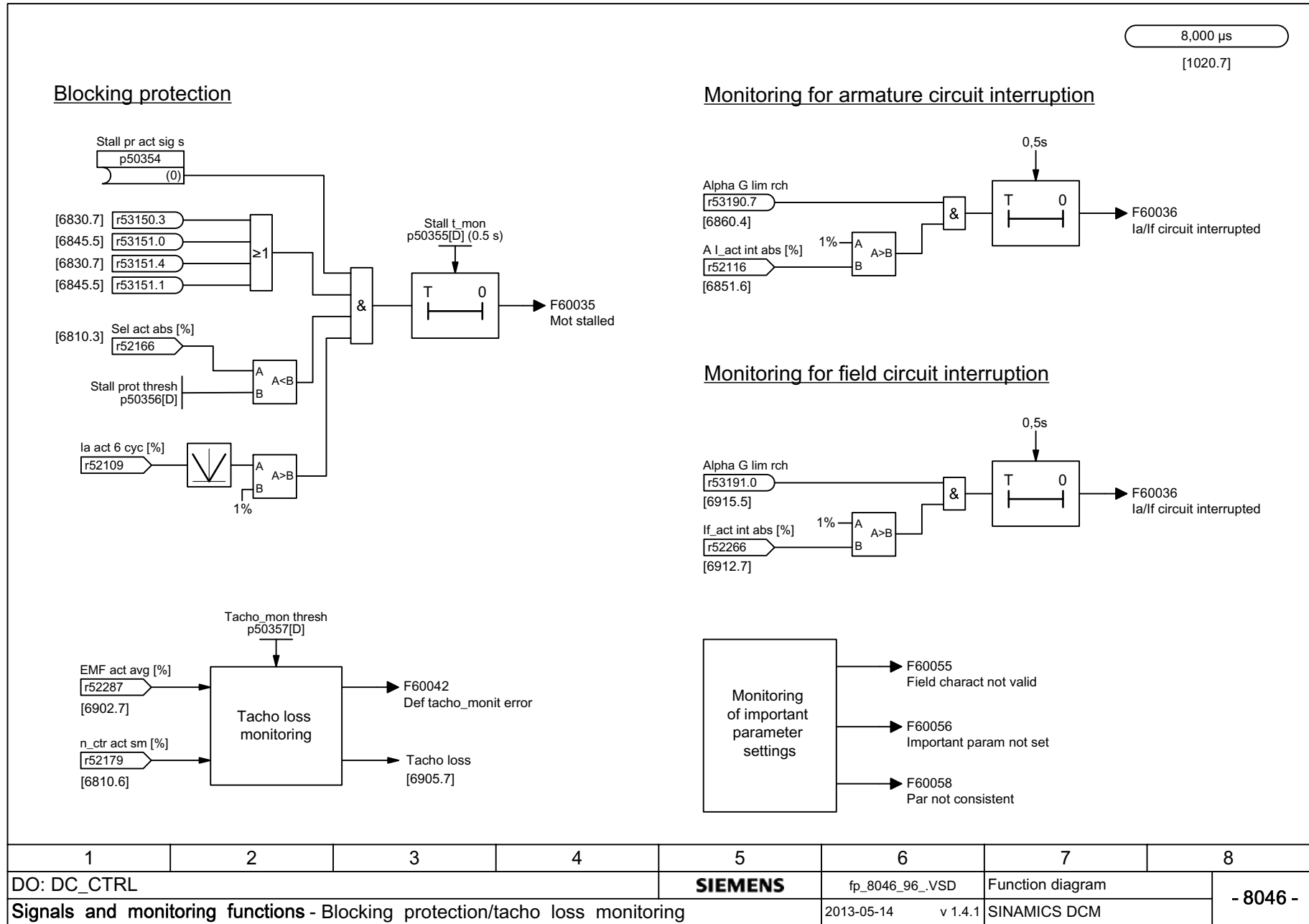


Fig. 3-130 8045 – Device fan, operating hours counter

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8045_96_VSD | Function diagram | |
| Signals and monitoring functions - Device fan Operating hours counter | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8045 - |

Fig. 3-131 8046 – Blocking protection/tacho loss monitoring



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8046_96_VSD | Function diagram | |
| Signals and monitoring functions - Blocking protection/tacho loss monitoring | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8046 - |

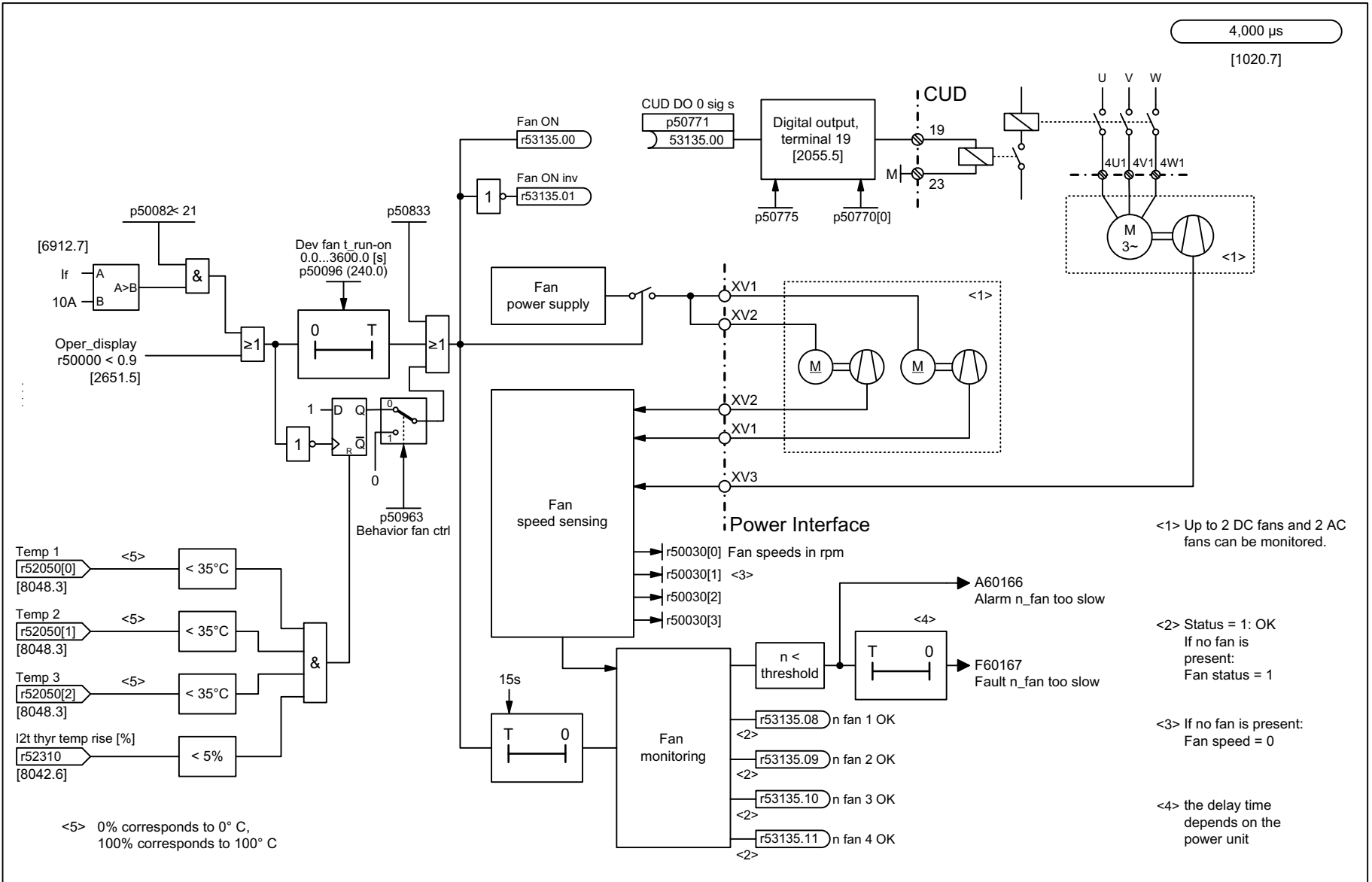
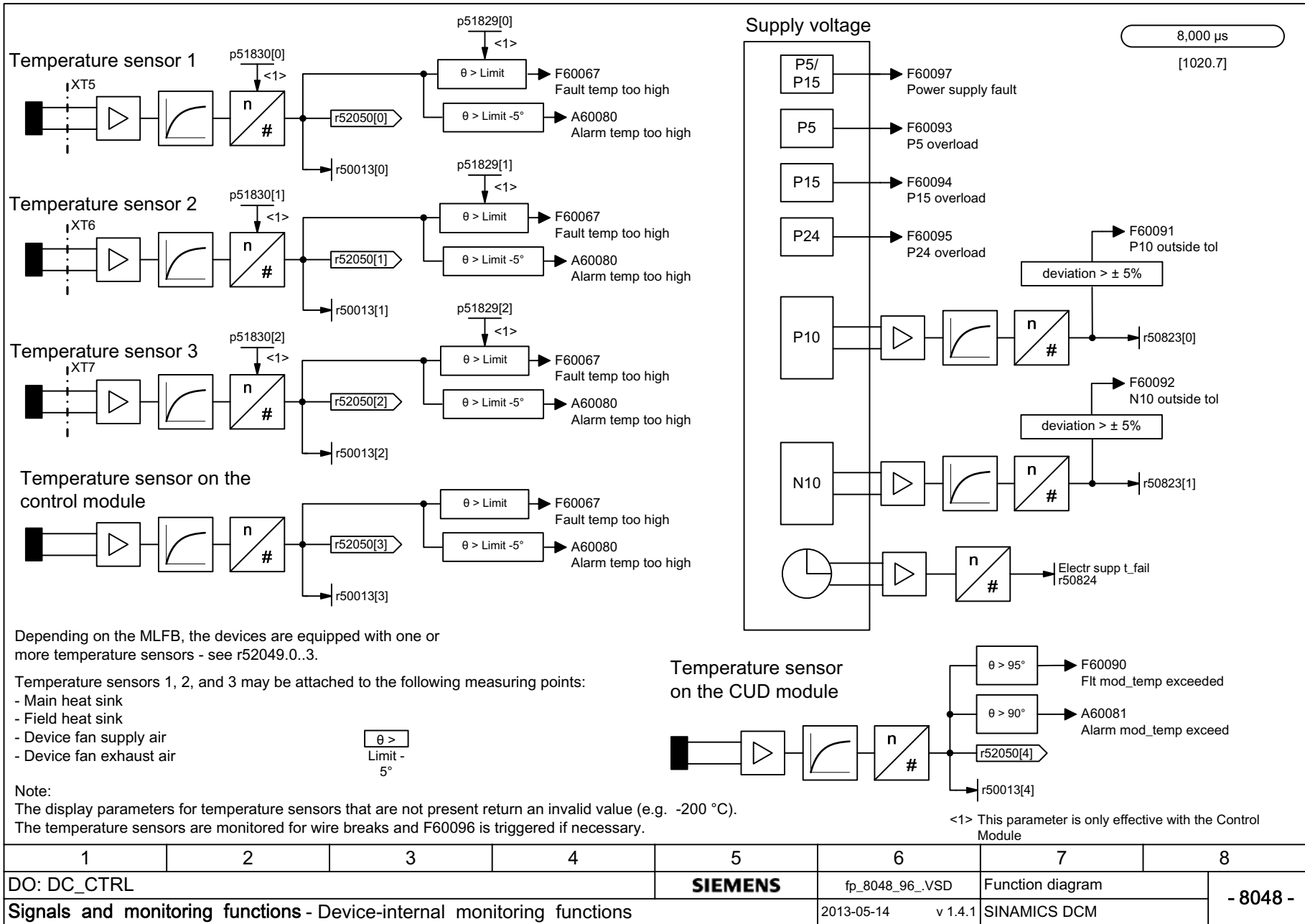


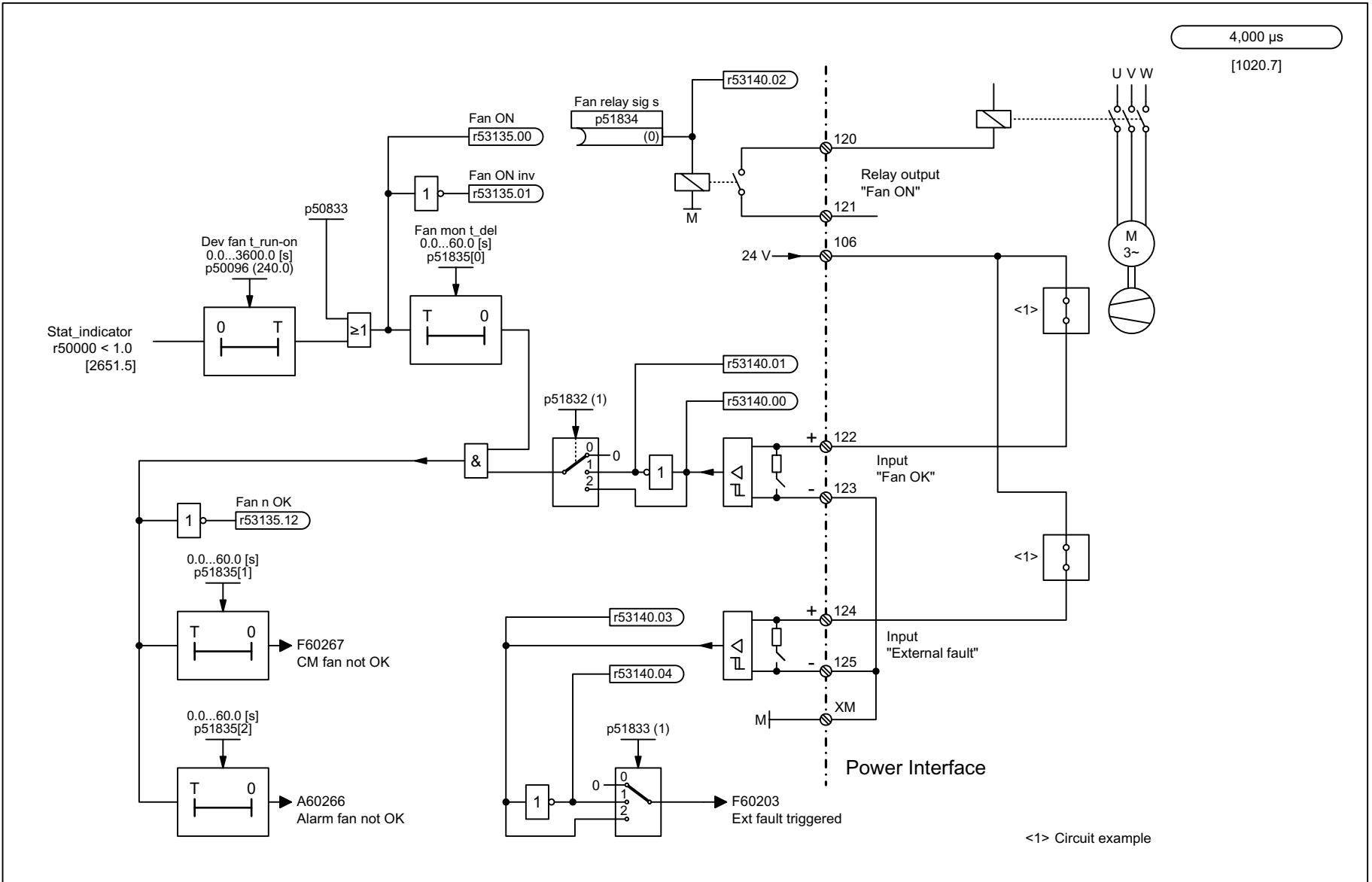
Fig. 3-132 8047 – Device fan (DC Converter)

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8047_96_VSD | Function diagram | |
| Signals and monitoring functions - Device fan (DC converter) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8047 - |

Fig. 3-133 8048 – Device-internal monitoring functions



| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8048_96_VSD | Function diagram | |
| Signals and monitoring functions - Device-internal monitoring functions | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8048 - |

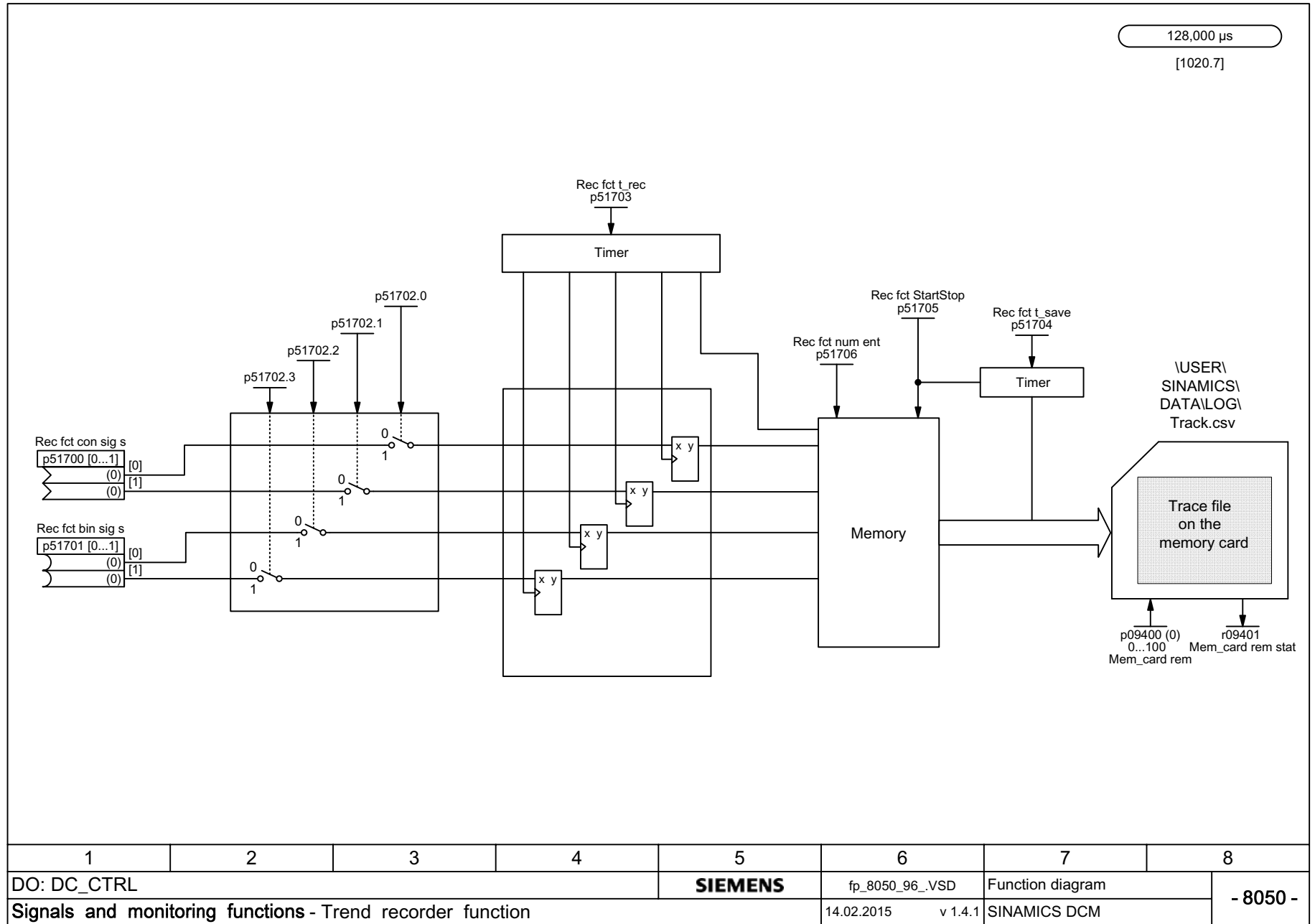


<1> Circuit example

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8049_96_VSD | Function diagram | |
| Signals and monitoring functions - Device fan (Control Module) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8049 - |

Fig. 3-134 8049 – Device fan (Control Module)

Fig. 3-135 8050 – Trend recorder function



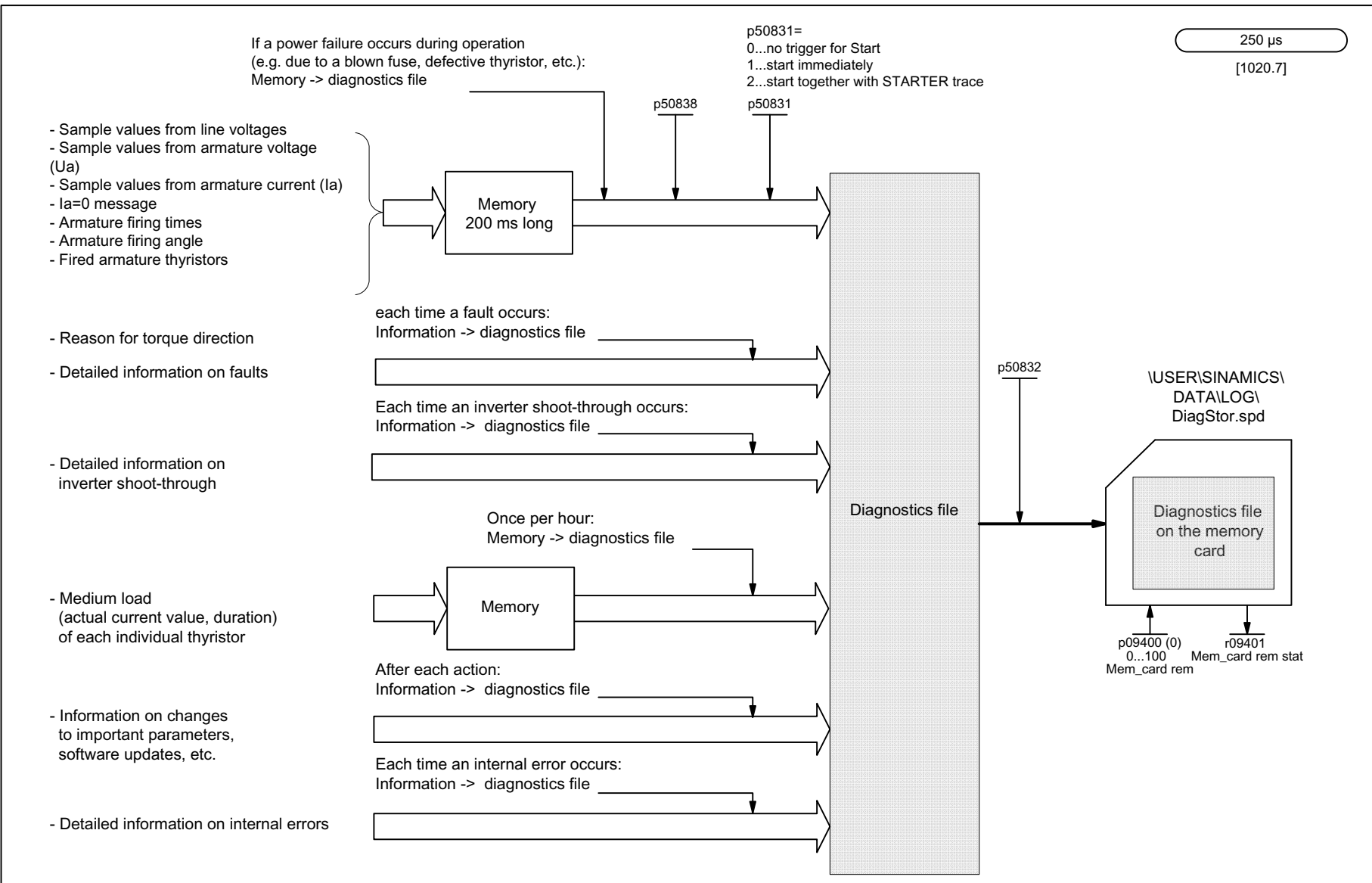
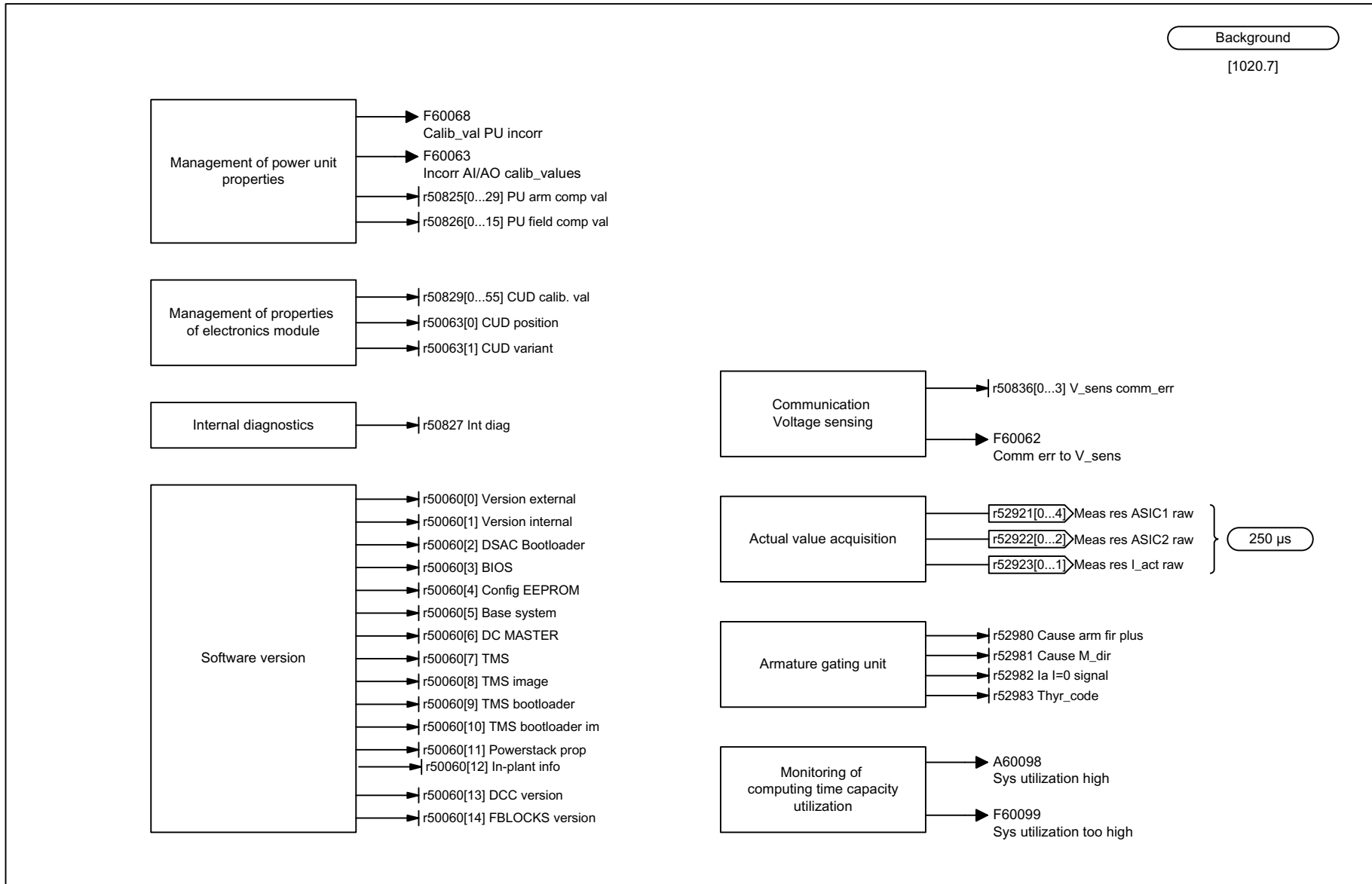


Fig. 3-136 8052 – Diagnostic memory

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8052_96_VSD | Function diagram | |
| Signals and monitoring functions - Diagnostic memory | | | | | 14.02.2015 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8052 - |

Fig. 3-137 8054 – Internal diagnostics



Background
[1020.7]

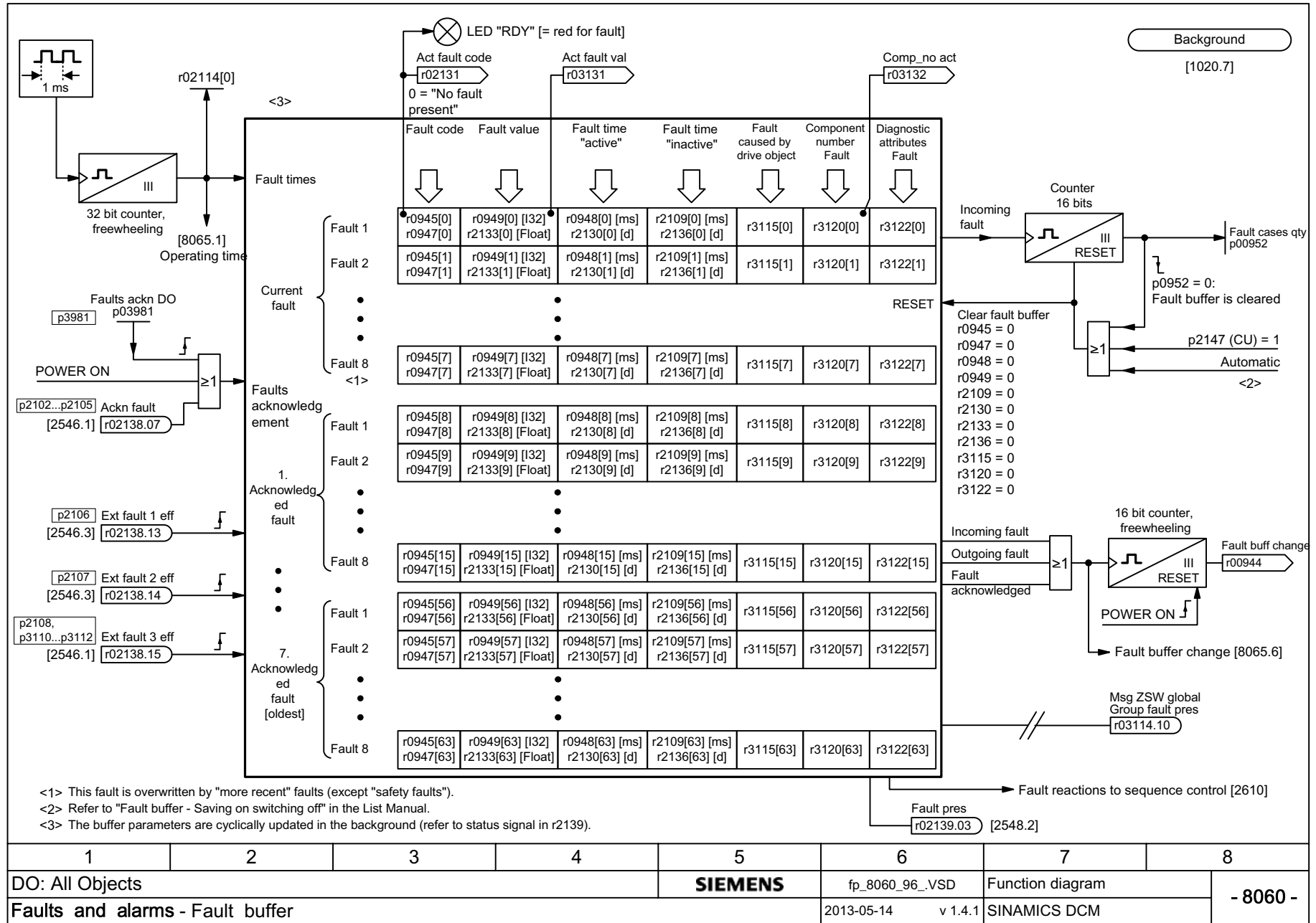
| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8054_96_VSD | Function diagram | |
| Signals and monitoring functions - Internal diagnostics | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8054 - |

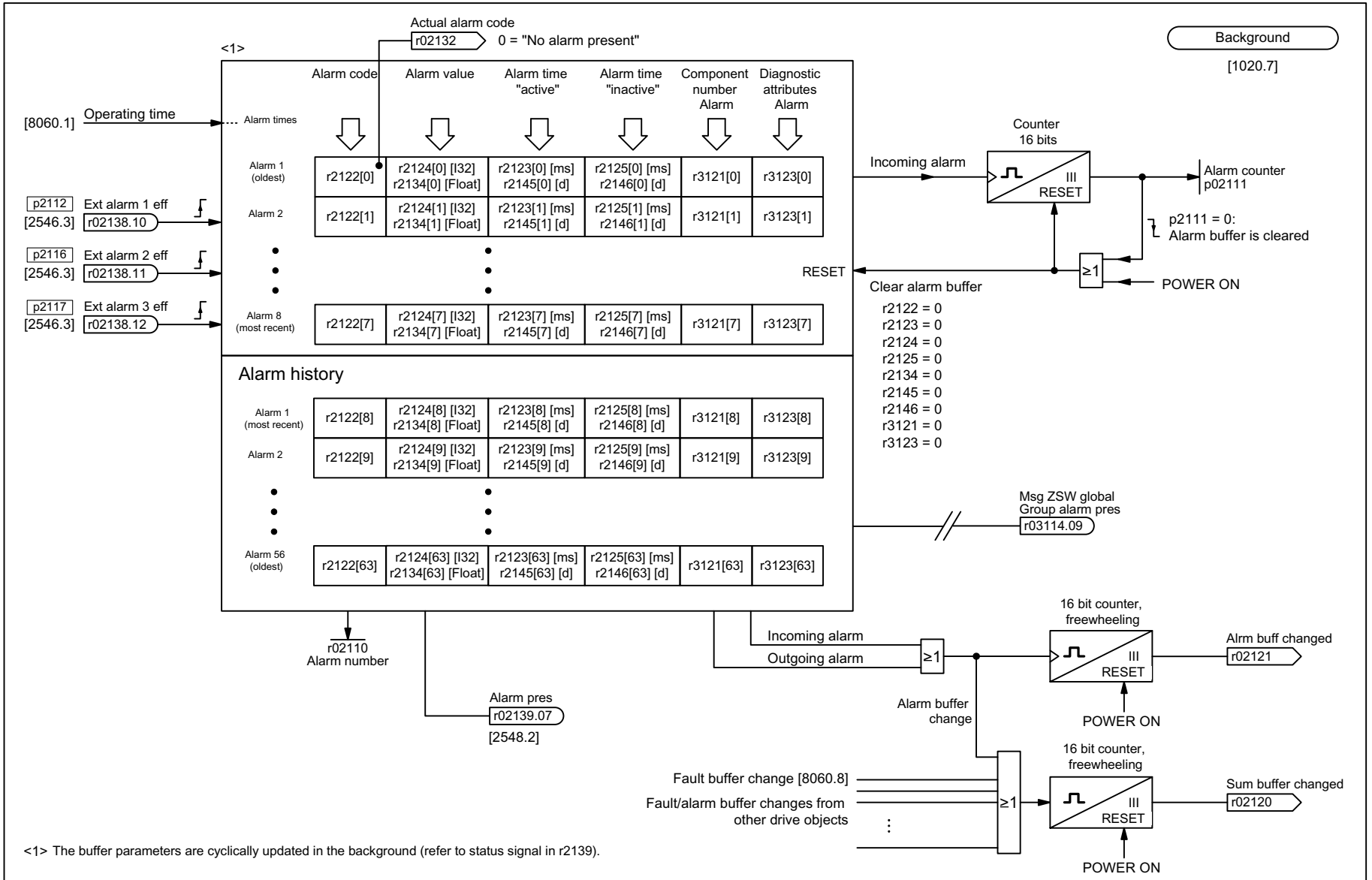
3.17 Faults and alarms

Function diagrams

| | |
|---|-----|
| 8060 – Fault buffer | 821 |
| 8065 – Alarm buffer | 822 |
| 8070 – Fault/alarm trigger word (r2129) | 823 |
| 8075 – Fault/alarm configuration | 824 |

Fig. 3-138 8060 – Fault buffer





| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------------------------------|---|---|---|----------------|----------------|------------------|--------------|
| DO: All Objects | | | | SIEMENS | fp_8065_96_VSD | Function diagram | |
| Faults and alarms - Alarm buffer | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |

- 8065 -

Fig. 3-139 8065 – Alarm buffer

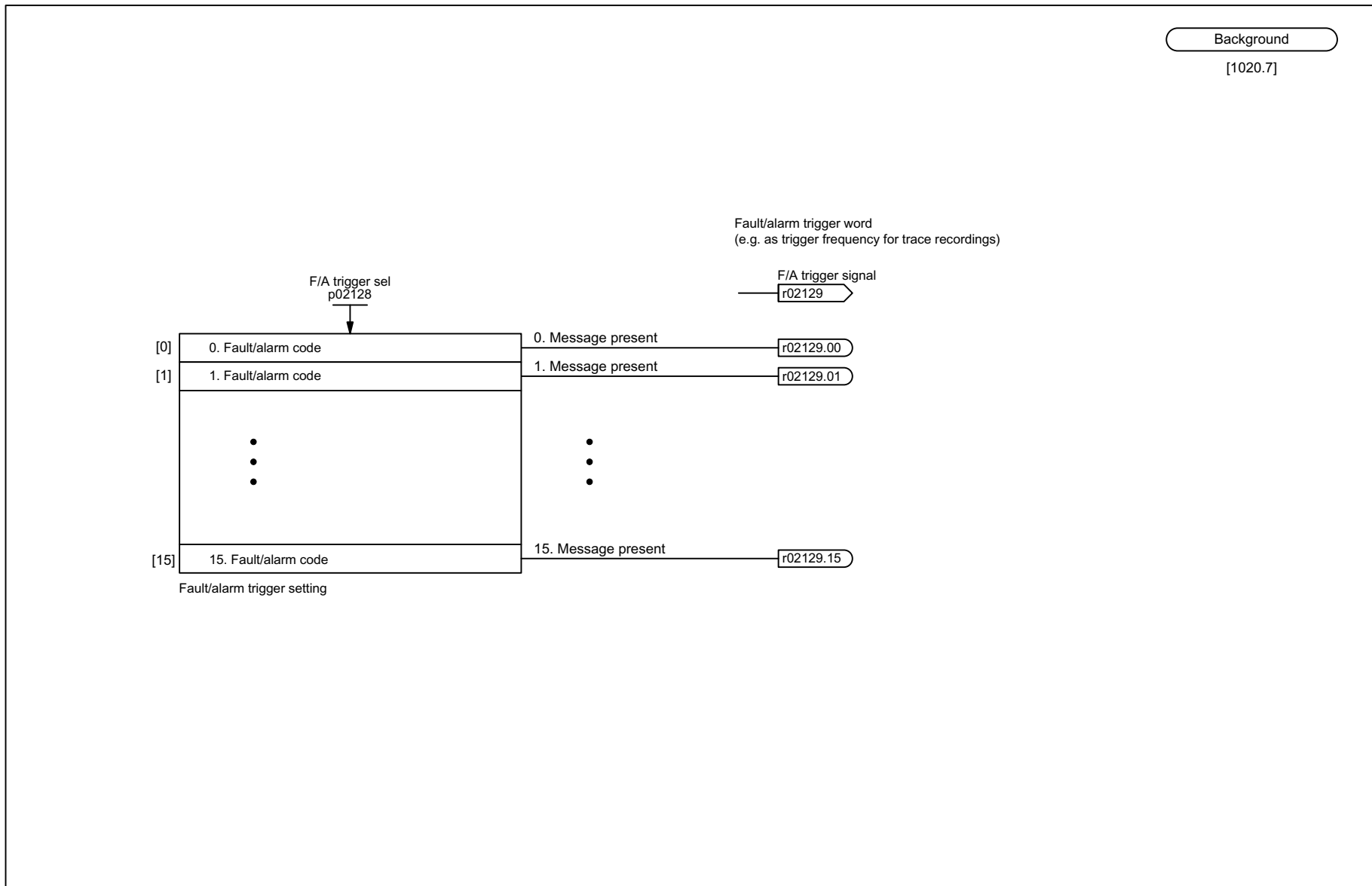
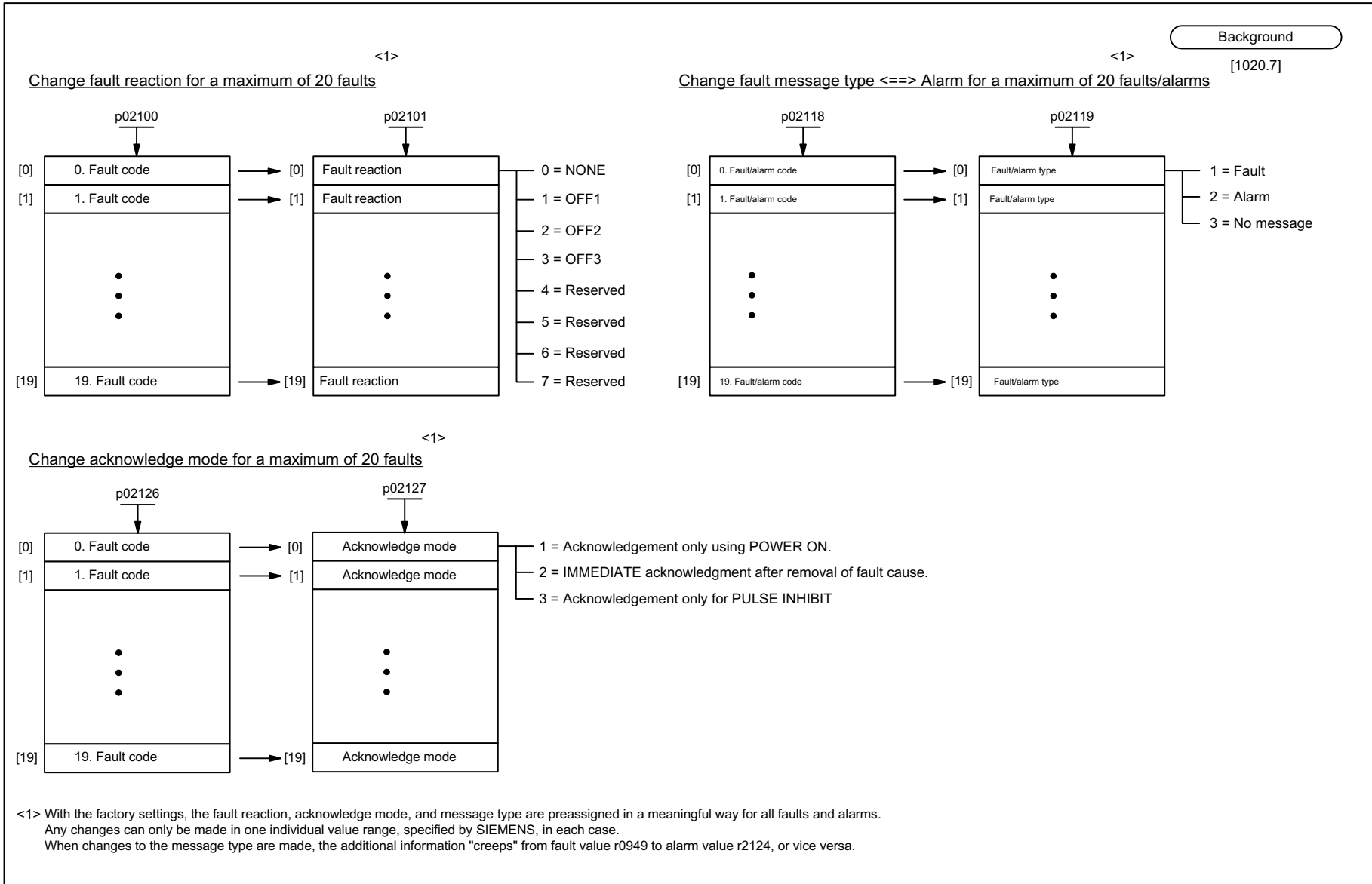


Fig. 3-140 8070 – Fault/alarm trigger word (r2129)

| | | | | | | | |
|--|---|---|---|----------------|-----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: All Objects | | | | SIEMENS | fp_8070_96_.VSD | Function diagram | |
| Faults and alarms - Fault/alarm trigger word (r2129) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8070 - |



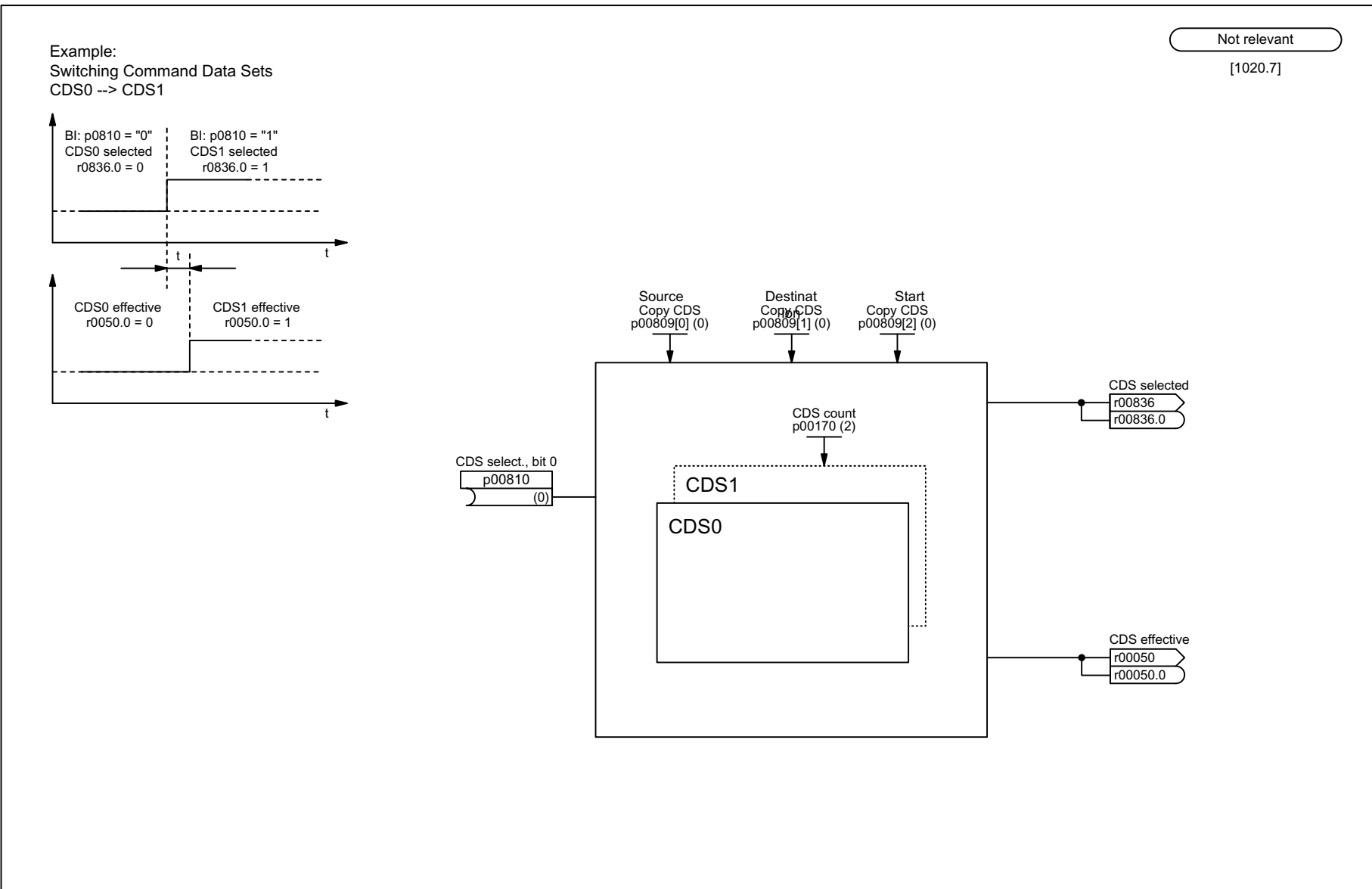
| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: All Objects | | | | SIEMENS | fp_8075_96_.VSD | Function diagram | |
| Faults and alarms - Fault/alarm configuration | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8075 - |

Fig. 3-141 8075 – Fault/alarm configuration

3.18 Data sets

Function diagrams

| | |
|--------------------------------|-----|
| 8560 – Command Data Sets (CDS) | 826 |
| 8565 – Drive Data Sets (DDS) | 827 |
| 8570 – Encoder Data Sets (EDS) | 828 |

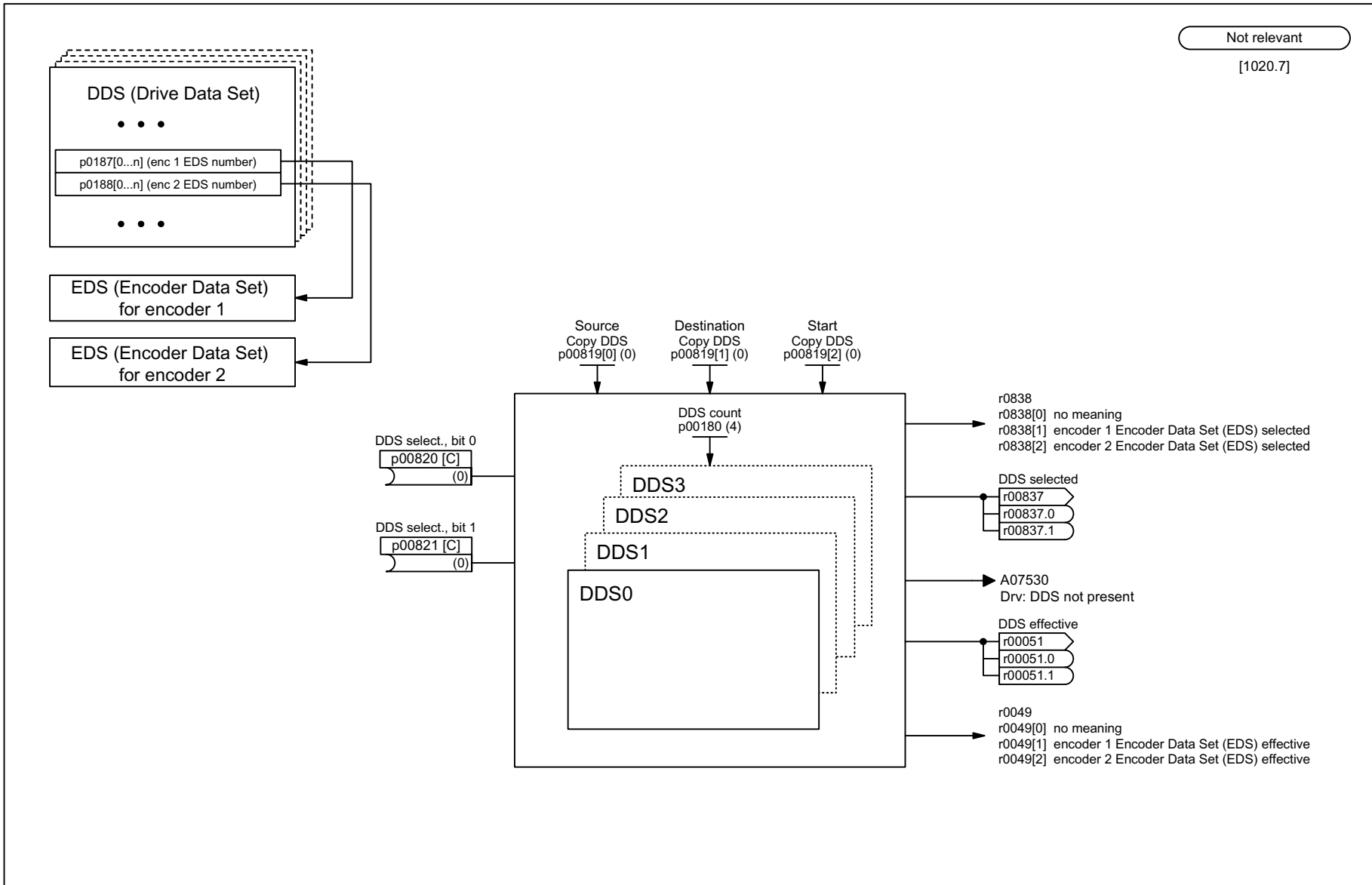


Not relevant
[1020.7]

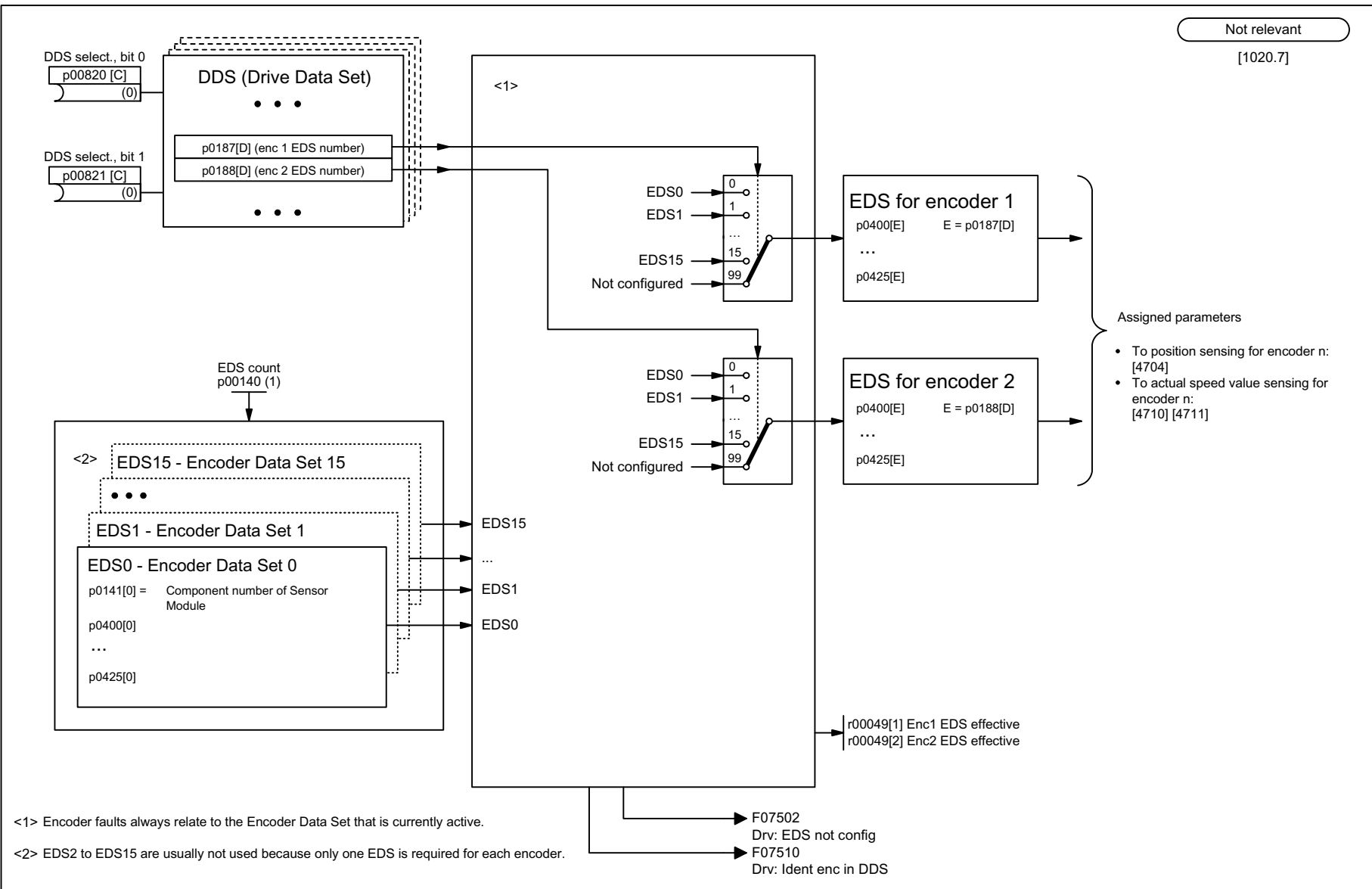
Fig. 3-142 8560 – Command Data Sets (CDS)

| | | | | | | | |
|-------------------------------------|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8560_96_VSD | Function diagram | |
| Data sets - Command Data Sets (CDS) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 8560 - |

Fig. 3-143 8565 – Drive Data Sets (DDS)



| | | | | | | | |
|-----------------------------------|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8565_96_VSD | Function diagram | |
| Data sets - Drive Data Sets (DDS) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8565 - |



<1> Encoder faults always relate to the Encoder Data Set that is currently active.
 <2> EDS2 to EDS15 are usually not used because only one EDS is required for each encoder.

F07502
 Drv: EDS not config
 F07510
 Drv: Ident enc in DDS

| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_8570_96_VSD | Function diagram | |
| Data sets - Encoder Data Sets (EDS) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 8570 - |

Fig. 3-144 8570 – Encoder Data Sets (EDS)

3.19 Communication between devices

Function diagrams

| | |
|---|-----|
| 9300 – Peer-to-peer interface | 830 |
| 9350 – Parallel connection interface (part 1) | 831 |
| 9352 – Parallel connection interface (part 2) | 832 |
| 9355 – Parallel connection interface (part 3) | 833 |
| 9360 – Switchover of the power unit topology | 834 |

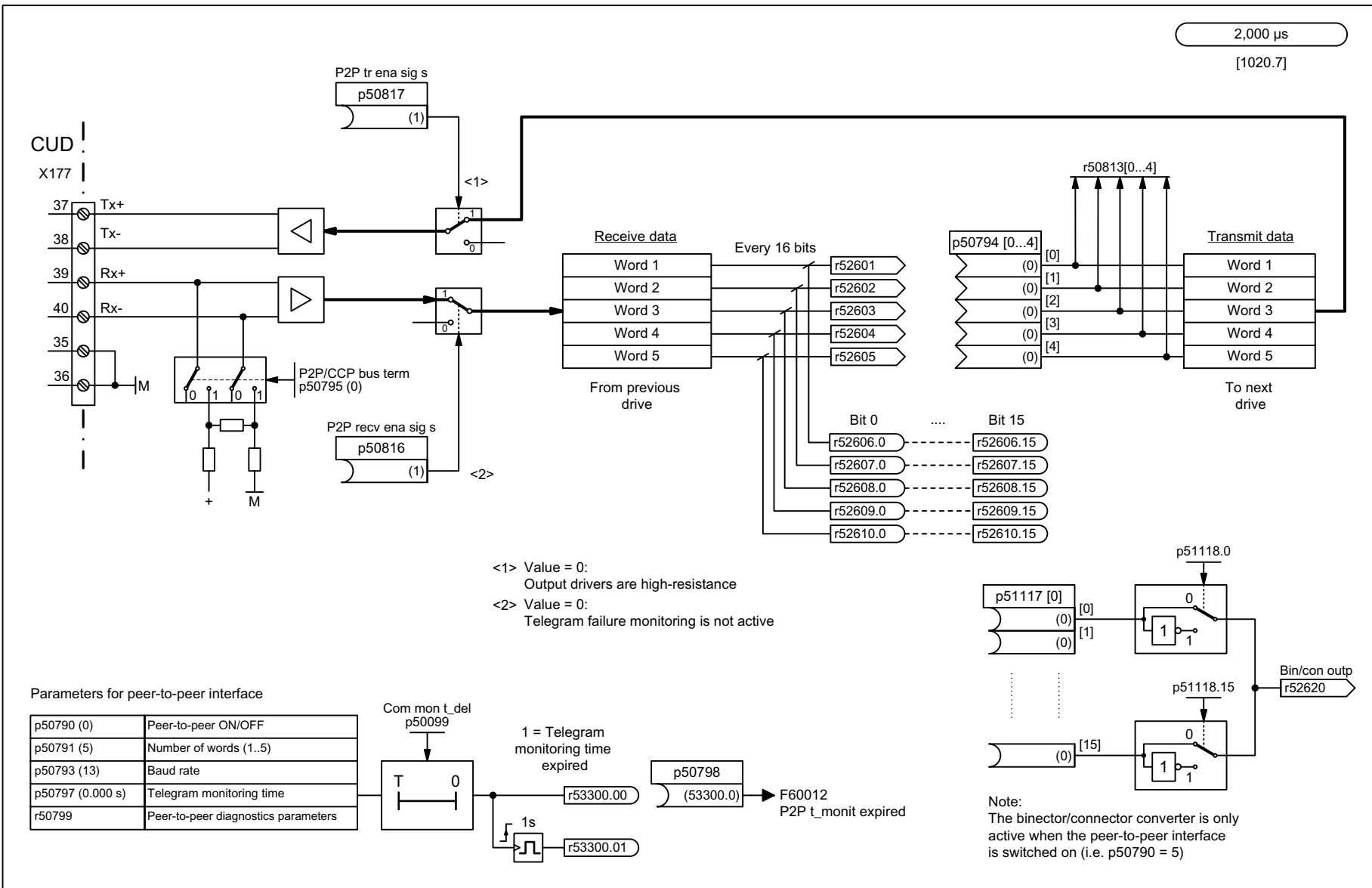
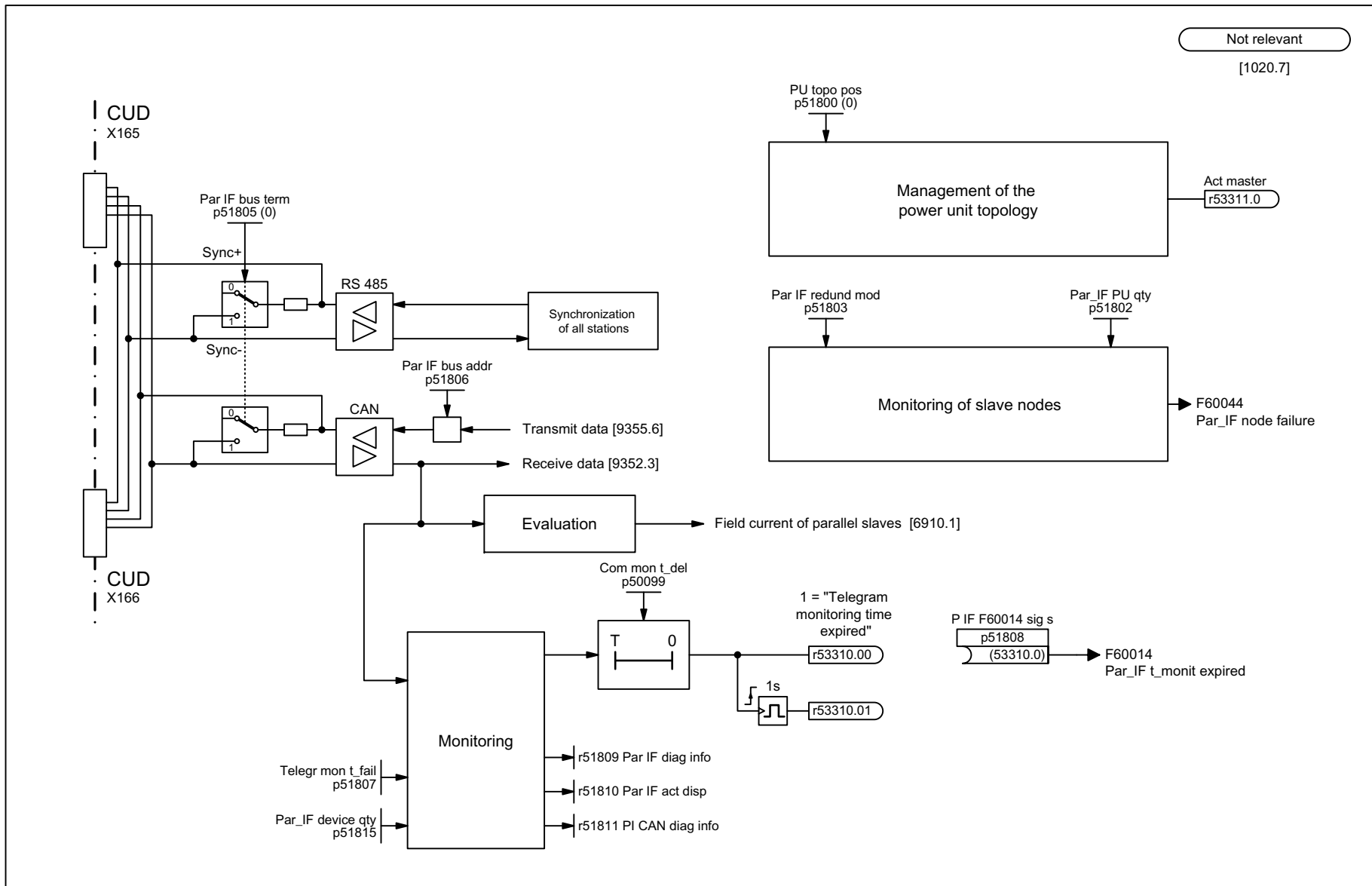


Fig. 3-145 9300 – Peer-to-peer interface

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_9300_96_VSD | Function diagram | |
| Communication between devices - Peer-to-peer interface | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 9300 - |



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_9350_96_VSD | Function diagram | |
| Communication between devices - Parallel connection interface (part 1) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 9350 - |

Fig. 3-146 9350 – Parallel connection interface (part 1)

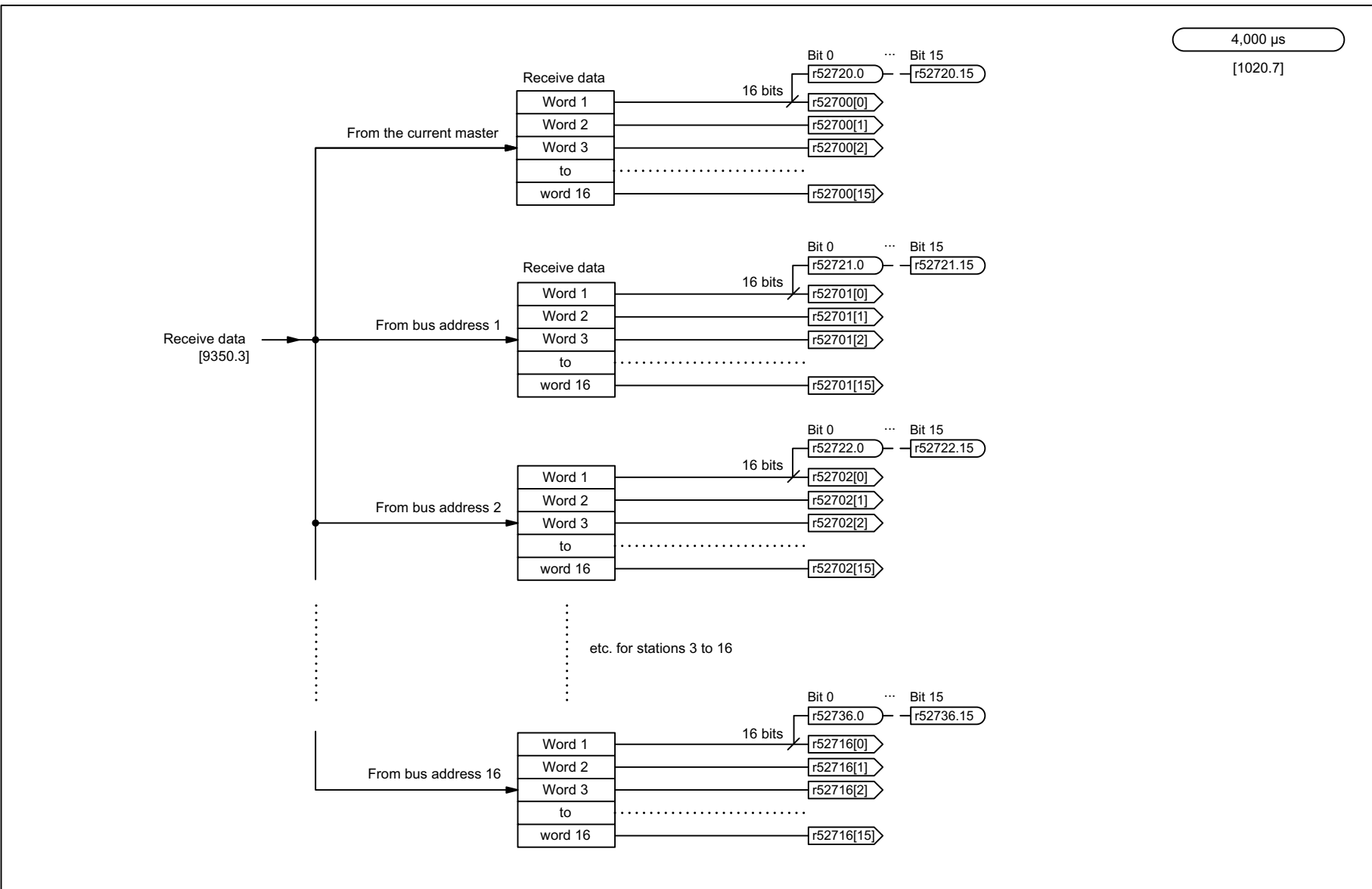
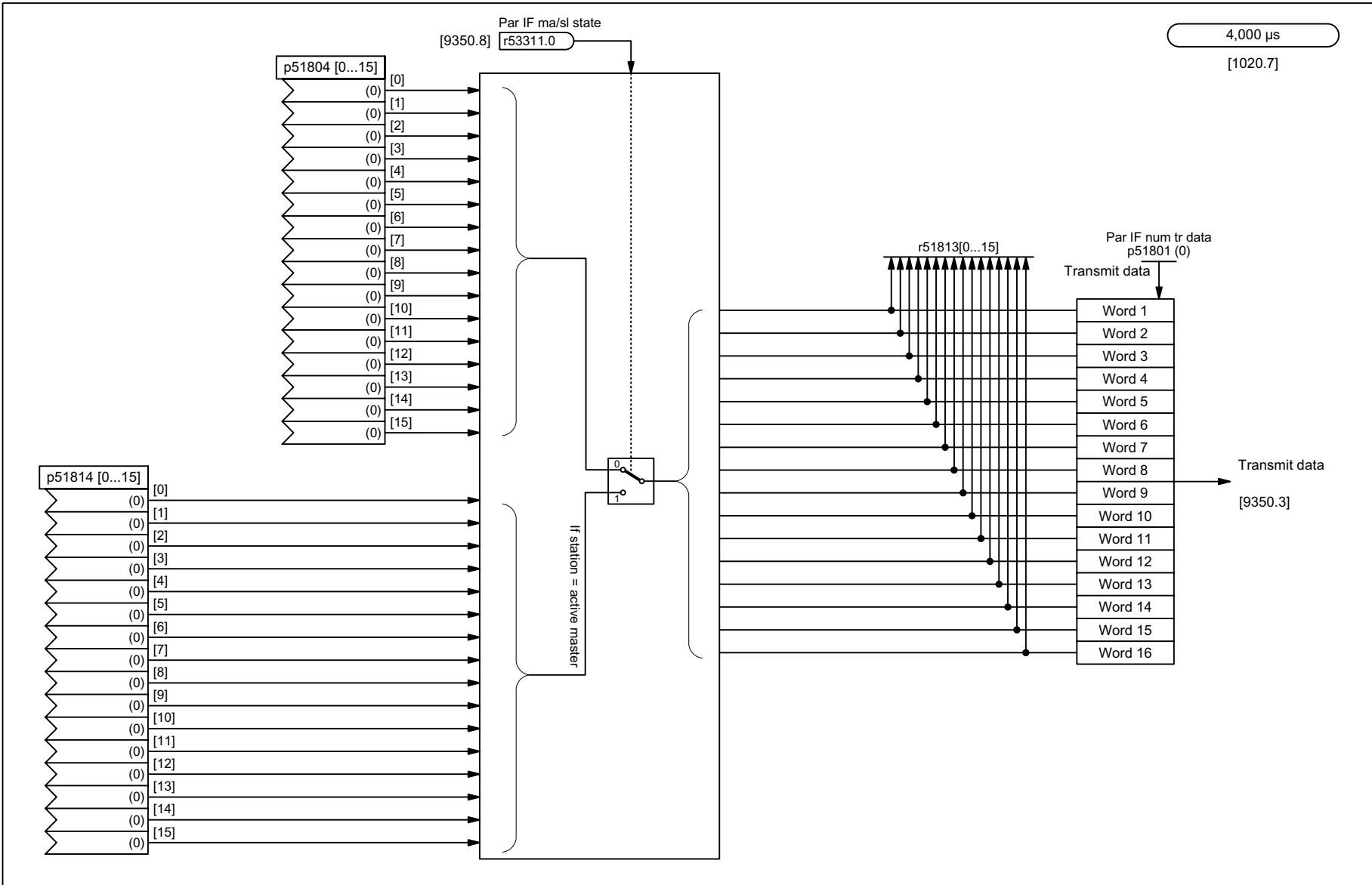


Fig. 3-147 9352 – Parallel connection interface (part 2)

| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_9352_96_VSD | Function diagram | |
| Communication between devices - Parallel connection interface (part 2) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 9352 - |



| | | | | | | | |
|--|---|---|---|----------------|--------------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_9355_96_.VSD | Function diagram | |
| Communication between devices - Parallel connection interface (part 3) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9355 - |

Fig. 3-148 9355 – Parallel connection interface (part 3)

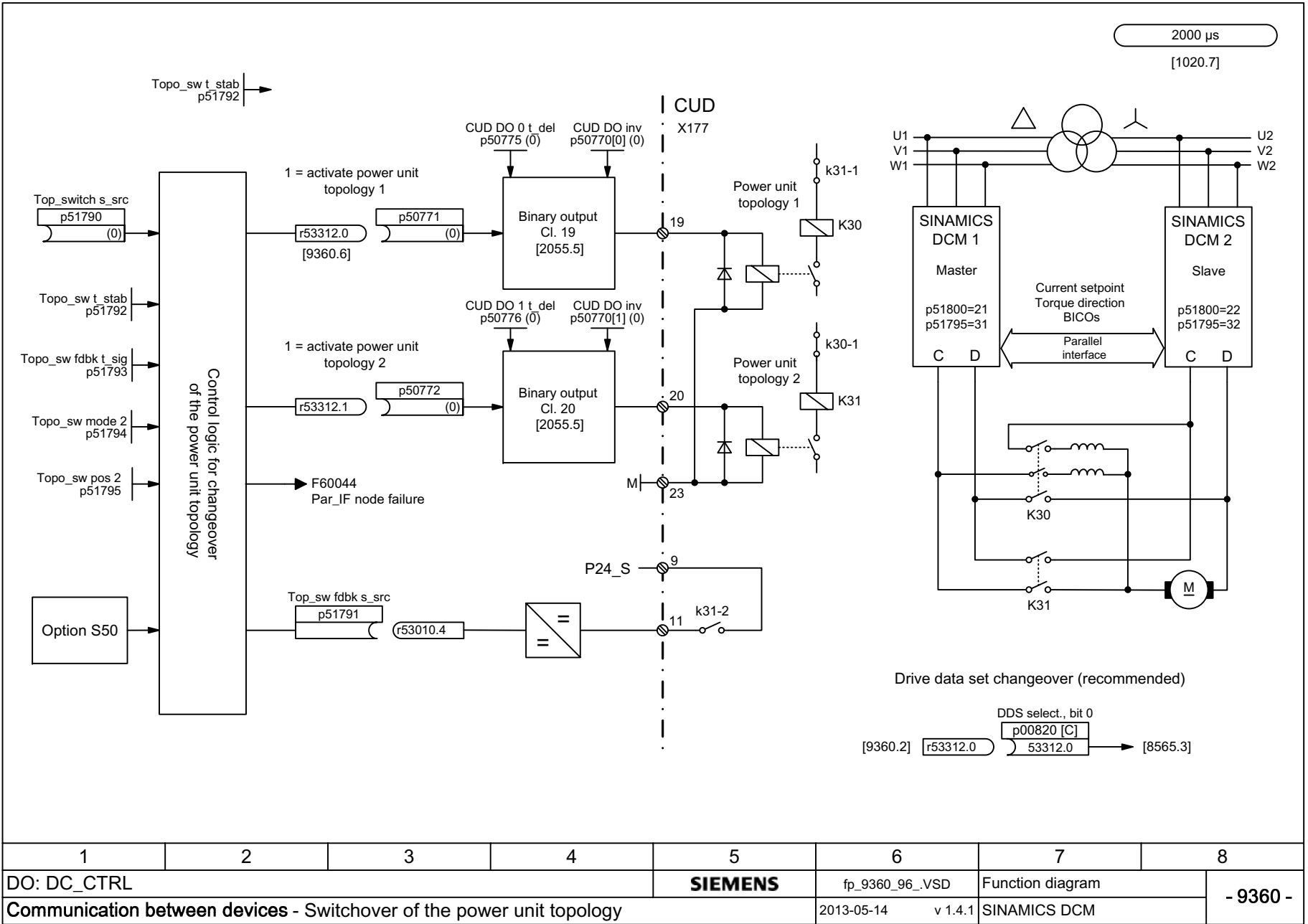


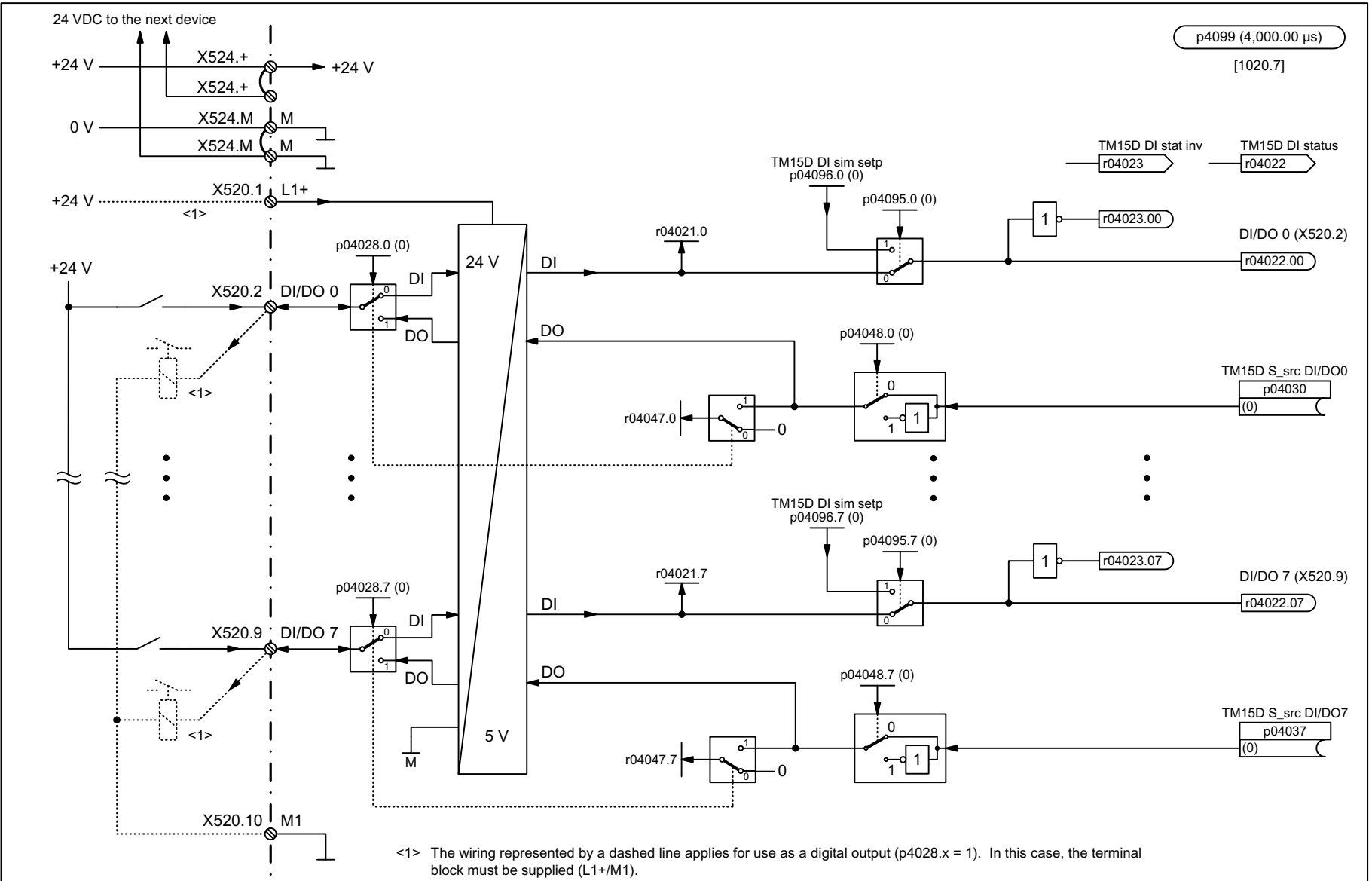
Fig. 3-149 9360 – Switchover of the power unit topology

| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: DC_CTRL | | | | SIEMENS | fp_9360_96_VSD | Function diagram | |
| Communication between devices - Switchover of the power unit topology | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 9360 - |

3.20 Terminal Module 15 for SINAMICS (TM15DI/DO)

Function diagrams

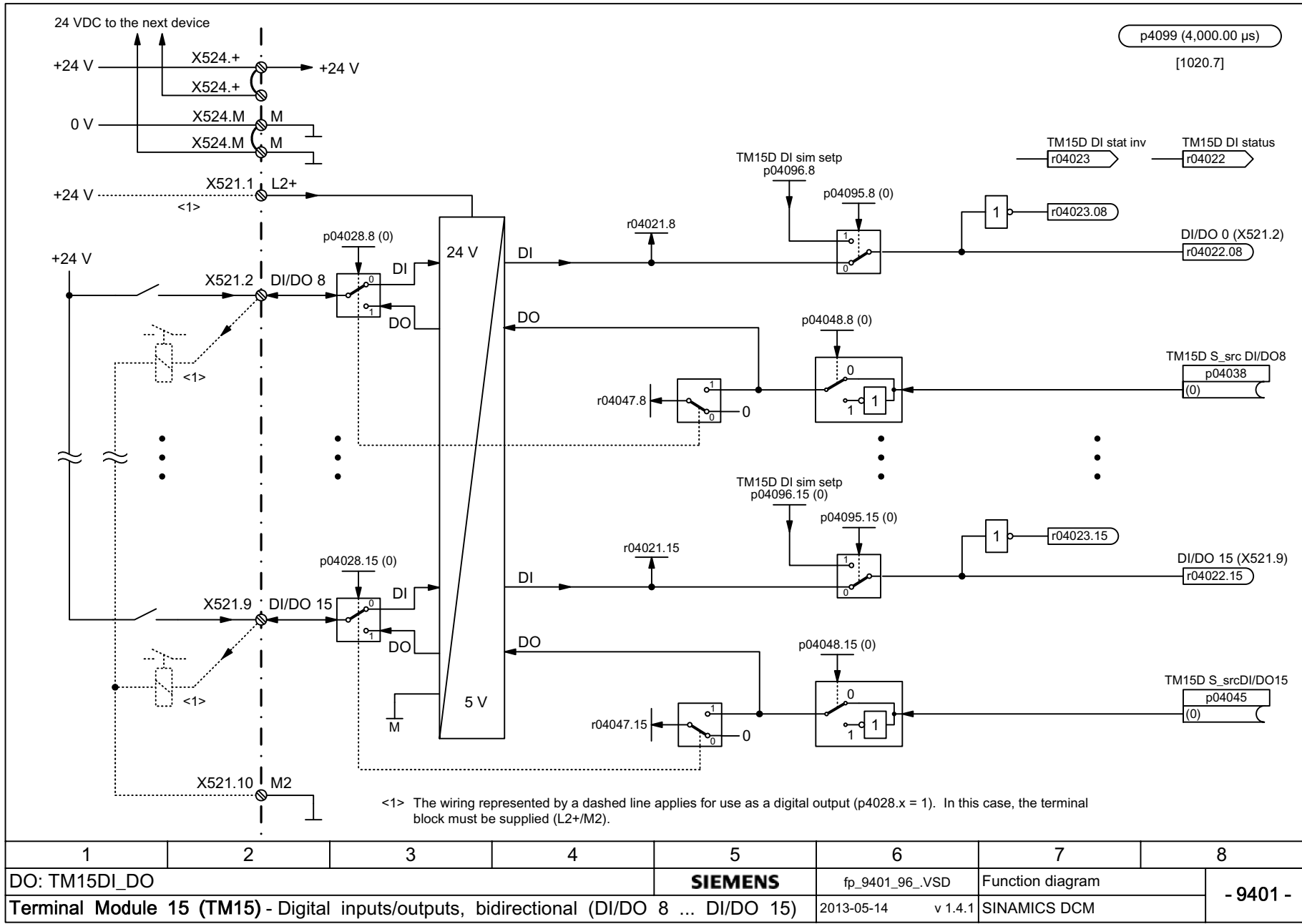
| | |
|--|-----|
| 9400 – Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7) | 836 |
| 9401 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15) | 837 |
| 9402 – Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23) | 838 |



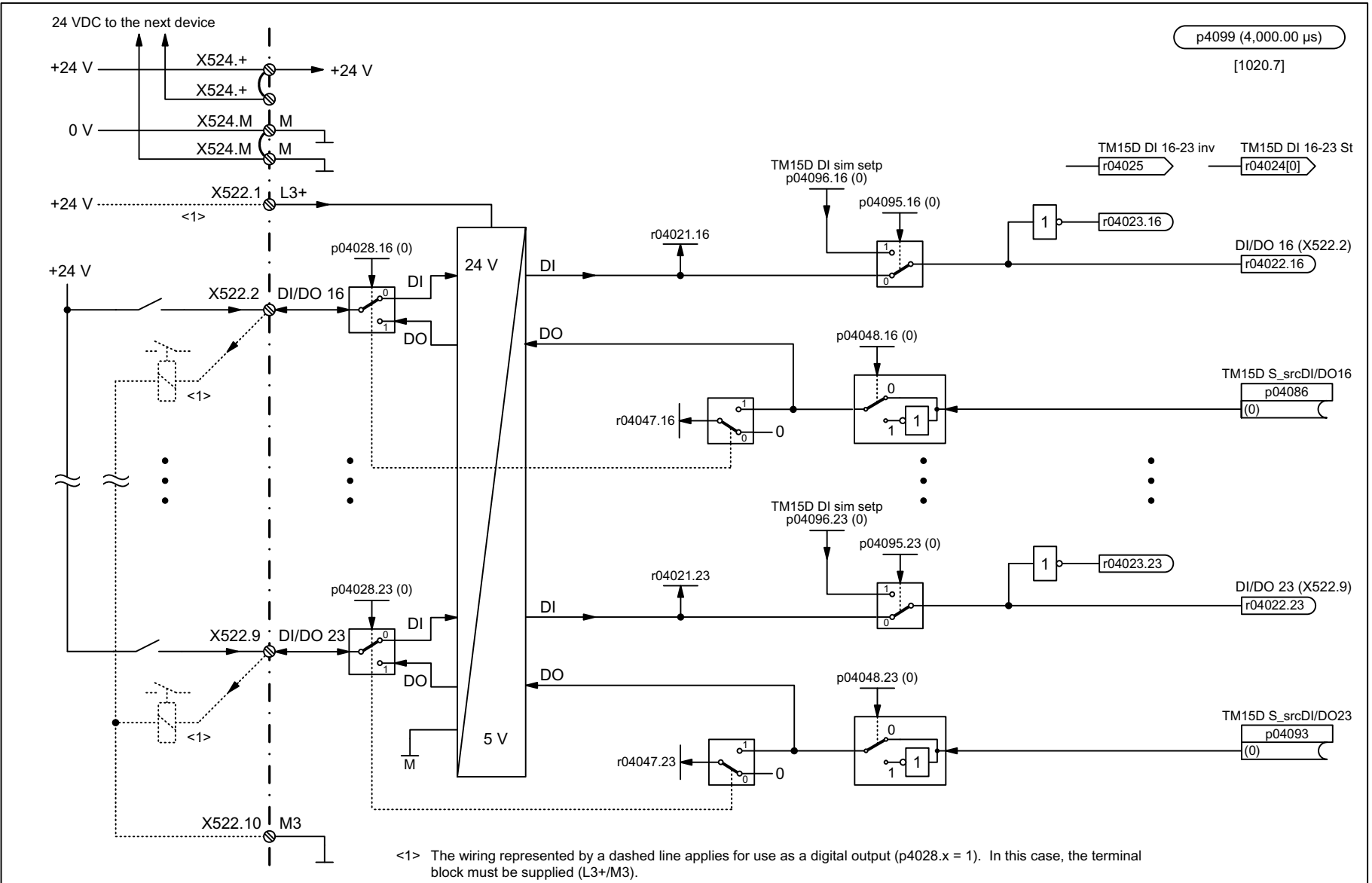
| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM15DI_DO | | | | SIEMENS | fp_9400_96_VSD | Function diagram | |
| Terminal Module 15 (TM15) - Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9400 - |

Fig. 3-150 9400 – Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7)

Fig. 3-151 9401 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15)



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM15DI_DO | | | | SIEMENS | fp_9401_96_VSD | Function diagram | |
| Terminal Module 15 (TM15) - Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9401 - |



<1> The wiring represented by a dashed line applies for use as a digital output (p0428.x = 1). In this case, the terminal block must be supplied (L3+/M3).

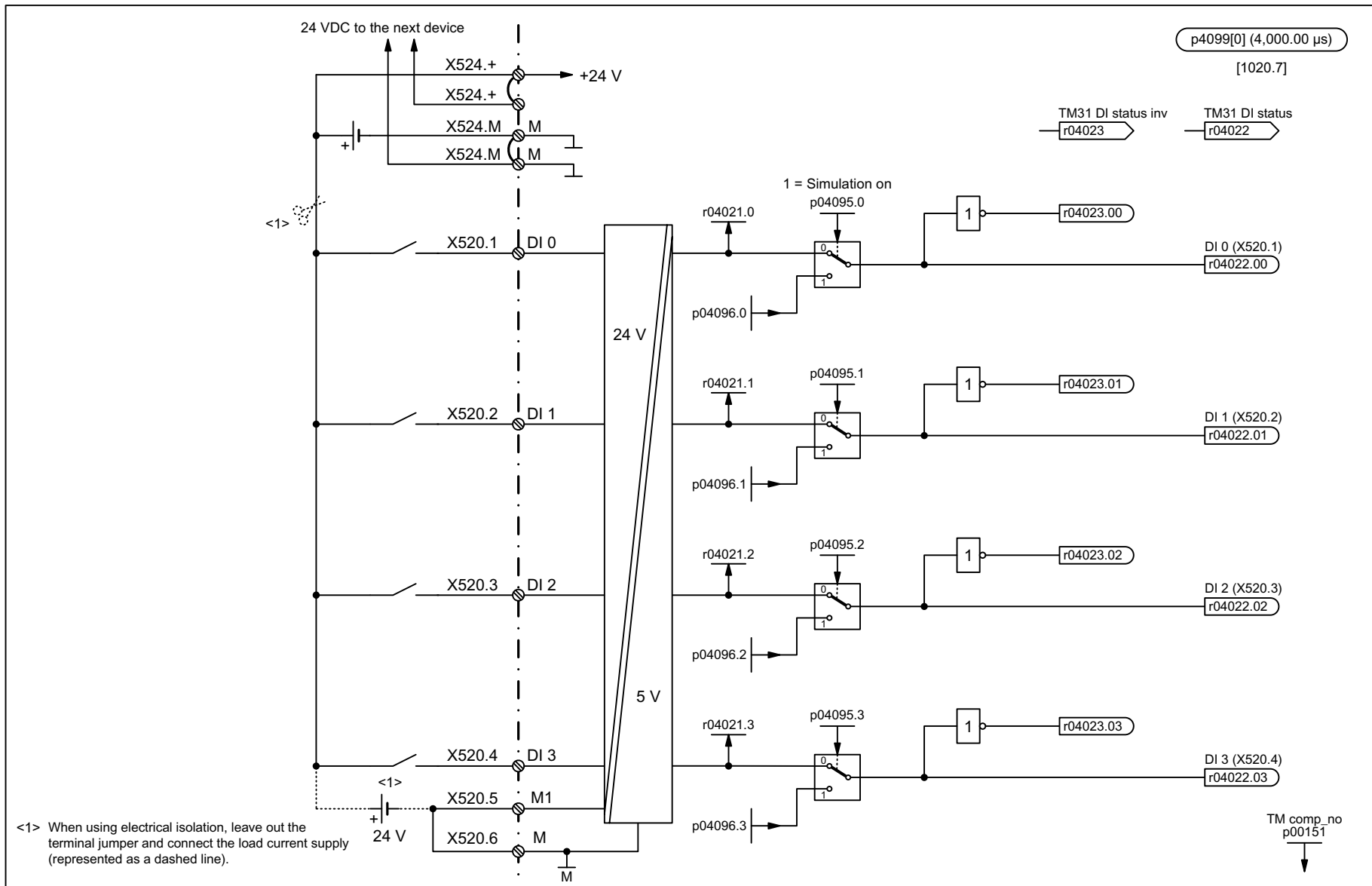
| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM15DI_DO | | | | SIEMENS | fp_9402_96_VSD | Function diagram | |
| Terminal Module 15 (TM15) - Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9402 - |

Fig. 3-152 9402 – Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23)

3.21 Terminal Module 31 (TM31)

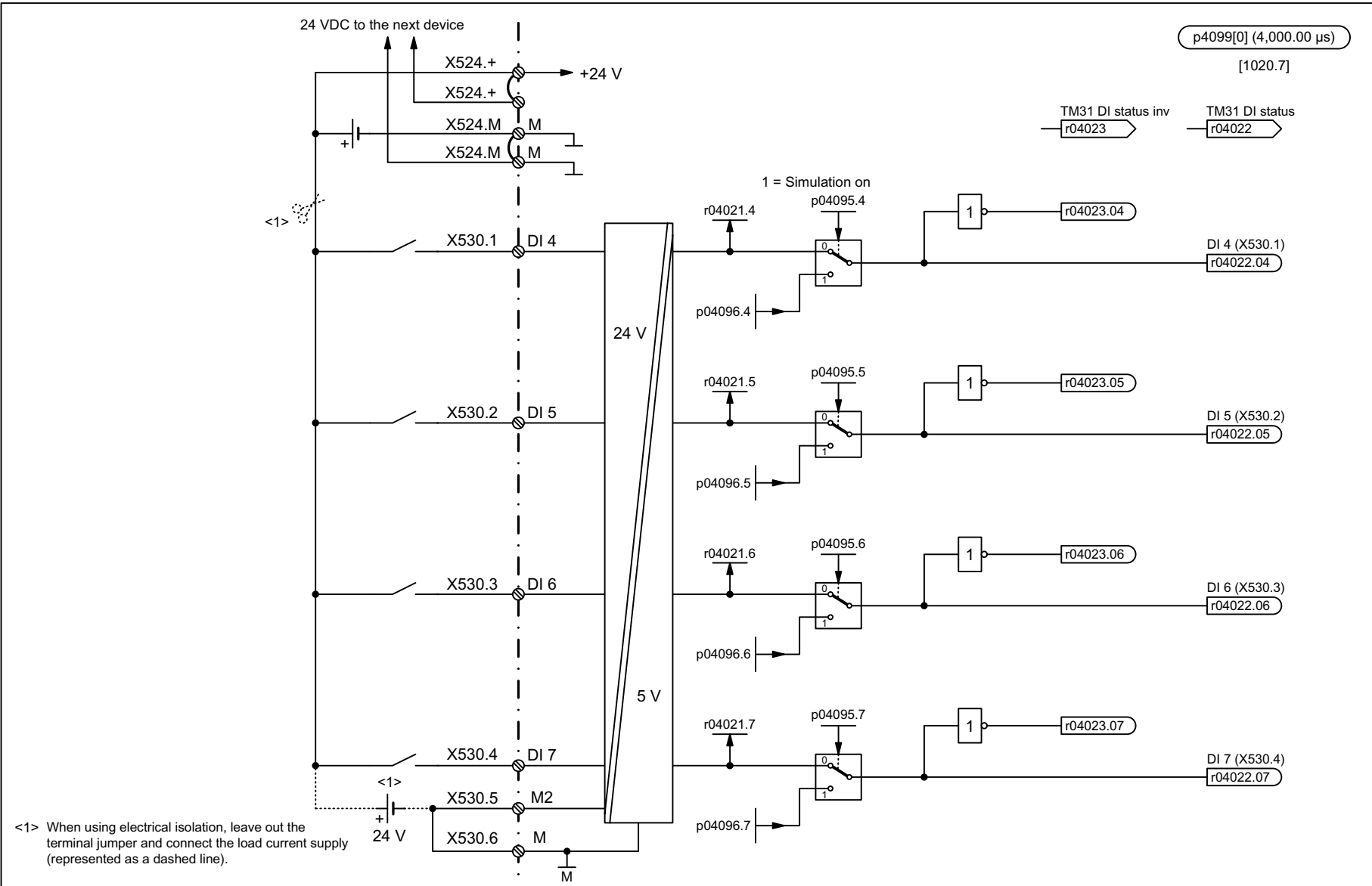
Function diagrams

| | |
|--|-----|
| 9550 – Digital inputs, electrically isolated (DI 0 ... DI 3) | 840 |
| 9552 – Digital inputs, electrically isolated (DI 4 ... DI 7) | 841 |
| 9556 – Digital relay outputs, electrically isolated (DO 0 ... DO 1) | 842 |
| 9560 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9) | 843 |
| 9562 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11) | 844 |
| 9566 – Analog input 0 (AI 0) | 845 |
| 9568 – Analog input 1 (AI 1) | 846 |
| 9572 – Analog outputs (AO 0 ... AO 1) | 847 |
| 9576 – Temperature evaluation KTY/PTC | 848 |
| 9577 – Sensor monitoring KTY/PTC | 849 |



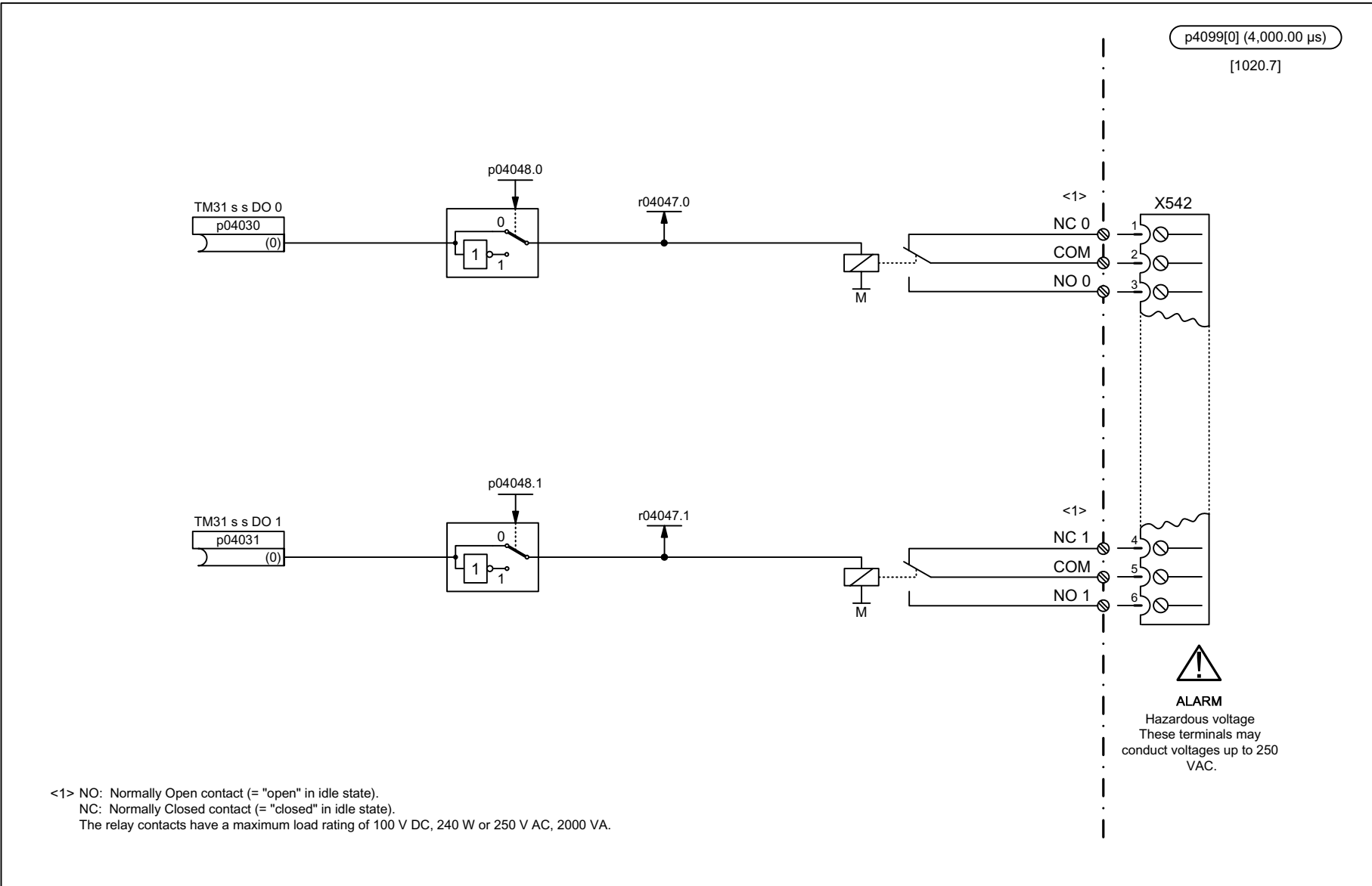
| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9550_96_VSD | Function diagram | |
| Terminal Module 31 (TM31) - Digital inputs, isolated (DI 0 ... DI 3) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9550 - |

Fig. 3-153 9550 – Digital inputs, electrically isolated (DI 0 ... DI 3)



| | | | | | | | |
|--|---|---|---|----------------|----------------|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9552_96_VSD | Function diagram | |
| Terminal Module 31 (TM31) - Digital inputs, isolated (DI 4 ... DI 7) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9552 - |

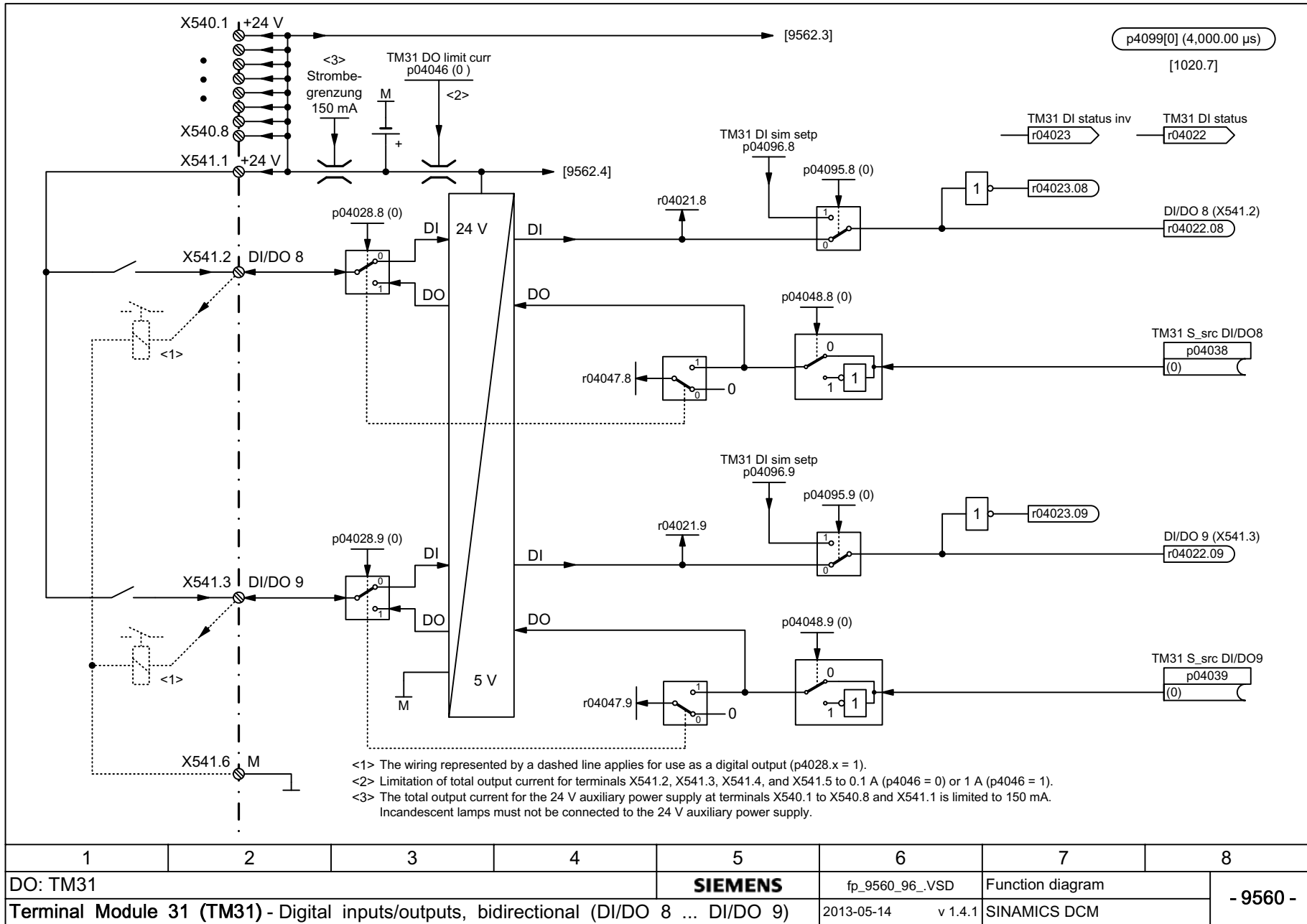
Fig. 3-154 9552 – Digital inputs, electrically isolated (DI 4 ... DI 7)

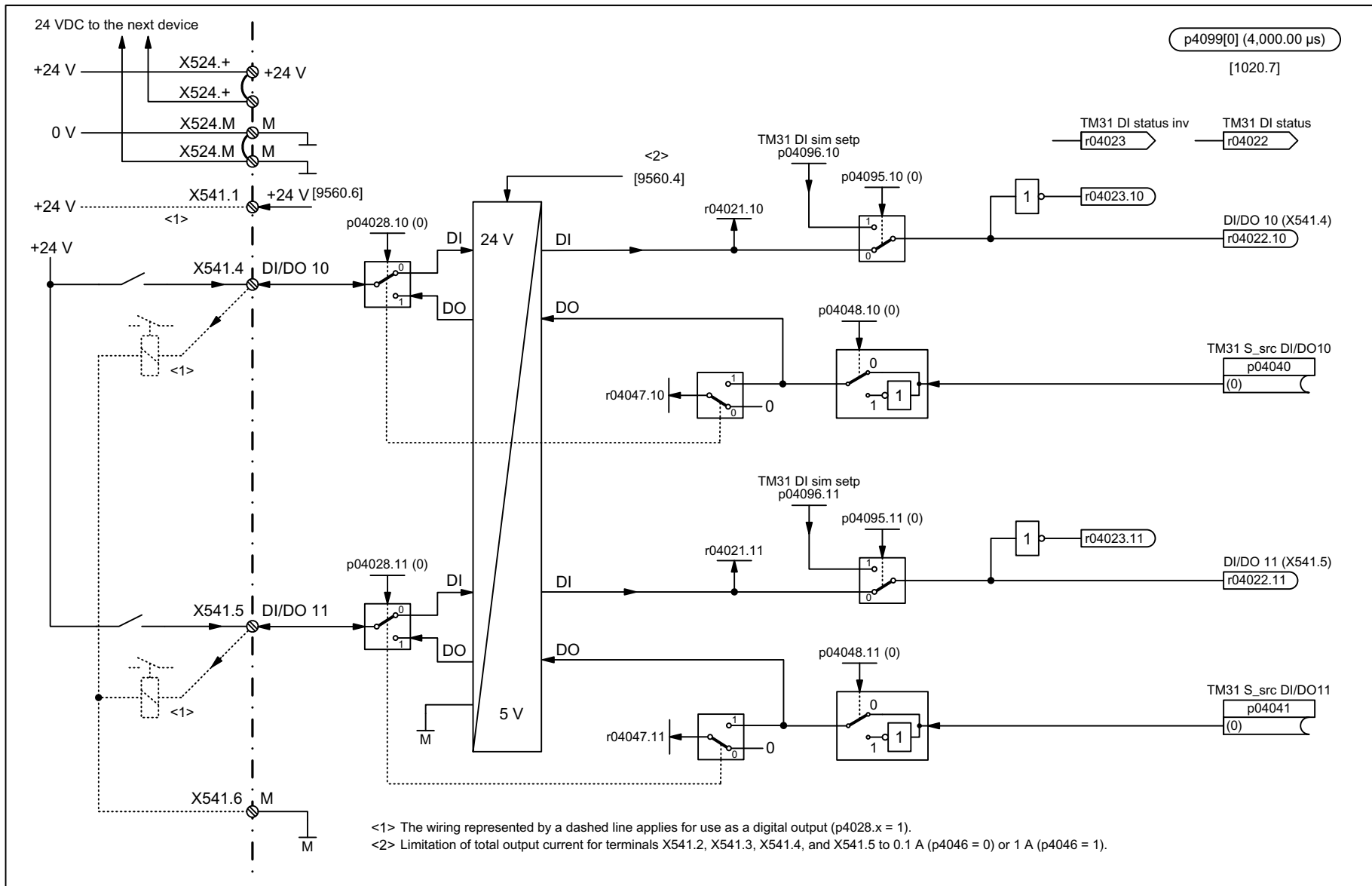


| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9556_96_VSD | Function diagram | |
| Terminal Module 31 (TM31) - Digital relay outputs, isolated (DO 0 ... DO 1) | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 9556 - |

Fig. 3-155 9556 – Digital relay outputs, electrically isolated (DO 0 ... DO 1)

Fig. 3-156 9560 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

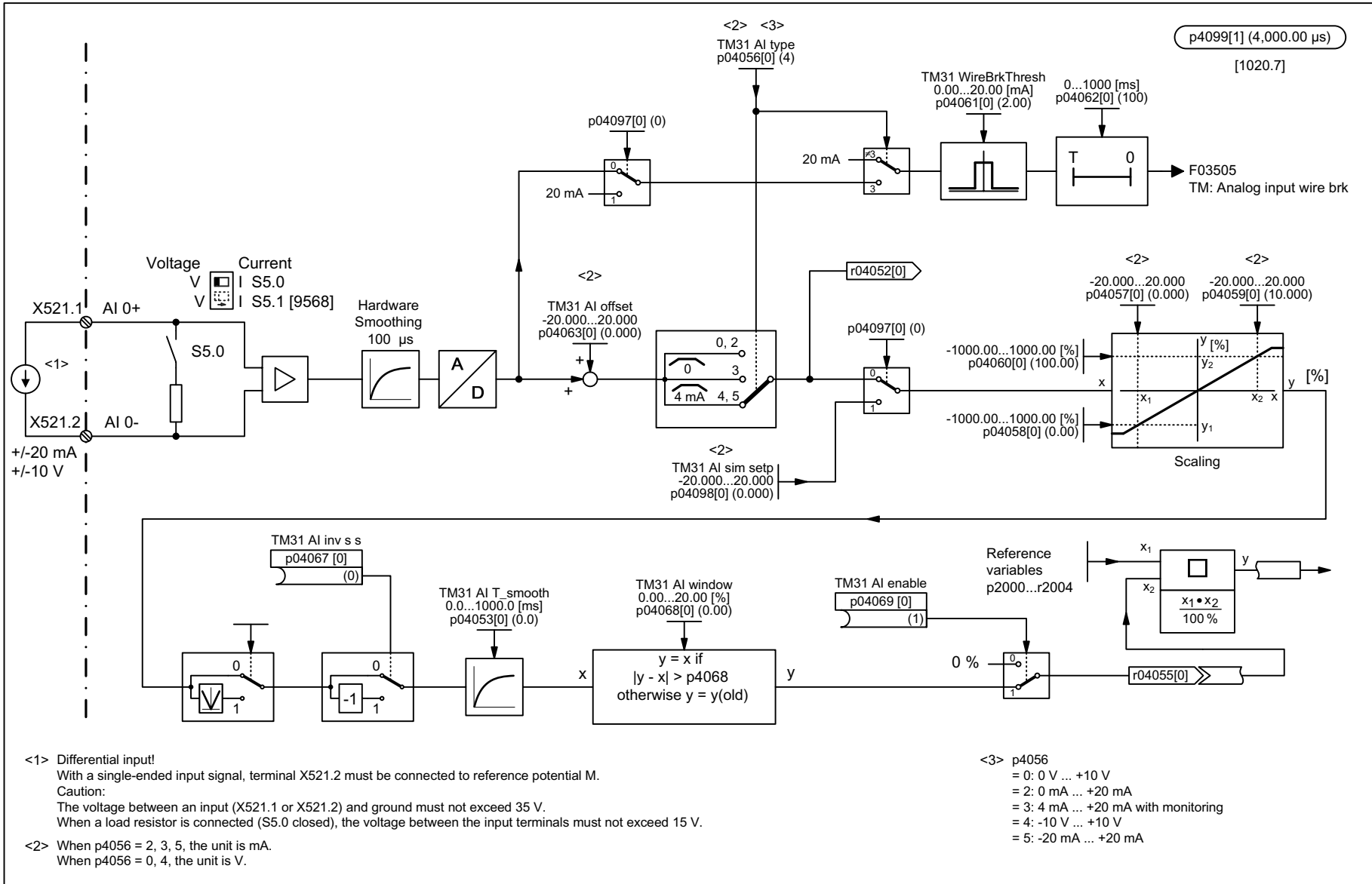




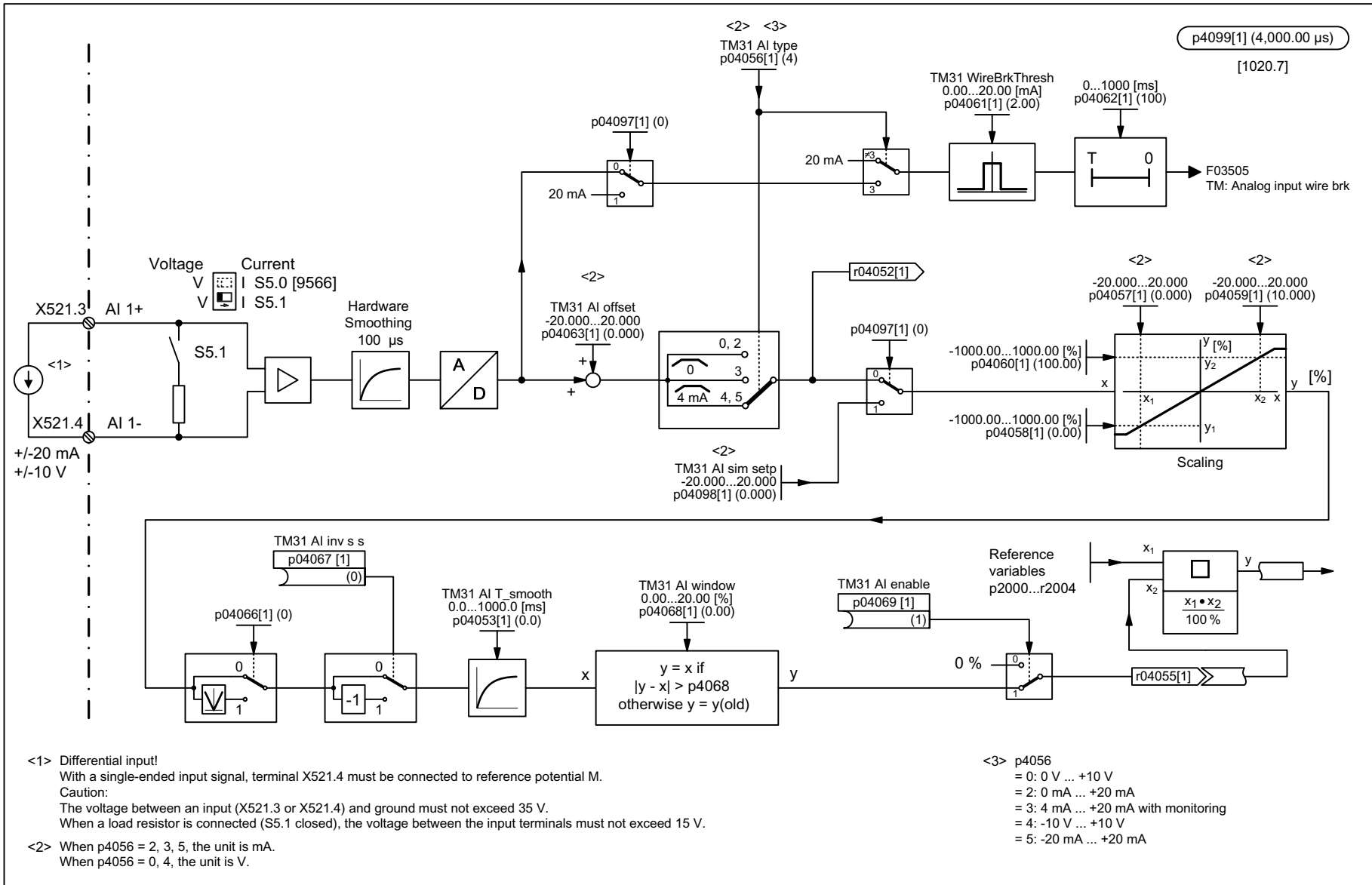
| | | | | | | | |
|---|---|---|---|----------------|----------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9562_96_VSD | Function diagram | |
| Terminal Module 31 (TM31) - Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11) | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9562 - |

Fig. 3-157 9562 - Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)

Fig. 3-158 9566 – Analog input 0 (AI 0)



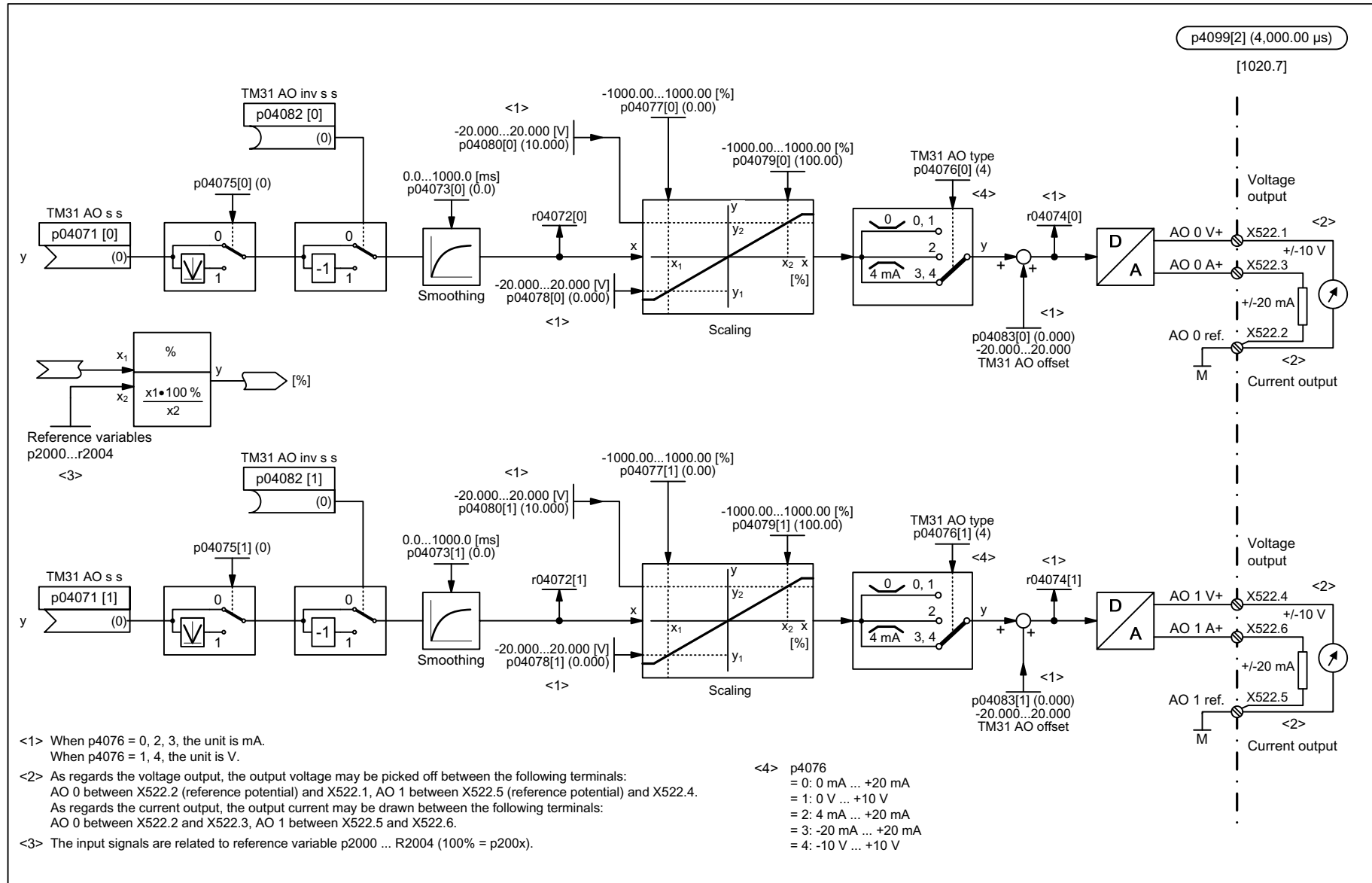
| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9566_96_VSD | Function diagram | |
| Terminal Module 31 (TM31) - Analog input 0 (AI 0) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9566 - |



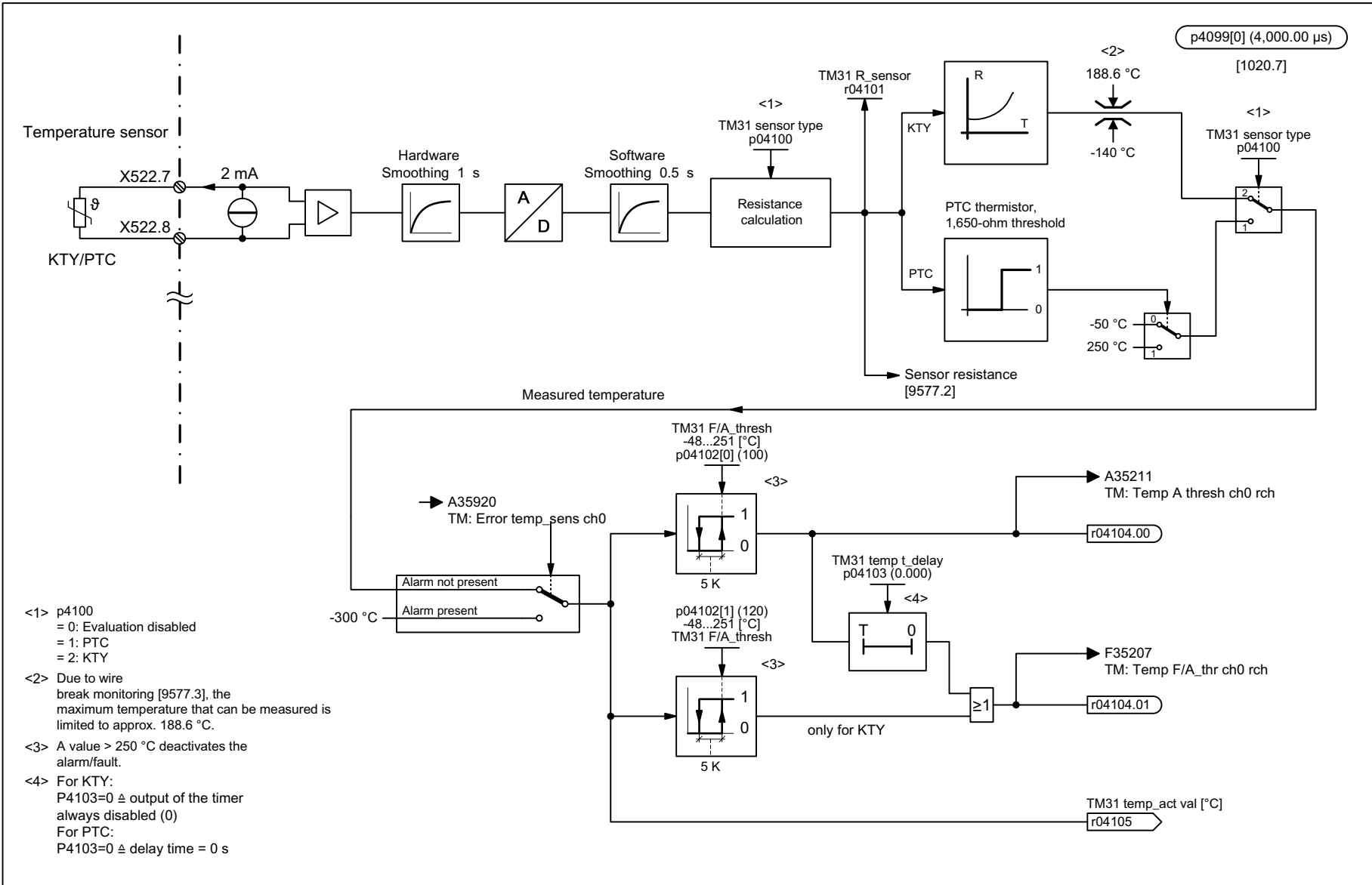
| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9568_96_VSD | Function diagram | |
| Terminal Module 31 (TM31) - Analog input 1 (AI 1) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9568 - |

Fig. 3-159 9568 – Analog input 1 (AI 1)

Fig. 3-160 9572 – Analog outputs (AO 0 ... AO 1)



| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9572_96_VSD | Function diagram | |
| Terminal Module 31 (TM31)- Analog outputs (AO 0 ... AO 1) | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9572 - |



<1> p4100
= 0: Evaluation disabled
= 1: PTC
= 2: KTY

<2> Due to wire break monitoring [9577.3], the maximum temperature that can be measured is limited to approx. 188.6 °C.

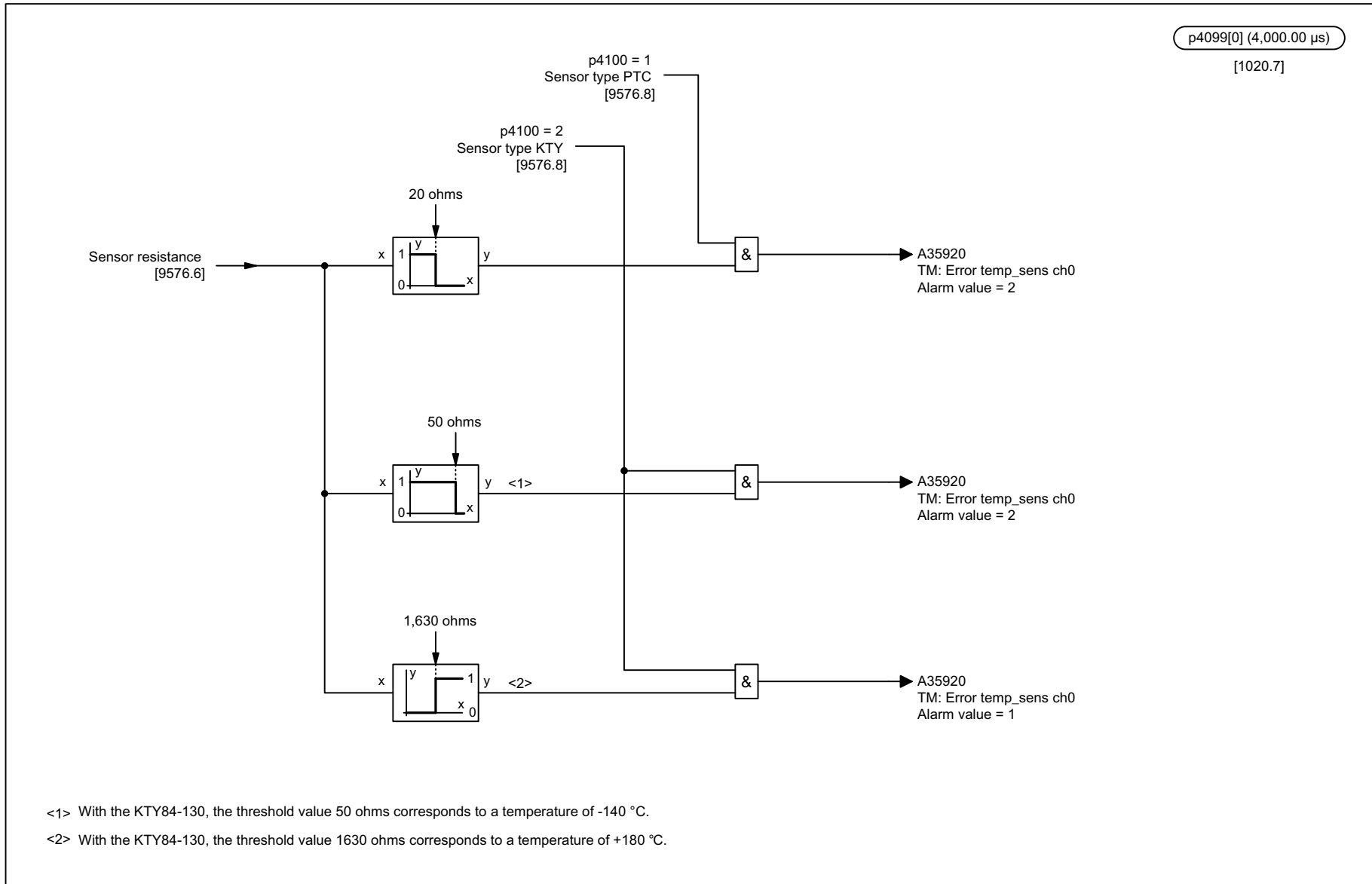
<3> A value > 250 °C deactivates the alarm/fault.

<4> For KTY:
P4103=0 Δ output of the timer always disabled (0)
For PTC:
P4103=0 Δ delay time = 0 s

| | | | | | | | |
|---|---|---|---|----------------|--------------------|------------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM31 | | | | SIEMENS | fp_9576_96_VSD | Function diagram | |
| Terminal Module 31 (TM31)- Temperature evaluation KTY/PTC | | | | | 2013-05-14 v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9576 - |

Fig. 3-161 9576 – Temperature evaluation KTY/PTC

Fig. 3-162 9577 – Sensor monitoring KTY/PTC



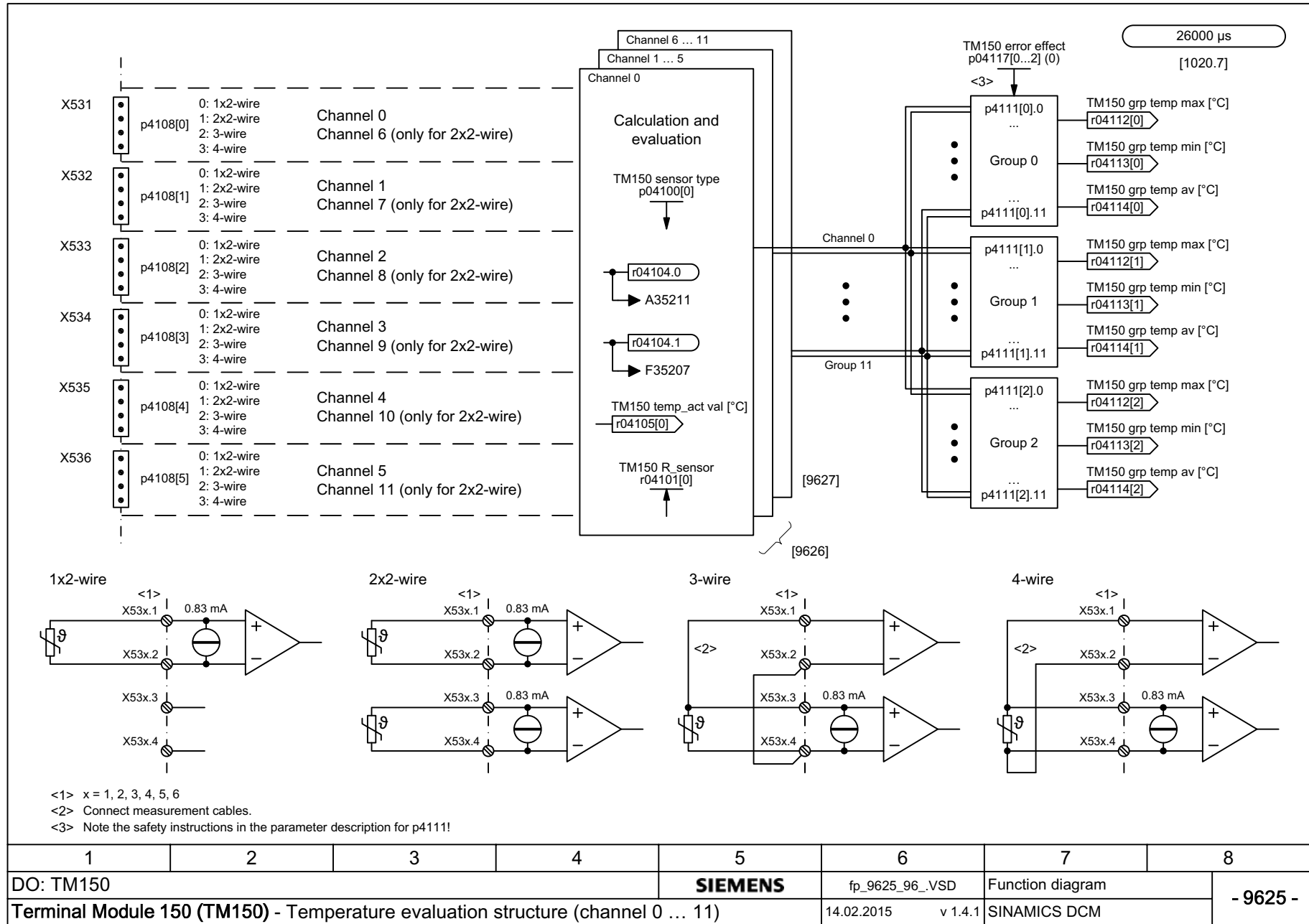
| | | | | | | | |
|---|---|---|---|----------------|---------------------|-----------------------|---------------|
| 1 | 2 | 3 | 4 | SIEMENS | 6 fp_9577_96_VSD | 7 Function diagram | 8 - 9577 - |
| DO: TM31 Terminal Module 31 (TM31) - Sensor monitoring KTY/PTC | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |

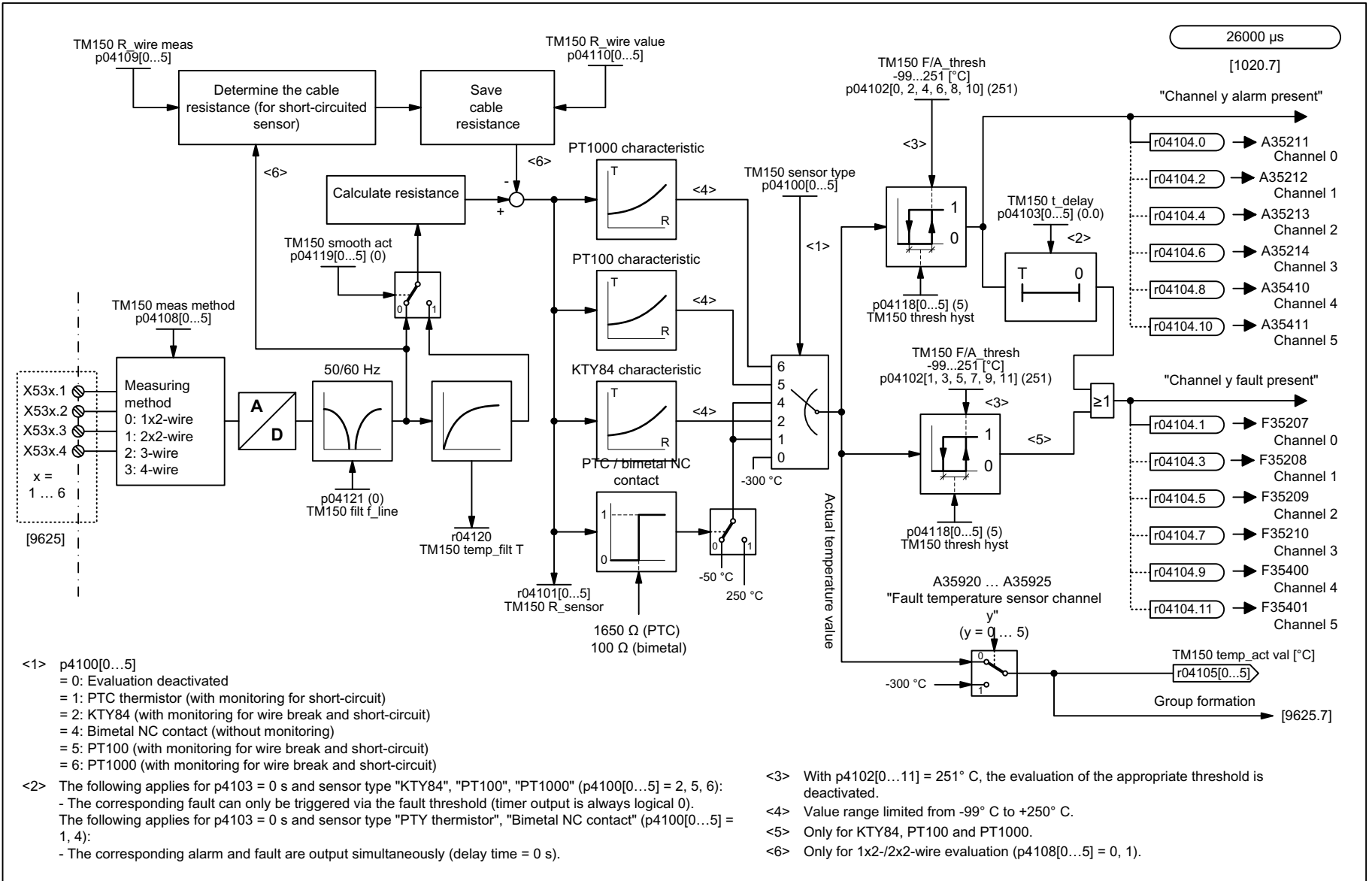
3.22 Terminal Module 150 (TM150)

Function diagrams

| | |
|--|-----|
| 9625 – Temperature evaluation structure (channel 0 ... 11) | 851 |
| 9626 – Temperature evaluation 1x2-, 3-, 4-wire (channel 0 ... 5) | 852 |
| 9627 – Temperature evaluation 2x2-wire (channel 0 ... 11) | 853 |

Fig. 3-163 9625 – Temperature evaluation structure (channel 0 ... 11)



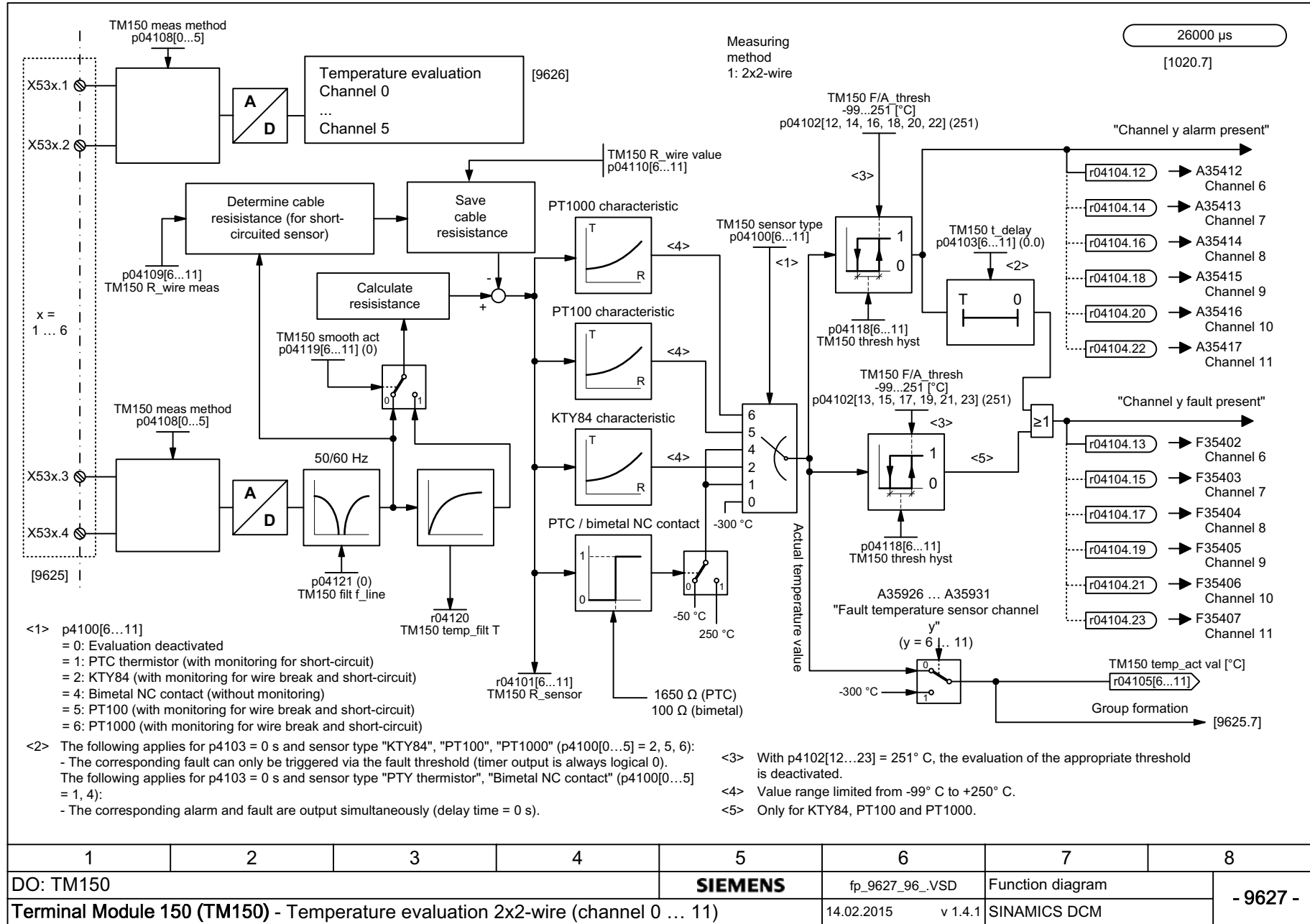


- <1> p4100[0...5]
 - = 0: Evaluation deactivated
 - = 1: PTC thermistor (with monitoring for short-circuit)
 - = 2: KTY84 (with monitoring for wire break and short-circuit)
 - = 4: Bimetal NC contact (without monitoring)
 - = 5: PT100 (with monitoring for wire break and short-circuit)
 - = 6: PT1000 (with monitoring for wire break and short-circuit)
- <2> The following applies for p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...5] = 2, 5, 6):
 - The corresponding fault can only be triggered via the fault threshold (timer output is always logical 0).
 The following applies for p4103 = 0 s and sensor type "PTY thermistor", "Bimetal NC contact" (p4100[0...5] = 1, 4):
 - The corresponding alarm and fault are output simultaneously (delay time = 0 s).
- <3> With p4102[0...11] = 251 °C, the evaluation of the appropriate threshold is deactivated.
- <4> Value range limited from -99 °C to +250 °C.
- <5> Only for KTY84, PT100 and PT1000.
- <6> Only for 1x2-/2x2-wire evaluation (p4108[0...5] = 0, 1).

| | | | | | | | |
|---|---|---|---|----------------|---------|----------------|------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM150 | | | | SIEMENS | | fp_9626_96_VSD | Function diagram |
| Terminal Module 150 (TM150) - Temperature evaluation 1x2-, 3-, 4-wire (channel 0 ... 5) | | | | 14.02.2015 | v 1.4.1 | SINAMICS DCM | |
| | | | | | | | - 9626 - |

Fig. 3-164 9626 - Temperature evaluation 1x2-, 3-, 4-wire (channel 0 ... 5)

Fig. 3-165 9627 - Temperature evaluation 2x2-wire (channel 0 ... 11)



| | | | | | | | |
|--|---|---|---|--------------------|---|------------------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: TM150 | | | | SIEMENS | | fp_9627_96_VSD | |
| Terminal Module 150 (TM150) - Temperature evaluation 2x2-wire (channel 0 ... 11) | | | | 14.02.2015 v 1.4.1 | | Function diagram | |
| | | | | | | SINAMICS DCM | |
| | | | | | | | - 9627 - |


3.23 Basic Operator Panel 20 (BOP20)

Function diagrams

9912 – Control word interconnection

855

Fig. 3-166 9912 – Control word interconnection

| Interconnection of STW BOP (r0019) | | <1> |
|------------------------------------|---|---------------------------|
| Signal | Meaning | Interconnection parameter |
| STW BOP.0 | 1 = ON 0 = OFF (OFF1) | p0840[0] = r0019.0 |
| STW BOP.1 | 1 = Do not coast down 0 = Coast down (OFF2) | p0844[0] = r0019.1 |
| STW BOP.2 | 1 = No quick stop 0 = Quick stop (OFF3) | p0848[0] = r0019.2 |
| STW BOP.3 | Reserved | - |
| STW BOP.4 | Reserved | - |
| STW BOP.5 | Reserved | - |
| STW BOP.6 | Reserved | - |
| STW BOP.7 |  = Acknowledge fault | p2102[0] = r0019.7 |
| STW BOP.8 | Reserved | - |
| STW BOP.9 | Reserved | - |
| STW BOP.10 | Reserved | - |
| STW BOP.11 | Reserved | - |
| STW BOP.12 | Reserved | - |
| STW BOP.13 | 1 = Motorized potentiometer, higher | p1035[0] = r0019.13 |
| STW BOP.14 | 1 = Motorized potentiometer, lower | p1036[0] = r0019.14 |
| STW BOP.15 | Reserved | - |

<1> The BICO interconnection is just an example and may be changed by the user.

PROFIdrive sampling time
[1020.7]

| | | | | | | | |
|---|---|---|---|----------------|-----------------|------------------|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| DO: CU_DC | | | | SIEMENS | fp_9912_96_.VSD | Function diagram | |
| Basic Operator Panel (BOP20) - Control word interconnection | | | | | 2013-05-14 | v 1.4.1 | SINAMICS DCM |
| | | | | | | | - 9912 - |

Faults and alarms

Content

| | | |
|-----|-------------------------------|-----|
| 4.1 | Overview of faults and alarms | 858 |
| 4.2 | List of faults and alarms | 870 |

4.1 Overview of faults and alarms

4.1.1 General information on faults and alarms

Fault/alarm displays

In the case of a fault, the drive signals the corresponding fault(s) and/or alarm(s).

The following methods are available for displaying faults and alarms:

- Display via the fault and alarm buffer for PROFIBUS.
- In online operation, display via the commissioning software.

Differences between faults and alarms

The differences between faults and alarms are as follows:

Table 4-1 Differences between faults and alarms

| Type | Description |
|--------|---|
| Faults | <p>What happens when a fault occurs?</p> <ul style="list-style-type: none"> • The appropriate fault reaction is initiated. • Status signal ZSW1.3 is set. • The fault is entered into the fault buffer. <p>How are faults removed?</p> <ul style="list-style-type: none"> • Remove the original cause of the fault. • Acknowledge the fault. |
| Alarms | <p>What happens when an alarm occurs?</p> <ul style="list-style-type: none"> • Status signal ZSW1.7 is set. • The alarm is entered into the alarm buffer. <p>How are alarms removed?</p> <ul style="list-style-type: none"> • Alarms acknowledge themselves. If the cause of the alarm is no longer present, they automatically reset themselves. |

Fault reactions

The following fault reactions are defined:

Table 4-2 Fault reactions

| List | PROFIdrive | Reaction | Description |
|------------------|---------------|---|--|
| NONE | - | None | No reaction when a fault occurs. |
| OFF1 | ON/ OFF | Brake along the ramp-function generator down ramp followed by pulse inhibit | <p>Closed-loop speed control (p50084 = 1)</p> <ul style="list-style-type: none"> • n_set = 0 is input immediately to brake the drive along the ramp-function generator down ramp. • When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the closing time (p50088) expires. <p>Zero speed is detected when the actual speed value falls below the speed threshold (p50370).</p> <p>Closed-loop torque control (p50084 = 2)</p> <ul style="list-style-type: none"> • The following applies for closed-loop torque control: Reaction as for OFF2. |
| OFF2 | COAST STOP | Internal/external pulse inhibit | <p>Closed-loop speed and torque control</p> <ul style="list-style-type: none"> • Immediate pulse suppression, the drive “coasts” to a standstill. • Switching on inhibited is activated. |
| OFF3 | QUICK STOP | Brake along the OFF3 down ramp followed by pulse inhibit | <p>Closed-loop speed control (p50084 = 1)</p> <ul style="list-style-type: none"> • n_set = 0 is input immediately to brake the drive along the OFF3 down ramp (p50296). • When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the holding brake's closing time (p50088) expires. <p>Zero speed is detected when the actual speed value falls below the speed threshold (p50370).</p> <ul style="list-style-type: none"> • Switching on inhibited is activated. <p>Closed-loop torque control (p50084 = 2)</p> <ul style="list-style-type: none"> • Reaction as for OFF2. |
| STOP2 | - | OFF2 | For SINAMICS DCM, these fault reactions have the same effect as for OFF2. |
| IASC/ DCBRAKE | | | |
| ENCODER | | | |

Acknowledgment of faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been removed.

Table 4-3 Acknowledgment of faults

| Acknowledgment | Description | | | | | | | | |
|----------------|---|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|----------------------------|
| POWER ON | <p>The fault is acknowledged by a POWER ON (switch drive unit off and on again).</p> <p>Note: If this action has not removed the fault cause, the fault is displayed again immediately after power up.</p> | | | | | | | | |
| IMMEDIATELY | <p>Faults can be acknowledged on one drive object (Points 1 to 3) or on all drive objects (Point 4) as follows:</p> <p>1 Acknowledge by setting parameter: p3981 = 0 --> 1</p> <p>2 Acknowledge via binector inputs:</p> <table> <tr> <td>p2103</td> <td>BI: 1. Acknowledge faults</td> </tr> <tr> <td>p2104</td> <td>BI: 2. Acknowledge faults</td> </tr> <tr> <td>p2105</td> <td>BI: 3. Acknowledge faults</td> </tr> </table> <p>3 Acknowledge using a PROFIBUS control signal: STW1.7 = 0 --> 1 (edge)</p> <p>4 Acknowledge all faults</p> <table> <tr> <td>p2102</td> <td>BI: Acknowledge all faults</td> </tr> </table> <p>All of the faults on all of the drive objects of the drive system can be acknowledged using this binector input.</p> <p>Note:</p> <ul style="list-style-type: none"> • These faults can also be acknowledged by a POWER ON. • If the cause of the fault has not been removed, then the fault will continue to be displayed after acknowledgment. | p2103 | BI: 1. Acknowledge faults | p2104 | BI: 2. Acknowledge faults | p2105 | BI: 3. Acknowledge faults | p2102 | BI: Acknowledge all faults |
| p2103 | BI: 1. Acknowledge faults | | | | | | | | |
| p2104 | BI: 2. Acknowledge faults | | | | | | | | |
| p2105 | BI: 3. Acknowledge faults | | | | | | | | |
| p2102 | BI: Acknowledge all faults | | | | | | | | |
| PULSE INHIBIT | <p>The fault can only be acknowledged when the pulses are inhibited (r0899.11 = 0).</p> <p>The same options are available for acknowledging as described under acknowledge IMMEDIATELY.</p> | | | | | | | | |

Saving the fault buffer when switching off

The contents of the fault buffer are saved to the non-volatile memory when the Control Unit is switched off, i.e. the fault buffer history is still available when the unit is switched on again.

The fault buffer of a drive object comprises the following parameters:

- r0945[0...63], r0947[0...63], r0948[0...63], r0949[0...63]
- r2109[0...63], r2130[0...63], r2133[0...63], r2136[0...63]

The fault buffer contents can be deleted manually as follows:

- Delete fault buffer for all drive objects:
p2147 = 1 --> p2147 = 0 is automatically set after execution.
- Delete fault buffer for a specific drive object:
p0952 = 0 --> The parameter belongs to the specified drive object.

The fault buffer contents are automatically deleted when the following occurs:

- Restore factory setting (p0009 = 30 and p0976 = 1).
- Download with modified structure (e.g. number of drive objects changed).
- Power-up after other parameter values have been loaded (e.g. p0976 = 10).
- Upgrade firmware to later version.

4.1.2 Explanation of the list of faults and alarms

The data in the following example have been chosen at random. The information listed below is the maximum amount of information that a description can contain. Some of the information is optional.

The "List of faults and alarms" (Page 870) has the following layout:

----- **Start of example** -----

| | |
|------------------------|---|
| Axxxxx (F, N) | Fault location (optional): Name |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Text of the message class (number according to PROFIdrive) |
| Drive object: | List of objects. |
| Reaction: | NONE |
| Acknowledgment: | NONE |
| Cause: | Description of possible causes. Fault value (r0949, interpret format): or alarm value (r2124, interpret format): (optional) Information about fault or alarm values (optional). |
| Remedy: | Description of possible remedies. |
| Reaction to F: | NONE (OFF1, OFF2, OFF3) |
| Acknowledgment for F: | IMMEDIATELY (POWER ON) |
| Reaction to N: | NONE |
| Acknowledgment for N: | NONE |

----- **End of example** -----

| | |
|----------------------|--|
| Axxxxx | Alarm xxxxx |
| Axxxxx (F, N) | Alarm xxxxx (message type can be changed in F or N) |
| Fxxxxx | Fault xxxxx |
| Fxxxxx (A, N) | Fault xxxxx (message type can be changed in A or N) |
| Nxxxxx | No message |
| Nxxxxx (A) | No message (message type can be changed in A) |

A message comprises a letter followed by the relevant number.

The meaning of the letters is as follows:

- A means "Alarm"
- F means "Fault"
- N means "No message" or "Internal message" (or "No report")

The optional brackets indicate whether the type specified for this message can be changed and which message types can be adjusted via parameters (p2118, p2119).

Information about reaction and acknowledgment is specified independently for a message with adjustable message type (e.g. reaction to F, acknowledgment for F).

Note:

You can change the default properties of a fault or alarm by setting parameters.

References: SINAMICS DC MASTER operating instructions

The "List of faults and alarms" (Page 870) supplies information referred to the properties of a message set as default. If the properties of a specific message are changed, the corresponding information may have to be modified in this list.

Fault location (optional): Name

The fault location (optional), the name of the fault or alarm and the message number are all used to identify the message (e.g. with the commissioning software).

Message value:

The information provided under the message value informs you about the composition of the fault/alarm value.

Example:

Message value: Component number: %1, fault cause: %2

This message value contains information about the component number and cause of the fault. The entries %1 and %2 are placeholders, which are filled appropriately in online operation (e.g. with the commissioning software).

Message class:

For each message, specifies the associated message class with the following structure:

Text of the message class (number according to PROFIdrive)

The message classes are transferred at different interfaces to higher-level control systems and their associated display and operating units.

The message classes that are available are shown in Table "Message classes and coding of various diagnostic interfaces" (Page 864). In addition to the text of the message class and their number according to PROFIdrive – as well as a brief help text regarding the cause and remedy – they also include information about the various diagnostic interfaces:

- PN (hex)
 - Specifies the "Channel error type" of the PROFINET channel diagnostics.
 - When activating the channel diagnostics, using the GSDML file, the texts listed in the table can be displayed.
- DS1 (dec)
 - Specifies the bit number in data set DS1 of the diagnostic alarm for SIMATIC S7.
 - When the diagnostic alarms are activated, the texts listed in the table can be displayed.
- DP (dec)
 - Specifies the "Error type" of the channel-related diagnostics for PROFIBUS.
 - When the channel diagnostics are activated, the texts listed in the standard and the GSD file can be displayed.

4 Faults and alarms

4.1 Overview of faults and alarms

- ET 200 (dec)

Specifies the "Error type" of the channel-related diagnostics for the SIMATIC ET 200pro FC-2 device.

When the channel diagnostics are activated, the texts listed in the standard and the GSD file of the ET 200pro can be displayed.

- NAMUR (r3113.x)

Specifies the bit number in parameter r3113.

For the interfaces DP, ET 200, NAMUR, in some instances, the message classes are combined.

Table 4-4 Message classes and coding of various diagnostic interfaces

| Text of the message class (number according to PROFIdrive) Cause and remedy. | Diagnostics interface | | | | |
|---|-----------------------|--------------|----------------------------------|----------------------------------|--------------------|
| | PN (hex) | DS1 (dec) | DP (dec) | ET 200 (dec) | NAMUR (r3113.x) |
| Hardware/software errors (1) A hardware or software malfunction was detected. Carry out a POWER ON for the relevant component. If it occurs again, contact the hotline. | 9000 | 0 | 16 | 9 | 0 |
| Line fault (2) A line supply fault has occurred (phase failure, voltage level ...). Check the line supply and fuses. Check the supply voltage. Check the wiring. | 9001 | 1 | 17 | 24 | 1 |
| Supply voltage fault (3) An electronics supply voltage fault (48 V, 24 V, 5 V ...) was detected. Check the wiring. Check the voltage level. | 9002 | 2 | 2 ¹ 3 ² | 2 ¹ 3 ² | 15 |
| DC-link overvoltage (4) The DC-link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings. | 9003 | 3 | 18 | 24 | 2 |
| Power electronics fault (5) An impermissible operating state of the power electronics was detected (overcurrent, overtemperature, IGBT failure ...). Check compliance with the permissible load cycles. Check the ambient temperatures (fan). | 9004 | 4 | 19 | 24 | 3 |
| Overtemperature of the electronic component (6) The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet ventilation. | 9005 | 5 | 20 | 5 | 4 |
| Ground fault / inter-phase short-circuit detected (7) A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cables (connection). Check the motor. | 9006 | 6 | 21 | 20 | 5 |
| Motor overload (8) The motor was operated outside the permissible limits (temperature, current, torque ...). Check the load cycles and set limits. Check the ambient temperature / motor cooling. | 9007 | 7 | 22 | 24 | 6 |

Table 4-4 Message classes and coding of various diagnostic interfaces, continued

| Text of the message class (number according to PROFIdrive) Cause and remedy. | Diagnostics interface | | | | |
|--|-----------------------|--------------|-------------|-----------------|--------------------|
| | PN (hex) | DS1 (dec) | DP (dec) | ET 200 (dec) | NAMUR (r3113.x) |
| Communication to the higher-level controller faulted (9) The communication to the higher-level controller (internal coupling, PROFIBUS, PROFINET ...) is faulted or interrupted. Check the state of the higher-level controller. Check the communication connection/-wiring. Check the bus configuration/cycles. | 9008 | 8 | 23 | 19 | 7 |
| Safety monitoring channel has detected an error (10) A safe operation monitoring function has detected an error. | 9009 | 9 | 24 | 25 | 8 |
| Actual position/speed value incorrect or not available (11) An illegal signal state was detected while evaluating the encoder signals (track signals, zero marks, absolute values ...). Check the encoder / state of the encoder signals. Observe the maximum permissible frequencies. | 900A | 10 | 25 | 29 | 9 |
| Internal (DRIVE-CLiQ) communication faulted (12) The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant installation. Observe the maximum permissible quantity structures / cycles. | 900B | 11 | 26 | 31 | 10 |
| Infeed fault (13) The infeed is faulty or has failed. Check the infeed and its environment (line supply, filters, reactors, fuses ...). Check the infeed control. | 900C | 12 | 27 | 24 | 11 |
| Braking controller / Braking Module faulted (14) The internal or external Braking Module is faulted or overloaded (temperature). Check the connection/state of the Braking Module. Comply with the permissible number of braking operations and their duration. | 900D | 13 | 28 | 24 | 15 |
| Line filter fault (15) The line filter monitoring has detected an excessively high temperature or another impermissible state. Check the temperature / temperature monitoring. Check the configuration to ensure that it is permissible (filter type, infeed, thresholds). | 900E | 14 | 17 | 24 | 15 |
| External measured value / signal state outside of the permissible range (16) A measured value / signal state read in via the input area (digital/analog/temperature) has assumed an impermissible value/state. Identify and check the relevant signal. Check the set thresholds. | 900F | 15 | 29 | 26 | 15 |
| Application / technological function faulty (17) The application / technological function has exceeded a (set) limit (position, velocity, torque ...). Identify and check the relevant limit. Check the setpoint specification of the higher-level controller. | 9010 | 16 | 30 | 9 | 15 |

Table 4-4 Message classes and coding of various diagnostic interfaces, continued

| Text of the message class (number according to PROFIdrive) Cause and remedy. | Diagnostics interface | | | | |
|--|-----------------------|--------------|-------------|-----------------|--------------------|
| | PN (hex) | DS1 (dec) | DP (dec) | ET 200 (dec) | NAMUR (r3113.x) |
| Error in the parameterization/configuration/commissioning procedure (18) An error was identified in the parameterization or in a commissioning procedure, or the parameterization does not match the actual device configuration. Determine the precise cause of the fault using the commissioning tool. Adapt the parameterization or device configuration. | 9011 | 17 | 31 | 16 | 15 |
| General drive fault (19) Group fault. Determine the precise cause of the fault using the commissioning tool. | 9012 | 18 | 9 | 9 | 15 |
| Auxiliary unit fault (20) The monitoring of an auxiliary unit (incoming transformer, cooling unit ...) has detected an illegal state. Determine the exact cause of the fault and check the relevant device. | 9013 | 19 | 29 | 26 | 15 |

1. Undervoltage condition of the electronics power supply
2. Overvoltage condition of the electronics power supply

Drive object:

Each message (fault/alarm) specifies the drive object in which it can be found.
A message can belong to either one, several, or all drive objects.

Reaction: Default fault reaction (adjustable fault reaction)

Specifies the default reaction in the event of a fault.
The optional parentheses indicate whether the default fault reactions can be changed and which fault reactions can be adjusted via parameters (p2100, p2101).

Note

See Table "Fault reactions" (Page 859)

Acknowledgment: Default acknowledgment (adjustable acknowledgment)

Specifies the default method of acknowledging faults after the cause has been eliminated.
The optional parentheses indicate whether the default acknowledgment can be changed and which acknowledgment can be adjusted via parameters (p2126, p2127).

Note

See Table "Acknowledgment of faults" (Page 860)

Cause:

Description of the possible causes of the fault/alarm. A fault or alarm value can also be specified (optional).

Fault value (r0949, format):

The fault value is entered in the fault buffer in r0949[0...63] and specifies additional, more precise information about a fault.

Alarm value (r2124, format):

The alarm value specifies additional, more precise information about an alarm.

The alarm value is entered in the alarm buffer in r2124[0...7] and specifies additional, more precise information about an alarm.

Remedy:

Description of the methods available for removing the cause of the active fault or alarm.

**WARNING**

In certain cases, servicing and maintenance personnel are responsible for choosing a suitable method to remove the fault cause.

4.1.3 Number ranges of faults and alarms

Note:

The following number ranges represent an overview of all faults and alarms used in the SINAMICS drive family.

The faults and alarms for the product described in this List Manual are described in detail in "List of faults and alarms" (Page 870).

Faults and alarms are organized into the following number ranges:

Table 4-5 Number ranges of faults and alarms

| of | To | Area |
|-------|-------|---|
| 1000 | 3999 | Control Unit |
| 4000 | 4999 | Reserved |
| 5000 | 5999 | Power section |
| 6000 | 6899 | Infeed |
| 6900 | 6999 | Braking Module |
| 7000 | 7999 | Drive |
| 8000 | 8999 | Option Board |
| 9000 | 12999 | Reserved |
| 13000 | 13020 | Licensing |
| 13021 | 13099 | Reserved |
| 13100 | 13102 | Know-how protection |
| 13103 | 19999 | Reserved |
| 20000 | 29999 | OEM |
| 30000 | 30999 | DRIVE-CLiQ component power unit |
| 31000 | 31999 | DRIVE-CLiQ component encoder 1 |
| 32000 | 32999 | DRIVE-CLiQ component encoder 2 Note Faults that occur are automatically output as an alarm if the encoder is parameterized as a direct measuring system and does not intervene in the motor control. |
| 33000 | 33999 | DRIVE-CLiQ component encoder 3 Note Faults that occur are automatically output as an alarm if the encoder is parameterized as a direct measuring system and does not intervene in the motor control. |
| 34000 | 34999 | Voltage Sensing Module (VSM) |
| 35000 | 35199 | Terminal Module 54F (TM54F) |
| 35200 | 35999 | Terminal Module 31 (TM31) |
| 36000 | 36999 | DRIVE-CLiQ Hub Module |
| 37000 | 37999 | HF Damping Module |

Table 4-5 Number ranges of faults and alarms, continued

| of | To | Area |
|-----------|-----------|---|
| 40000 | 40999 | Controller Extension 32 (CX32) |
| 41000 | 48999 | Reserved |
| 49000 | 49999 | SINAMICS GM/SM/GL |
| 50000 | 50499 | Communication Board (COMM BOARD) |
| 50500 | 59999 | OEM Siemens |
| 60000 | 65535 | SINAMICS DC MASTER (closed-loop DC current control) |

4.2 List of faults and alarms

Product: SINAMICS DC MASTER, Version: 4702900, Language: eng
Objects: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Product: SINAMICS DC MASTER OA, Version: 1401800, Language: eng
Objects: DC_CTRL

F01000

Internal software error

Message value: Module: %1, line: %2
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- evaluate fault buffer (r0945).
- carry out a POWER ON (power off/on) for all components.
- if required, check the data on the non-volatile memory (e.g. memory card).
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

F01001

FloatingPoint exception

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An exception occurred during an operation with the FloatingPoint data type.
The error may be caused by the basic system or an OA application (e.g., FBLOCKS, DCC).
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Note:
Refer to r9999 for further information about this fault.
r9999[0]: Fault number.
r9999[1]: Program counter at the time when the exception occurred.
r9999[2]: Cause of the FloatingPoint exception.
Bit 0 = 1: Operation invalid
Bit 1 = 1: Division by zero
Bit 2 = 1: Overflow
Bit 3 = 1: Underflow
Bit 4 = 1: Inaccurate result
Remedy:
- carry out a POWER ON (power off/on) for all components.
- check configuration and signals of the blocks in FBLOCKS.
- check configuration and signals of DCC charts.
- upgrade firmware to later version.
- contact the Hotline.

F01002

Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.

Remedy:

Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01003 Acknowledgement delay when accessing the memory

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A memory area was accessed that does not return a "READY".
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- contact the Hotline.

N01004 (F, A) Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An internal software error has occurred.
 Fault value (r0949, hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- read out diagnostics parameter (r9999).
- contact the Hotline.

See also: r9999 (Software error internal supplementary diagnostics)

Reaction upon F: OFF2
 Acknowl. upon F: POWER ON
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01005 Firmware download for DRIVE-CLiQ component unsuccessful

Message value: Component number: %1, fault cause: %2
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: It was not possible to download the firmware to a DRIVE-CLiQ component.
 Fault value (r0949, interpret hexadecimal):
 yyxxxx hex: yy = component number, xxxx = fault cause
 xxxx = 000B hex = 11 dec:
 DRIVE-CLiQ component has detected a checksum error.
 xxxx = 000F hex = 15 dec:
 The selected DRIVE-CLiQ component did not accept the contents of the firmware file.
 xxxx = 0012 hex = 18 dec:
 Firmware version is too old and is not accepted by the component.
 xxxx = 0013 hex = 19 dec:
 Firmware version is not suitable for the hardware release of the component.
 xxxx = 0065 hex = 101 dec:
 After several communication attempts, no response from the DRIVE-CLiQ component.

4 Faults and alarms

4.2 List of faults and alarms

xxxx = 008B hex = 139 dec:

Initially, a new boot loader is loaded (must be repeated after POWER ON).

xxxx = 008C hex = 140 dec:

Firmware file for the DRIVE-CLiQ component not available on the memory card.

xxxx = 008D hex = 141 dec:

An inconsistent length of the firmware file was signaled. The firmware download may have been caused by a loss of connection to the firmware file. This can occur during a project download/reset in the case of a SINAMICS Integrated Control Unit, for example.

xxxx = 008F hex = 143 dec:

Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.

xxxx = 0090 hex = 144 dec:

When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card is defective.

xxxx = 0091 hex = 145 dec:

Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.

xxxx = 009C hex = 156 dec:

Component with the specified component number is not available (p7828).

xxxx = Additional values:

Only for internal Siemens troubleshooting.

Remedy:

- check the selected component number (p7828).
- check the DRIVE-CLiQ wiring.
- save suitable firmware file for download in the directory "/siemens/sinamics/code/sac/".
- use a component with a suitable hardware version
- after POWER ON has been carried out again for the DRIVE-CLiQ component, download firmware again. Depending on p7826, the firmware will be automatically downloaded.

A01006

Firmware update for DRIVE-CLiQ component required

Message value: Component number: %1

Message class: General drive fault (19)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit.

Alarm value (r2124, interpret decimal):

Component number of the DRIVE-CLiQ component.

Remedy:

Firmware update using the commissioning software:

The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out.

Firmware update via parameter:

- take the component number from the alarm value and enter into p7828.
- start the firmware download with p7829 = 1.

A01007

POWER ON for DRIVE-CLiQ component required

Message value: Component number: %1

Message class: General drive fault (19)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A DRIVE-CLiQ component must be powered up again (POWER ON) (e.g. due to a firmware update).

Alarm value (r2124, interpret decimal):

Component number of the DRIVE-CLiQ component.

Note:

For a component number = 1, a POWER ON of the Control Unit is required.

Remedy:

- Switch off the power supply of the specified DRIVE-CLiQ component and switch it on again.
- For SINUMERIK, auto commissioning is prevented. In this case, a POWER ON is required for all components and the auto commissioning must be restarted.

F01010 Drive type unknown

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An unknown drive type was found.
Fault value (r0949, interpret decimal):
Drive object number (refer to p0101, p0107).

Remedy:

- replace Power Module.
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01011 (N) Download interrupted

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The project download was interrupted.
Fault value (r0949, interpret decimal):
1: The user prematurely interrupted the project download.
2: The communication cable was interrupted (e.g. cable breakage, cable withdrawn).
3: The project download was prematurely ended by the commissioning software (e.g. STARTER, SCOUT).
100: Different versions between the firmware version and project files which were loaded by loading into the file system "Download from memory card".

Note:

The response to an interrupted download is the state "first commissioning".

Remedy:

- check the communication cable.
- download the project again.
- boot from previously saved files (power-down/power-up or p0976).
- when loading into the file system (download from memory card), use the matching version.

Reaction upon N: NONE

Acknowl. upon N: NONE

F01015 Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

| | |
|-----------------------|---|
| A01016 (F) | Firmware changed |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | At least one firmware file in the directory was illegally changed on the non-volatile memory (memory card/device memory) with respect to the version when shipped from the factory. Alarm value (r2124, interpret decimal): 0: Checksum of one file is incorrect. 1: File missing. 2: Too many files. 3: Incorrect firmware version. 4: Incorrect checksum of the back-up file. |
| Remedy: | For the non-volatile memory for the firmware (memory card/device memory), restore the delivery condition. Note: The file involved can be read out using parameter r9925. The status of the firmware check is displayed using r9926. See also: r9925 (Firmware file incorrect), r9926 (Firmware check status) |
| Reaction upon F: | OFF2 |
| Acknowl. upon F: | POWER ON |

| | |
|-----------------------|---|
| A01017 | Component lists changed |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | On the memory card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory. Alarm value (r2124, interpret decimal): zyx dec: x = Problem, y = Directory, z = File name x = 1: File does not exist. x = 2: Firmware version of the file does not match the software version. x = 3: File checksum is incorrect. y = 0: Directory /SIEMENS/SINAMICS/DATA/ y = 1: Directory /ADDON/SINAMICS/DATA/ z = 0: File MOTARM.ACX z = 1: File MOTSRM.ACX z = 2: File MOTSLM.ACX z = 3: File ENCDATA.ACX z = 4: File FILTDATA.ACX z = 5: File BRKDATA.ACX z = 6: File DAT_BEAR.ACX z = 7: File CFG_BEAR.ACX z = 8: File ENC_GEAR.ACX |
| Remedy: | For the file on the memory card involved, restore the status originally supplied from the factory. |

| | |
|-----------------------|--|
| F01018 | Bootling has been interrupted several times |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | POWER ON |
| Cause: | Module booting was interrupted several times. As a consequence, the module boots with the factory setting. |

Possible reasons for booting being interrupted:

- power supply interrupted.
- CPU crashed.
- parameterization invalid.

Remedy: - carry out a POWER ON (power off/on). After switching on, the module reboots from the valid parameterization (if available).

- restore the valid parameterization.

Examples:

a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on).

b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on).

Note:

If the fault situation is repeated, then this fault is again output after several interrupted boots.

A01019 Writing to the removable data medium unsuccessful

Message value: -
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The write access to the removable data medium was unsuccessful.
Remedy: Remove and check the removable data medium. Then run the data backup again.

A01020 Writing to RAM disk unsuccessful

Message value: -
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A write access to the internal RAM disk was unsuccessful.
Remedy: Adapt the file size for the system logbook to the internal RAM disk (p9930).
See also: p9930 (System logbook activation)

F01023 Software timeout (internal)

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An internal software timeout has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01030 Sign-of-life failure for master control

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: For active PC master control, no sign-of-life was received within the monitoring time.
The master control was returned to the active BICO interconnection.

4 Faults and alarms

4.2 List of faults and alarms

Remedy: Set the monitoring time higher at the PC or, if required, completely disable the monitoring function.
For the commissioning software, the monitoring time is set as follows:
<Drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds.
Notice:
The monitoring time should be set as short as possible. A long monitoring time means a late response when the communication fails!

F01031 Sign-of-life failure for OFF in REMOTE

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: With the "OFF in REMOTE" mode active, no sign-of-life was received within 3 seconds.
Remedy: - Check the data cable connection at the serial interface for the Control Unit (CU) and operator panel.
- Check the data cable between the Control Unit and operator panel.

A01032 (F) ACX: all parameters must be saved

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The parameters of an individual drive object were saved (p0971 = 1), although there is still no backup of all drive system parameters.
The saved object-specific parameters are not loaded the next time that the system powers up.
For the system to successfully power up, all of the parameters must have been completely backed up.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0971 (Save drive object parameters)
Remedy: Save all parameters (p0977 = 1 or "copy RAM to ROM").
See also: p0977 (Save all parameters)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F01033 Units changeover: Reference parameter value invalid

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0
Fault value (r0949, parameter):
Reference parameter whose value is 0.0.
See also: p0595 (Technological unit selection)
Remedy: Set the value of the reference parameter to a number different than 0.0.
See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)

| | |
|-----------------------|---|
| F01034 | Units changeover: Calculation parameter values after reference value change unsuccessful |
| Message value: | Parameter: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The change of a reference parameter meant that for an involved parameter the selected value was not able to be re-calculated in the per unit representation. The change was rejected and the original parameter value restored. Fault value (r0949, parameter): Parameter whose value was not able to be re-calculated. See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power) |
| Remedy: | - Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation. - Technology unit selection (p0595) before changing the reference parameter p0596, set p0595 = 1. See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power) |
| A01035 (F) | ACX: Parameter back-up file corrupted |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When the Control Unit is booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out. It is possible that the backup was interrupted by switching off or withdrawing the memory card. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: aa = 01 hex: Power up was realized without data backup. The drive is in the factory setting. aa = 02 hex: The last available backup data record was loaded. The parameterization must be checked. It is recommended that the parameterization is downloaded again. dd, cc, bb: Only for internal Siemens troubleshooting. See also: p0971 (Save drive object parameters), p0977 (Save all parameters) |
| Remedy: | - Download the project again with the commissioning software. - save all parameters (p0977 = 1 or "copy RAM to ROM"). See also: p0977 (Save all parameters) |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| F01036 (A) | ACX: Parameter back-up file missing |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE (OFF1, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | When downloading the device parameterization, a parameter back-up file PSxxxxyy.ACX associated with a drive object cannot be found. Fault value (r0949, interpret hexadecimal): Byte 1: yyy in the file name PSxxxxyy.ACX yyy = 000 --> consistency back-up file yyy = 001 ... 062 --> drive object number |

4 Faults and alarms

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yyy = 099 --> PROFIBUS parameter back-up file

Byte 2, 3, 4:

Only for internal Siemens troubleshooting.

Remedy:

If you have saved the project data using the commissioning software, carry out a new download for your project.

Save using the function "Copy RAM to ROM" or with p0977 = 1

This means that the parameter files are again completely written into the non-volatile memory.

Note:

If the project data have not been backed up, then a new first commissioning is required.

Reaction upon A: NONE

Acknowl. upon A: NONE

F01038 (A)

ACX: Loading the parameter back-up file unsuccessful

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause:

An error has occurred when downloading PSxxxxxyy.ACX or PTxxxxxyy.ACX files from the non-volatile memory.

Fault value (r0949, interpret hexadecimal):

Byte 1: yyy in the file name PSxxxxxyy.ACX

yyy = 000 --> consistency back-up file

yyy = 001 ... 062 --> drive object number

yyy = 099 --> PROFIBUS parameter back-up file

Byte 2:

255: Incorrect drive object type.

254: Topology comparison unsuccessful -> drive object type was not able to be identified.

Reasons could be:

- Incorrect component type in the actual topology
- Component does not exist in the actual topology.
- Component not active.

Additional values:

Only for internal Siemens troubleshooting.

Byte 4, 3:

Only for internal Siemens troubleshooting.

Remedy:

- If you have saved the project data using the commissioning software, download the project again. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.

- replace the memory card or Control Unit.

Re byte 2 = 255:

- Correct the drive object type (see p0107).

Reaction upon A: NONE

Acknowl. upon A: NONE

F01039 (A)

ACX: Writing to the parameter back-up file was unsuccessful

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause:

Writing to at least one parameter back-up file PSxxxxxyy.*** in the non-volatile memory was unsuccessful.

- In the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxxxyy.*** has the "read only" file attribute and cannot be overwritten.

- There is not sufficient free memory space available.

- The non-volatile memory is defective and cannot be written to.

Fault value (r0949, interpret hexadecimal):
 dcba hex
 a = yyy in the file names PSxxxxyy.***
 a = 000 --> consistency back-up file
 a = 001 ... 062 --> drive object number
 a = 070 --> FEPROM.BIN
 a = 080 --> DEL4BOOT.TXT
 a = 099 --> PROFIBUS parameter back-up file
 b = xxx in the file names PSxxxxyy.***
 b = 000 --> data save started with p0977 = 1 or p0971 = 1
 b = 010 --> data save started with p0977 = 10
 b = 011 --> data save started with p0977 = 11
 b = 012 --> data save started with p0977 = 12
 d, c:

Only for internal Siemens troubleshooting.

Remedy:

- check the file attribute of the files (PSxxxxyy.***, CAxxxxyy.***, CCxxxxyy.***) and, if required, change from "read only" to "writeable".
- check the free memory space in the non-volatile memory. Approx. 80 kbyte of free memory space is required for every drive object in the system.
- replace the memory card or Control Unit.

Reaction upon A: NONE

Acknowl. upon A: NONE

F01040 Save parameter settings and carry out a POWER ON

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot.
Remedy:

- save parameters (p0971, p0977).
- carry out a POWER ON (power off/on) for all components.

Then:

- upload the drive unit (commissioning software).

F01041 Parameter save necessary

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Defective or missing files were detected on the memory card when booting.
 Fault value (r0949, interpret decimal):
 1: Source file cannot be opened.
 2: Source file cannot be read.
 3: Target directory cannot be set up.
 4: Target file cannot be set up/opened.
 5: Target file cannot be written to.
 Additional values:
 Only for internal Siemens troubleshooting.

Remedy:

- save the parameters.
- download the project again to the drive unit.
- update the firmware
- if required, replace the Control Unit and/or memory card card.

F01042 **Parameter error during project download**

| | |
|-----------------------|---|
| Message value: | Parameter: %1, Index: %2, fault cause: %3 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value).</p> <p>For the specified parameter, it was detected that dynamic limits were exceeded that may possibly depend on other parameters.</p> <p>Fault value (r0949, interpret hexadecimal): ccbbaaaa hex aaaa = Parameter bb = Index cc = fault cause</p> <p>0: Parameter number illegal. 1: Parameter value cannot be changed. 2: Lower or upper value limit exceeded. 3: Sub-index incorrect. 4: No array, no sub-index. 5: Data type incorrect. 6: Setting not permitted (only resetting). 7: Descriptive element cannot be changed. 9: Descriptive data not available. 11: No master control. 15: No text array available. 17: Task cannot be executed due to operating state. 20: Illegal value. 21: Response too long. 22: Parameter address illegal. 23: Format illegal. 24: Number of values not consistent. 25: Drive object does not exist. 101: Presently de-activated. 104: Illegal value. 107: Write access not permitted when controller enabled. 108: Unit unknown. 109: Write access only in the commissioning state, encoder (p0010 = 4). 110: Write access only in the commissioning state, motor (p0010 = 3). 111: Write access only in the commissioning state, power unit (p0010 = 2). 112: Write access only in the quick commissioning mode (p0010 = 1). 113: Write access only in the ready mode (p0010 = 0). 114: Write access only in the commissioning state, parameter reset (p0010 = 30). 115: Write access only in the Safety Integrated commissioning state (p0010 = 95). 116: Write access only in the commissioning state, technological application/units (p0010 = 5). 117: Write access only in the commissioning state (p0010 not equal to 0). 118: Write access only in the commissioning state, download (p0010 = 29). 119: Parameter may not be written in download. 120: Write access only in the commissioning state, drive basic configuration (device: p0009 = 3). 121: Write access only in the commissioning state, define drive type (device: p0009 = 2). 122: Write access only in the commissioning state, data set basic configuration (device: p0009 = 4). 123: Write access only in the commissioning state, device configuration (device: p0009 = 1). 124: Write access only in the commissioning state, device download (device: p0009 = 29). 125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30). 126: Write access only in the commissioning state, device ready (device: p0009 = 0).</p> |

- 127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
- 129: Parameter may not be written in download.
- 130: Transfer of the master control is inhibited via binector input p0806.
- 131: Required BICO interconnection not possible because BICO output does not supply floating value
- 132: Free BICO interconnection inhibited via p0922.
- 133: Access method not defined.
- 200: Below the valid values.
- 201: Above the valid values.
- 202: Cannot be accessed from the Basic Operator Panel (BOP).
- 203: Cannot be read from the Basic Operator Panel (BOP).
- 204: Write access not permitted.

Remedy:

- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

F01043 Fatal error at project download

Message value: Fault cause: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2 (OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A fatal error was detected when downloading a project using the commissioning software.
Fault value (r0949, interpret decimal):
1: Device status cannot be changed to Device Download (drive object ON?).
2: Incorrect drive object number.
3: A drive object that has already been deleted is deleted again.
4: Deleting of a drive object that has already been registered for generation.
5: Deleting a drive object that does not exist.
6: Generating an undeleted drive object that already existed.
7: Regenerating a drive object already registered for generation.
8: Maximum number of drive objects that can be generated exceeded.
9: Error while generating a device drive object.
10: Error while generating target topology parameters (p9902 and p9903).
11: Error while generating a drive object (global component).
12: Error while generating a drive object (drive component).
13: Unknown drive object type.
14: Drive status cannot be changed to "ready for operation" (r0947 and r0949).
15: Drive status cannot be changed to drive download.
16: Device status cannot be changed to "ready for operation".
17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.
18: A new download is only possible if the factory settings are restored for the drive unit.
19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)
20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR).
21: Error when accepting the download parameters.
22: Software-internal download error.
Additional values: only for internal Siemens troubleshooting.

Remedy:

- use the current version of the commissioning software.
- modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power unit in the offline project and at the drive).
- change the drive state (is a drive rotating or is there a message/signal?).
- carefully note any other messages/signals and remove their cause.
- boot from previously saved files (power-down/power-up or p0976).

| | |
|-----------------------|--|
| F01044 | CU: Descriptive data error |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | POWER ON |
| Cause: | An error was detected when loading the descriptive data saved in the non-volatile memory. |
| Remedy: | Replace the memory card or Control Unit. |
| <hr/> | |
| A01045 | CU: Configuring data invalid |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An error was detected when evaluating the parameter files PSxxxxxyy.ACX, PTxxxxyyy.ACX, CAxxxxyyy.ACX, or CCxxxxyyy.ACX saved in the non-volatile memory. Because of this, under certain circumstances, several of the saved parameter values were not able to be accepted. Also see r9406 up to r9408. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting. |
| Remedy: | - Check the parameters displayed in r9406 up to r9408, and correct these if required. - Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit. Then save the parameterization in STARTER using the "Copy RAM to ROM" function or with p0977 = 1. This overwrites the incorrect parameter files in the non-volatile memory – and the alarm is withdrawn. |
| <hr/> | |
| A01049 | CU: It is not possible to write to file |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | It is not possible to write into a write-protected file (PSxxxxxx.acx). The write request was interrupted. Alarm value (r2124, interpret decimal): Drive object number. |
| Remedy: | Check whether the "write protected" attribute has been set for the files in the non-volatile memory under .../USER/SINAMICS/DATA/... When required, remove write protection and save again (e.g. set p0977 to 1). |
| <hr/> | |
| F01050 | Memory card and device incompatible |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The memory card and the device type do not match (e.g. a memory card for SINAMICS S is inserted in SINAMICS G). |
| Remedy: | - insert the matching memory card. - use the matching Control Unit or power unit. |
| <hr/> | |
| F01054 | CU: System limit exceeded |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | At least one system overload has been identified. |

Fault value (r0949, interpret decimal):

1: Computing time load too high (r9976[1]).

5: Peak load too high (r9976[5]).

Note:

As long as this fault is present, it is not possible to save the parameters (p0971, p0977).

See also: r9976 (System utilization)

Remedy:

Re fault value = 1, 5:

- reduce the computing time load of the drive unit (r9976[1] and r9976[5]) to under 100 %.
- check the sampling times and adjust if necessary (p0115, p0799, p4099).
- de-activate function modules.
- de-activate drive objects.
- remove drive objects from the target topology.
- note the DRIVE-CLiQ topology rules and if required, change the DRIVE-CLiQ topology.

When using the Drive Control Chart (DCC) or free function blocks (FBLOCKS), the following applies

- the computing time load of the individual run-time groups on a drive object can be read out in r21005 (DCC) or r20005 (FBLOCKS).
- if necessary, the assignment of the run-time group (p21000, p20000) can be changed in order to increase the sampling time (r21001, r20001).
- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

F01055

CU: Internal error (SYNO of port and application not identical)

Message value:

%1

Message class:

Hardware / software error (1)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

All applications that operate with slaves at one port must be derived from the same SYNO clock cycle.

The first application whose registration (log-on) connects a slave to a port defines the SYNO clock cycle that will be used as basis for the port.

Fault value (r0949, interpret hexadecimal):

Method ID.

Note:

Only for internal Siemens troubleshooting.

Remedy:

Contact the Hotline.

F01056

CU: Internal error (clock cycle of parameter group already assigned differently)

Message value:

%1

Message class:

Hardware / software error (1)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

The requested parameter group (IREG, NREG, ...) is already being used in a different clock cycle.

Fault value (r0949, interpret hexadecimal):

Method ID.

Note:

Only for internal Siemens troubleshooting.

Remedy:

Contact the Hotline.

F01057

CU: Internal error (different DRIVE-CLiQ type for the slave)

Message value:

%1

Message class:

Hardware / software error (1)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

The requested DRIVE-CLiQ type (hps_ps, hps_enc, ...) has been specified differently for the same slave component.

4 Faults and alarms

4.2 List of faults and alarms

Fault value (r0949, interpret hexadecimal):

Method ID.

Note:

Only for internal Siemens troubleshooting.

Remedy: Contact the Hotline.

F01058 CU: Internal error (slave missing in topology)

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The requested slave component does not exist in the topology.

Fault value (r0949, interpret hexadecimal):

Method ID.

Note:

Only for internal Siemens troubleshooting.

Remedy: Contact the Hotline.

F01059 CU: Internal error (port does not exist)

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The port object assigned according to the topology of the requested slave component does not exist.

Fault value (r0949, interpret hexadecimal):

Method ID.

Note:

Only for internal Siemens troubleshooting.

Remedy: Contact the Hotline.

F01060 CU: Internal error (parameter group not available)

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The requested parameter group (IREG, NREG, ...) is not offered by this slave type.

Fault value (r0949, interpret hexadecimal):

Method ID.

Note:

Only for internal Siemens troubleshooting.

Remedy: Contact the Hotline.

F01061 CU: Internal error (application not known)

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: An application that is not registered with TSM has attempted to register with registerSlaves().

The cause can be an unsuccessful TSM registration or an incorrect registration sequence. It is always necessary to log in to the TSM before registerSlaves() can be used.

Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact the Hotline.

F01063 CU: Internal error (PDM)
Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact the Hotline.

F01068 CU: Data memory memory overflow
Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The utilization for a data memory area is too large.
Fault value (r0949, interpret binary):
Bit 0 = 1: High-speed data memory 1 overloaded
Bit 1 = 1: High-speed data memory 2 overloaded
Bit 2 = 1: High-speed data memory 3 overloaded
Bit 3 = 1: High-speed data memory 4 overloaded
Remedy:
- de-activate the function module.
- de-activate drive object.
- remove the drive object from the target topology.

A01069 Parameter backup and device incompatible
Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S
Reaction: NONE
Acknowledge: NONE
Cause: The parameter backup on the memory card and the drive unit do not match.
The module boots with the factory settings.
Example:
Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B.
Remedy:
- insert a memory card with compatible parameter backup and carry out a POWER ON.
- insert a memory card without parameter backup and carry out a POWER ON.
- If required, withdraw the memory card and carry out POWER ON.
- save the parameters (p0971 = 1).

| | |
|-----------------------|--|
| A01069 | Parameter backup and device incompatible |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The parameter backup on the memory card and the drive unit do not match. The module boots with the factory settings. Example: Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B. |
| Remedy: | - insert a memory card with compatible parameter backup and carry out a POWER ON. - insert a memory card without parameter backup and carry out a POWER ON. - save the parameters (p0977 = 1). |

| | |
|-----------------------|---|
| F01072 | Memory card restored from the backup copy |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The Control Unit was switched-off while writing to the memory card. This is why the visible partition became defective. After switching on, the data from the non-visible partition (backup copy) were written to the visible partition. |
| Remedy: | Check that the firmware and parameterization is up-to-date. |

| | |
|-----------------------|--|
| A01073 (N) | POWER ON required for backup copy on memory card |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The parameter assignment on the visible partition of the memory card has changed. In order that the backup copy on the memory card is updated on the non-visible partition, it is necessary to carry out a POWER ON or hardware reset (p0972) of the Control Unit. Note: It is possible that a new POWER ON is requested via this alarm (e.g. after saving with p0971 = 1). |
| Remedy: | - carry out a POWER ON (power off/on) for the Control Unit. - carry out a hardware reset (RESET button, p0972). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A01099 | Tolerance window of time synchronization exited |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The time master exited the selected tolerance window for time synchronization. See also: p3109 (RTC real time synchronization tolerance window) |
| Remedy: | Select the re-synchronization interval so that the synchronization deviation between the time master and drive system lies within the tolerance window. See also: r3108 (RTC last synchronization deviation) |

| | |
|-----------------------|--|
| A01100 | CU: Memory card withdrawn |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The memory card (non-volatile memory) was withdrawn during operation. Notice: It is not permissible for the memory card to be withdrawn or inserted under voltage. |
| Remedy: | - power down the drive system. - re-insert the memory card that was withdrawn - this card must match the drive system. - power up the drive system again. |

| | |
|-----------------------|---|
| A01104 | CU: Do not power down. File system being optimized. |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The file system is currently being optimized in the non-volatile device memory of the Control Unit. This process may take several minutes. Notice: The Control Unit must not be powered down during optimization, as this can lead to user data being lost. |
| Remedy: | Leave the Control Unit powered up during optimization. Note: The alarm disappears automatically once file system optimization is complete. |

| | |
|-----------------------|--|
| F01105 (A) | CU: Insufficient memory |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF1 |
| Acknowledge: | POWER ON |
| Cause: | Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc). Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting. |
| Remedy: | - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc). - use an additional Control Unit. |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F01106 | CU: Insufficient memory |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | There is not sufficient free memory space available. |
| Remedy: | Not necessary. |

F01107 CU: Save to memory card unsuccessful

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A data save in the non-volatile memory was not able to be successfully carried out.
- non-volatile memory is defective.
- insufficient space in the non-volatile memory.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - try to save again.
- replace the memory card or Control Unit.

F01110 CU: More than one SINAMICS G on one Control Unit

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: More than one SINAMICS G type power unit is being operated from the Control Unit.
Fault value (r0949, interpret decimal):
Number of the second drive with a SINAMICS G type power unit.
Remedy: Only one SINAMICS G drive type is permitted.

F01111 CU: Mixed operation of drive units illegal

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Illegal operation of various drive units on one Control Unit:
- SINAMICS S together with SINAMICS G
- SINAMICS S together with SINAMICS S Value or Combi
Fault value (r0949, interpret decimal):
Number of the first drive object with a different power unit type.
Remedy: Only power units of one particular drive type may be operated with one Control Unit.

F01112 CU: Power unit not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The connected power unit cannot be used together with this Control Unit.
Fault value (r0949, interpret decimal):
1: Power unit is not supported (e.g. PM240).
2: DC/AC power unit connected to CU310 not permissible.
3: Power unit (S120M) not permitted for vector control.
Remedy: Replace the power unit that is not permissible by a component that is permissible.

F01120 (A) Terminal initialization has failed

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error occurred while the terminal functions were being initialized.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01122 (A) Frequency at the measuring probe input too high

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The frequency of the pulses at the measuring probe input is too high.
Fault value (r0949, interpret decimal):
1: DI/DO 9 (X122.8)
2: DI/DO 10 (X122.10)
4: DI/DO 11 (X122.11)
8: DI/DO 13 (X132.8)
16: DI/DO 14 (X132.10)
32: DI/DO 15 (X132.11)
64: DI/DO 8 (X122.7)
128: DI/DO 12 (X132.7)
Remedy: Reduce the frequency of the pulses at the measuring probe input.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01150 CU: Number of instances of a drive object type exceeded

Message value: Drive object type: %1, number permitted: %2, actual number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The maximum permissible number of instances of a drive object type was exceeded.
Drive object type:
Drive object type (p0107), for which the maximum permissible number of instances was exceeded.
Number permitted:
Max. permissible number of instances for this drive object type.
Actual number:
Current number of instances for this drive object type.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
ddccbaa hex: aa = drive object type, bb = number limited, cc = actual number, dd = no significance
Remedy:
- power down the unit.
- suitably restrict the number of instances of a drive object type by reducing the number of inserted components.
- re-commission the unit.

| | |
|-----------------------|--|
| F01151 | CU: Number of drive objects of a category exceeded |
| Message value: | Drive object category: %1, number permitted: %2, actual number: %3 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The maximum permissible number of drive objects of a category was exceeded. Drive object category: Drive object category, for which the maximum permissible number of drive objects was exceeded. Number permitted: Max. permissible number for this drive object category. Actual number: Actual number for this drive object category. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): ddccbbaa hex: aa = drive object category, bb = number limited, cc = actual number, dd = no significance |
| Remedy: | - power down the unit. - suitably restrict the number of drive objects of the specified category by reducing the number of inserted components. - re-commission the unit. |

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|-----------------------|---|
| F01152 | CU: Invalid constellation of drive object types |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | POWER ON |
| Cause: | It is not possible to simultaneously operate drive object types SERVO, VECTOR and HLA. A maximum of 2 of these drive object types can be operated on a Control Unit. |
| Remedy: | - power down the unit. - restrict the use of drive object types SERVO, VECTOR, HLA to a maximum of 2. - re-commission the unit. |

| | |
|-----------------------|--|
| F01200 | CU: Time slice management internal software error |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | A time slice management error has occurred. It is possible that the sampling times have been inadmissibly set. Fault value (r0949, interpret hexadecimal): 998: Too many time slices occupied by OA (e.g. DCC). 999: Too many time slices occupied by the basic system. Too many different sampling times may have been set. Additional values: Only for internal Siemens troubleshooting. |
| Remedy: | - check the sampling time setting (p0112, p0115, p4099, p9500, p9511). - contact the Hotline. |

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|-----------------------|---|
| F01205 | CU: Time slice overflow |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | POWER ON |
| Cause: | Insufficient processing time is available for the existing topology. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting. |
| Remedy: | - reduce the number of drives. - increase the sampling times. |

| | |
|-----------------------|--|
| F01221 | CU: Bas clk cyc too low |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The closed-loop control / monitoring cannot maintain the envisaged clock cycle. The runtime of the closed-loop control/monitoring is too long for the particular clock cycle or the computing time remaining in the system is not sufficient for the closed-loop control/monitoring. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting. |
| Remedy: | Increase the basic clock cycle of DRIVE-CLiQ communication. See also: p0112 (Sampling times pre-setting p0115) |

| | |
|-----------------------|--|
| F01222 | CU: Basic clock cycle too low (computing time for communication not available) |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | A time slice has not been defined that fulfills the requirements. The port cannot be correctly operated as the alternating cyclic clock cycle cannot be maintained. Fault value (r0949, interpret hexadecimal): Method ID. Note: Only for internal Siemens troubleshooting. |
| Remedy: | Contact the Hotline. |

| | |
|-----------------------|---|
| A01223 | CU: Sampling time inconsistent |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When changing a sampling time (p0115[0], p0799 or p4099), inconsistency between the clock cycles has been identified. Alarm value (r2124, interpret decimal): 1: Value lower than minimum value. 2: Value higher than maximum value. 3: Value not a multiple of 1.25 µs. 4: Value does not match clock-cycle synchronous PROFIBUS operation. 5: Value not a multiple of 125 µs. 6: Value not a multiple of 250 µs. |

4 Faults and alarms

4.2 List of faults and alarms

- 7: Value not a multiple of 375 μ s.
8: Value not a multiple of 400 μ s.
10: Special restriction of the drive object violated.
20: On a SERVO with a sampling time of 62.5 μ s, more than two drive objects or one drive object of a type other than SERVO have been detected on the same DRIVE-CLiQ line (a maximum of two SERVO type drive objects are permitted).
21: Value can be a multiple of the current controller sampling time of a servo or vector drive in the system (e.g. for TB30, the values of all of the indices should be taken into account).
30: Value less than 31.25 μ s.
31: Value less than 62.5 μ s (31.25 μ s is not supported for SMC10, SMC30, SMI10 and Double Motor Modules).
32: Value less than 125 μ s.
33: Value less than 250 μ s.
40: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 μ s. Further, none of the nodes has a sampling time of less than 125 μ s.
41: A chassis unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 250 μ s.
42: An Active Line Module was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 125 μ s.
43: A Voltage Sensing Module (VSM) was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is not equal to the current controller sampling time of the drive object of the VSM.
44: The highest common denominator of the sampling times of all of the components connected to the DRIVE-CLiQ line is not the same for all components of this drive object (e.g. there are components on different DRIVE-CLiQ lines on which different highest common denominators are generated).
45: A chassis parallel unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 162.5 μ s or 187.5 μ s (for a 2 or 3x parallel connection).
46: A node has been identified on the DRIVE-CLiQ line whose sampling time is not a multiple of the lowest sampling time on this line.
52: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 31.25 μ s.
54: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 62.5 μ s.
56: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 μ s.
58: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 250 μ s.
99: Inconsistency of cross drive objects detected.
116: Recommended clock cycle in r0116[0...1].

General note:

The topology rules should be noted when connecting up DRIVE-CLiQ (refer to the appropriate product documentation).

The parameters of the sampling times can also be changed with automatic calculations.

Example for highest common denominator: 125 μ s, 125 μ s, 62.5 μ s --> 62.5 μ s

Remedy:

- check the DRIVE-CLiQ cables.
- set a valid sampling time.

See also: p0115, p4099

A01224

CU: Pulse frequency inconsistent

Message value:

%1

Message class:

Error in the parameterization / configuration / commissioning procedure (18)

Drive object:

All objects

Reaction:

NONE

Acknowledge:

NONE

Cause:

When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.

Alarm value (r2124, interpret decimal):

- 1: Value lower than minimum value.
- 2: Value higher than maximum value.

- 3: Resulting sampling time is not a multiple of 1.25 µs.
- 4: Value does not match clock-cycle synchronous PROFIBUS operation.
- 10: Special restriction of the drive object violated.
- 99: Inconsistency of cross drive objects detected.
- 116: Recommended clock cycle in r0116[0...1].

Remedy: Set a valid pulse frequency.

F01250 CU: CU-EEPROM incorrect read-only data

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE (OFF2)
Acknowledge: POWER ON
Cause: Error when reading the read-only data of the EEPROM in the Control Unit.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON.
 - replace the Control Unit.

A01251 CU: CU-EEPROM incorrect read-write data

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when reading the read-write data of the EEPROM in the Control Unit.
 Alarm value (r2124, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy: For alarm value r2124 < 256, the following applies:
 - carry out a POWER ON.
 - replace the Control Unit.
 For alarm value r2124 >= 256, the following applies:
 - for the drive object with this alarm, clear the fault memory (p0952 = 0).
 - as an alternative, clear the fault memory of all drive objects (p2147 = 1).
 - replace the Control Unit.

F01255 CU: Option Board EEPROM read-only data error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE (OFF2)
Acknowledge: POWER ON
Cause: Error when reading the read-only data of the EEPROM in the Option Board.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON.
 - replace the Control Unit.

A01256 CU: Option Board EEPROM read-write data error

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when reading the read-write data of the EEPROM in the Option Board.

4 Faults and alarms

4.2 List of faults and alarms

Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON.
- replace the Control Unit.

F01303

Component does not support the required function

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.
Fault value (r0949, interpret decimal):
1: The component does not support the de-activation.
101: The Motor Module does not support an internal armature short-circuit.
102: The Motor Module does not support the de-activation.
201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation.
202: The Sensor Module does not support parking/unparking.
203: The Sensor Module does not support the de-activation.
204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO.
205: The Sensor Module does not support the selected temperature evaluation (r0458).
206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation.
207: The power unit with this hardware version does not support operation with device supply voltages of less than 380 V.
208: The Sensor Module does not support de-selection of commutation with zero mark (via p0430.23).
211: The Sensor Module does not support single-track encoders (r0459.10).
212: The Sensor Module does not support LVDT sensors (p4677.0).
213: The Sensor Module does not support the characteristic type (p4662).

Remedy: Upgrade the firmware of the DRIVE-CLiQ component involved.
For fault value = 205:
Check parameter p0600 and p0601 and if required, adapt interpretation.
For fault value = 207:
Replace the power unit or if required set the device supply voltage higher (p0210).
For fault value = 208:
Check parameter p0430.23 and reset if necessary.

A01304 (F)

Firmware version of DRIVE-CLiQ component is not up-to-date

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The non-volatile memory has a more recent firmware version than the one in the connected DRIVE-CLiQ component.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component involved.

Remedy: Update the firmware (p7828, p7829 and commissioning software).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

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|-----------------------|--|
| F01305 | Topology: Component number missing |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/vector drives, refer to p0107), p0141, p0151, p0161). Fault value (r0949, interpret decimal): Data set number. Note: The fault also occurs if encoders have been configured (p0187 to p0189) but no component numbers exist for them. In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number was not entered in p0141 for encoder 3 (p0189)). See also: p0121 (Power unit component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0151 (Terminal Module component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number) |
| Remedy: | - enter missing component number. - if required, remove the component and restart commissioning. See also: p0121 (Power unit component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0151 (Terminal Module component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number) |

| | |
|-----------------------|--|
| A01306 | Firmware of the DRIVE-CLiQ component being updated |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | Firmware update is active for at least one DRIVE-CLiQ component. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component. |
| Remedy: | Not necessary. This alarm automatically disappears after the firmware has been updated. |

| | |
|-----------------------|--|
| A01314 | Topology: Component must not be present |
| Message value: | %1, to %2: %3, connection: %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For a component, "de-activate and not present" is set but this component is still in the topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: aa = component number bb = component class of the component cc = connection number Note: Component class and connection number are described in F01375. |
| Remedy: | - remove the corresponding component. - change the setting "de-activate and not present". Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison). See also: p0105 (Activate/de-activate drive object), p0125 (Activate/de-activate power unit components), p0145 (Activate/de-activate encoder interface) |

A01315 Drive object not ready for operation

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For the active drive object involved, at least one activated component is missing.
Note:
All other active and operational drive objects can be in the "RUN" state.
Remedy: The alarm automatically disappears again with the following actions:
- de-activate the drive object involved (p0105 = 0).
- de-activate the components involved (p0125 = 0, p0145 = 0, p0155 = 0, p0165 = 0).
- re-insert the components involved.
See also: p0105 (Activate/de-activate drive object), p0125 (Activate/de-activate power unit components), p0145 (Activate/de-activate encoder interface)

A01316 Drive object inactive and again ready for operation

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: If, when inserting a component of the target topology, an inactive, non-operational drive object becomes operational again. The associated parameter of the component is, in this case, set to "activate" (p0125, p0145, p0155, p0165).
Note:
This is the only message that is displayed for a de-activated drive object.
Remedy: The alarm automatically disappears again with the following actions:
- activate the drive object involved (p0105 = 1).
- again withdraw the components involved.
See also: p0105 (Activate/de-activate drive object)

A01317 (N) De-activated component again present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "de-activate" (p0125, p0145, p0155, p0165).
Note:
This is the only message that is displayed for a de-activated component.
Remedy: The alarm automatically disappears again with the following actions:
- activate the components involved (p0125 = 1, p0145 = 1, p0155 = 1, p0165 = 1).
- again withdraw the components involved.
See also: p0125 (Activate/de-activate power unit components), p0145 (Activate/de-activate encoder interface)
Reaction upon N: NONE
Acknowl. upon N: NONE

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|-----------------------|--|
| A01318 | BICO: De-activated interconnections present |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | This alarm is used in the following cases: - If an inactive/non-operational drive object is active again/ready for operation - If there are items in the list of BI/CI parameters (r9498[0...29], r9499[0...29]) - If the BICO interconnections saved in the list of BI/CI parameters (r9498[0...29], r9499[0...29]) have actually been changed |
| Remedy: | Reset alarm: - Set p9496 to 1 or 2 or - de-activate the drive object again. |

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|-----------------------|---|
| A01319 | Inserted component not initialized |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | Initialization is required for at least one inserted component. This is only possible if the pulses are inhibited for all the drive objects. |
| Remedy: | Activate pulse inhibit for all drive objects. |

| | |
|-----------------------|--|
| A01320 | Topology: Drive object number does not exist in configuration |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A drive object number is missing in p0978 Alarm value (r2124, interpret decimal): Index of p0101 under which the missing drive object number can be determined. |
| Remedy: | Set p0009 to 1 and change p0978: Rules: - p0978 must include all of the drive object numbers (p0101). - it is not permissible for a drive object number to be repeated. - by entering a 0, the drive objects with PZD are separated from those without PZD. - only 2 partial lists are permitted. After the second 0, all values must be 0. - dummy drive object numbers (255) are only permitted in the first partial list. |

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|-----------------------|---|
| A01321 | Topology: Drive object number does not exist in configuration |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | p0978 contains a drive object number that does not exist. Alarm value (r2124, interpret decimal): Index of p0978 under which the drive object number can be determined. |

4 Faults and alarms

4.2 List of faults and alarms

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01322 **Topology: Drive object number present twice in configuration**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is present more than once in p0978.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the involved drive object number is located.

Remedy: Set parameter p0009 = 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01323 **Topology: More than two partial lists created**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Partial lists are available more than twice in p0978. After the second 0, all must be 0.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01324 **Topology: Dummy drive object number incorrectly created**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: In p0978, dummy drive object numbers (255) are only permitted in the first partial list.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.

Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

F01325 **Topology: Component number not present in target topology**
Message value: Component number: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The component configured in a parameter (e.g. p0121, p0131, etc.) is not present in the target topology.
Alarm value (r2124, interpret decimal):
Configured component number that is not present in target topology.
Remedy: Establish topology and DO configuration consistency.

A01330 **Topology: Quick commissioning not possible**
Message value: Fault cause: %1, supplementary information: %2, preliminary component number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Unable to carry out a quick commissioning. The existing actual topology does not fulfill the requirements.
Alarm value (r2124, interpret hexadecimal):
ccccbbaa hex: cccc = preliminary component number, bb = supplementary information, aa = fault cause
aa = 01 hex = 1 dec:
On one component illegal connections were detected.
- bb = 01 hex = 1 dec: For a Motor Module, more than one motor with DRIVE-CLiQ was detected.
- bb = 02 hex = 2 dec: For a motor with DRIVE-CLiQ, the DRIVE-CLiQ cable is not connected to a Motor Module.
aa = 02 hex = 2 dec:
The topology contains too many components of a particular type.
- bb = 01 hex = 1 dec: There is more than one master Control Unit.
- bb = 02 hex = 2 dec: There is more than 1 infeed (8 for a parallel circuit configuration).
- bb = 03 hex = 3 dec: There are more than 10 Motor Modules (8 for a parallel circuit configuration).
- bb = 04 hex = 4 dec: There are more than 9 encoders.
- bb = 05 hex = 5 dec: There are more than 8 Terminal Modules.
- bb = 07 hex = 7 dec: Unknown component type
- bb = 08 hex = 8 dec: There are more than 6 drive slaves.
- bb = 09 hex = 9 dec: Connection of a drive slave not permitted.
- bb = 0a hex = 10 dec: There is no drive master.
- bb = 0b hex = 11 dec: There is more than one motor with DRIVE-CLiQ for a parallel circuit.
- bb = 0c hex = 12 dec: Different power units are being used in a parallel connection.
- cccc: Not used.
aa = 03 hex = 3 dec:
More than 16 components are connected at a DRIVE-CLiQ socket of the Control Unit.
- bb = 0, 1, 2, 3 means e.g. detected at the DRIVE-CLiQ socket X100, X101, X102, X103.
- cccc: Not used.
aa = 04 hex = 4 dec:
The number of components connected one after the other is greater than 125.
- bb: Not used.
- cccc = preliminary component number of the first component and component that resulted in the fault.

4 Faults and alarms

4.2 List of faults and alarms

aa = 05 hex = 5 dec:

The component is not permissible for SERVO.

- bb = 01 hex = 1 dec: SINAMICS G available.

- bb = 02 hex = 2 dec: Chassis available.

- cccc = preliminary component number of the first component and component that resulted in the fault.

aa = 06 hex = 6 dec:

On one component illegal EEPROM data was detected. These must be corrected before the system continues to boot.

- bb = 01 hex = 1 dec: The Order No. [MLFB] of the power unit that was replaced includes a space retainer. The space retainer (*) must be replaced by a correct character.

- cccc = preliminary component number of the component with illegal EEPROM data.

aa = 07 hex = 7 dec:

The actual topology contains an illegal combination of components.

- bb = 01 hex = 1 dec: Active Line Module (ALM) and Basic Line Module (BLM).

- bb = 02 hex = 2 dec: Active Line Module (ALM) and Smart Line Module (SLM).

- bb = 03 hex = 3 dec: SIMOTION control (e.g. SIMOTION D445) and SINUMERIK component (e.g. NX15).

- bb = 04 hex = 4 dec: SINUMERIK control (e.g. SINUMERIK 730.net) and SIMOTION component (e.g. CX32).

- cccc: Not used.

Note:

Connection type and connection number are described in F01375.

See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

Remedy:

- adapt the output topology to the permissible requirements.

- carry out commissioning using the commissioning software.

- for motors with DRIVE-CLiQ, connect the power and DRIVE-CLiQ cable to the same Motor Module (Single Motor Module: DRIVE-CLiQ at X202, Double Motor Module: DRIVE-CLiQ from motor 1 (X1) to X202, from motor 2 (X2) to X203).

Re aa = 06 hex = 6 dec and bb = 01 hex = 1 dec:

Correct the order number when commissioning using the commissioning software.

See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

A01331

Topology: At least one component not assigned to a drive object

Message value:

Component number: %1

Message class:

Error in the parameterization / configuration / commissioning procedure (18)

Drive object:

All objects

Reaction:

NONE

Acknowledge:

NONE

Cause:

At least one component is not assigned to a drive object.

- when commissioning, a component was not able to be automatically assigned to a drive object.

- the parameters for the data sets are not correctly set.

Alarm value (r2124, interpret decimal):

Component number of the unassigned component.

Remedy:

This component is assigned to a drive object.

Check the parameters for the data sets.

Examples:

- power unit (p0121).

- motor (p0131, p0186).

- encoder interface (p0140, p0141, p0187 ... p0189).

- encoder (p0140, p0142, p0187 ... p0189).

- Terminal Module (p0151).

- option board (p0161).

| | |
|-----------------------|--|
| F01340 | Topology: Too many components on one line |
| Message value: | Component number or connection number: %1, fault cause: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>For the selected communications clock cycle, too many DRIVE-CLiQ components are connected to one line of the Control Unit.</p> <p>Fault value (r0949, interpret hexadecimal): xyy hex: x = fault cause, yy = component number or connection number.</p> <p>1yy: The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all read transfers.</p> <p>2yy: The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all write transfers.</p> <p>3yy: Cyclic communication is fully utilized.</p> <p>4yy: The DRIVE-CLiQ cycle starts before the earliest end of the application. An additional dead time must be added to the control. Sign-of-life errors can be expected. The conditions of operation with a current controller sampling time of 31.25 µs have not been maintained.</p> <p>5yy: Internal buffer overflow for net data of a DRIVE-CLiQ connection.</p> <p>6yy: Internal buffer overflow for receive data of a DRIVE-CLiQ connection.</p> <p>7yy: Internal buffer overflow for send data of a DRIVE-CLiQ connection.</p> <p>8yy: The component clock cycles cannot be combined with one another</p> <p>900: The lowest common multiple of the clock cycles in the system is too high to be determined.</p> <p>901: The lowest common multiple of the clock cycles in the system cannot be generated with the hardware.</p> |
| Remedy: | <ul style="list-style-type: none">- check the DRIVE-CLiQ wiring.- Reduce the number of components on the DRIVE-CLiQ line involved and distribute these to other DRIVE-CLiQ sockets of the Control Unit. This means that communication is uniformly distributed over several lines. <p>Re fault value = 1yy - 4yy in addition:</p> <ul style="list-style-type: none">- increase the sampling times (p0112, p0115, p4099). If necessary, for DCC or FBLOCKS, change the assignment of the run-time group (p21000, p20000) so that the sampling time (r21001, r20001) is increased.- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).- reduce the function modules (r0108).- establish the conditions for operation with a current controller sampling time of 31.25 µs (at the DRIVE-CLiQ line, only operate Motor Modules and Sensor Modules with this sampling time and only use a permitted Sensor Module (e.g. SMC20, this means a 3 at the last position of the order number)).- For an NX, the corresponding Sensor Module for a possibly existing second measuring system should be connected to a free DRIVE-CLiQ socket of the NX. <p>Re fault value = 8yy in addition:</p> <ul style="list-style-type: none">- check the clock cycles settings (p0112, p0115, p4099). Clock cycles on a DRIVE-CLiQ line must be perfect integer multiples of one another. As clock cycle on a line, all clock cycles of all drive objects in the previously mentioned parameters apply, which have components on the line involved. <p>Re fault value = 9yy in addition:</p> <ul style="list-style-type: none">- check the clock cycles settings (p0112, p0115, p4099). The lower the numerical value difference between two clock cycles, the higher the lowest common multiple. This behavior has a significantly stronger influence, the higher the numerical values of the clock cycles. |

| | |
|-----------------------|---|
| F01341 | Topology: Maximum number of DRIVE-CLiQ components exceeded |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | Too many DRIVE-CLiQ components were defined in the actual topology. Note: Pulse enable is withdrawn and prevented. |
| Remedy: | - check the DRIVE-CLiQ wiring. - reduce the number components on the DRIVE-CLiQ line involved in order to maintain the maximum quantity structure. |
| F01354 | Topology: Actual topology indicates an illegal component |
| Message value: | Fault cause: %1, component number: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | The actual topology indicates at least one illegal component. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = cause. xx = 1: Component at this Control Unit not permissible. xx = 2: Component in combination with another component not permissible. Note: Pulse enable is prevented. |
| Remedy: | Remove the illegal components and restart the system. |
| F01355 | Topology: Actual topology changed |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The device target topology (p0099) does not correspond to the device actual topology (r0098). The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the commissioning software. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting. See also: r0098 (Actual device topology), p0099 (Device target topology) |
| Remedy: | One of the following counter-measures can be selected if no faults have occurred in the topology detection itself: If commissioning is still not completed: - carry out a self-commissioning routine (starting from p0009 = 1). In general: Set p0099 = r0098, set p0009 = 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107). Generating servo drives: Set p0097 to 1, set p0009 to 0. Generating vector drives: Set p0097 to 2, set p0009 to 0. Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0. In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and modify p0108. The index corresponds to the drive object (p0107). |

If commissioning has already been completed:

- re-establish the original connections and re-connect power to the Control Unit.
- restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
- change the device parameterization to match the connections (this is only possible using the commissioning software).

Notice:

Topology changes that result in this fault being generated cannot be accepted by the automatic function in the device, but must be transferred using the commissioning software and parameter download. The automatic function in the device only allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.

See also: r0098 (Actual device topology)

| | |
|-----------------------|---|
| F01356 | Topology: There is a defective DRIVE-CLiQ component |
| Message value: | Fault cause: %1, Component number: %2, Connection number: %3 |
| Message class: | Hardware / software error (1) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | The actual topology indicates at least one defective DRIVE-CLiQ component. Fault value (r0949, interpret hexadecimal): zzyyxx hex: zz = connection number of the component at which the defective component is connected yy = component number of the component at which the defective component is connected xx = fault cause xx = 1: Component at this Control Unit not permissible. xx = 2: component with communication defect. Note: Pulse enable is withdrawn and prevented. |
| Remedy: | Replace the defective component and restart the system. |

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|-----------------------|---|
| F01357 | Topology: Two Control Units identified on the DRIVE-CLiQ line |
| Message value: | component number: %1, connection number: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | In the actual topology, 2 Control Units are connected with one another through DRIVE-CLiQ. As standard, this is not permitted. It is only permitted, if the OA application OALINK is already installed on both Control Units. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = connection number of the Control Unit at which the second Control Unit is connected xx = component number of the Control Unit at which the second Control Unit is connected Note: Pulse enable is withdrawn and prevented. |
| Remedy: | - remove the DRIVE-CLiQ connection, restart the systems, install OALINK on both Control Units and commission. - remove the connection to the second Control Unit and restart. - for the S120M component DRIVE-CLiQ extension, interchange the hybrid cable (IN/OUT). |

A01358 **Topology: Line termination not available**

Message value: CU connection number: %1, component number: %2, connection number: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: At least one line with distributed drives is not terminated. The last participant on the line must be terminated with a line termination connector.
This therefore ensures the degree of protection of the distributed drives.
Fault value (r0949, interpret hexadecimal):
zzyyxx hex:
zz = connection number of the distributed drive where there is no terminating connector
yy = component number
xx = CU connection number

Remedy: Install the line terminating connector for the last distributed drive.

F01359 **Topology: DRIVE-CLiQ performance not sufficient**

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ performance is not sufficient at one line in order to identify an inserted component.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy: - carry out a POWER ON (power off/on).
- Distribute components across several DRIVE-CLiQ lines.

Note:
For this topology, do not withdraw and insert components in operation.

F01360 **Topology: Actual topology not permissible**

Message value: Fault cause: %1, preliminary component number: %2

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The detected actual topology is not permissible.
Fault value (r0949, interpret hexadecimal):
ccccbaa hex:
cccc = preliminary component number, bb = no significance, aa = fault cause
aa = 01 hex = 1 dec:
Too many components were detected at the Control Unit. A maximum of 199 components is permissible.
aa = 02 hex = 2 dec:
The component type of a component is not known.
aa = 03 hex = 3 dec:
It is illegal to combine ALM and BLM.
aa = 04 hex = 4 dec:
It is illegal to combine ALM and SLM.
aa = 05 hex = 5 dec:
It is illegal to combine BLM and SLM.
aa = 06 hex = 6 dec:
A CX32 was not directly connected to a permitted Control Unit.
aa = 07 hex = 7 dec:
An NX10 or NX15 was not directly connected to a permitted Control Unit.

aa = 08 hex = 8 dec:
A component was connected to a Control Unit that is not permitted for this purpose.
aa = 09 hex = 9 dec:
A component was connected to a Control Unit with out-of-date firmware.
aa = 0A hex = 10 dec:
Too many components of a particular type detected.
aa = 0B hex = 11 dec:
Too many components of a particular type detected on a single line.
Note:
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy:
Re fault cause = 1:
Change the configuration. Connect less than 199 components to the Control Unit.
Re fault cause = 2:
Remove the component with unknown component type.
Re fault cause = 3, 4, 5:
Establish a valid combination.
Re fault cause = 6, 7:
Connect the expansion module directly to a permitted Control Unit.
Re fault cause = 8:
Remove component or use a permissible component.
Re fault cause = 9:
Upgrade the firmware of the Control Unit to a later version.
Re fault cause = 10, 11:
Reduce the number of components.

A01361 **Topology: Actual topology contains SINUMERIK and SIMOTION components**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The detected actual topology contains SINUMERIK and SIMOTION components.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex: cc = fault cause, bb = component class of the actual topology, aa = component number of the component
cc = 01 hex = 1 dec:
An NX10 or NX15 was connected to a SIMOTION control.
cc = 02 hex = 2 dec:
A CX32 was connected to a SINUMERIK control.

Remedy:
Re alarm value = 1:
Replace all NX10 or NX15 by a CX32.
Re alarm value = 2:
Replace all CX32 by an NX10 or NX15.

A01362 **Topology: Topology rule(s) broken**

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: At least one topology rule for the SINAMICS S120 Combi has been broken.
In the event of a fault, the ramping up of the drive system is aborted and closed-loop drive control is not enabled.

Alarm value (r2124, interpret decimal):

The alarm value indicates which rule has been violated.

- 1: The S120 Combi may only be wired via DRIVE-CLiQ socket X200 to X100 on the NCU.
- 2: Only one Single Motor Module (SMM) or one Double Motor Module (DMM) may be connected via X200 to the DRIVE-CLiQ socket X101 on the NCU.
- 3: Only one Terminal Module 54F (TM54F) or one DRIVE-CLiQ Hub Module (hub) may be connected via X500 to the DRIVE-CLiQ socket X102 on the NCU.
- 4: Only Sensor Modules may be connected to DRIVE-CLiQ sockets X201 up to X203 (3-axis) or X204 (4-axis) on the S120 Combi.
- 5: Only one Sensor Module, type SMC20 or SME20 may be connected to DRIVE-CLiQ socket X205 (X204 is not available for 3-axis).
- 6: If a Single Motor Module is being used as the first expansion axis, only one more Single Motor Module may be connected (via X200 to X201 on the first Single Motor Module).
- 7: Only Sensor Modules may be connected to the corresponding DRIVE-CLiQ socket X202 on any Single Motor Modules which may be present.
- 8: For a second Single Motor Module or for a Double Motor Module, it is not permissible to connect anything at X201.
- 9: If a Double Motor Module is used as an expansion axis, only Sensor Modules may be connected to X202 and X203.
- 10: If a Terminal Module 54F (TM54F) is configured, only one DRIVE-CLiQ Hub Module (DMC20, DME20) may be connected to X501 of the TM54F module via DRIVE-CLiQ socket X500.
- 11: On the DRIVE-CLiQ Hub Module, only Sensor Modules Cabinet (SMC) and Sensor Modules External (SME) may be connected to X501 through X505.
- 12: Only certain Motor Modules may be used for expansion axes.
- 13: For an S120 Combi with 3 axes, nothing must be connected at the DRIVE-CLiQ Hub Module at X503.

Remedy:

Evaluate the alarm value and ensure compliance with the corresponding topology rule(s).

F01375

Topology: Connection duplicated between two components

Message value:

Component: %1, %2, connection: %3

Message class:

Error in the parameterization / configuration / commissioning procedure (18)

Drive object:

All objects

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

When checking the actual topology, a ring-type connection was detected.

The fault value describes a component contained in the ring.

Fault value (r0949, interpret hexadecimal):

ccbbaaaa hex:

cc = connection number (%3)

bb = component class (% 2)

aaaa = preliminary component number (%1)

Component class:

0: Component unknown.

1: Control Unit

2: Motor Module

3: Line Module

4: Sensor Module

5: Voltage Sensing Module

6: Terminal Module

7: DRIVE-CLiQ Hub Module

8: Controller Extension

9: Filter Module

10: Hydraulic Module.

49: DRIVE-CLiQ component

50: Option slot

60: Encoder

70: DRIVE-CLiQ motor

71: Hydraulic cylinder

72: Hydraulic valve
80: Motor
Connection number:
0: Port 0, 1: Port 1, 2: Port 2, 3: Port 3, 4: Port 4, 5: Port 5
10: X100, 11: X101, 12: X102, 13: X103, 14: X104, 15: X105
20: X200, 21: X201, 22: X202, 23: X203
50: X500, 51: X501, 52: X502, 53: X503, 54: X504, 55: X505

Remedy: Output the fault value and remove the specified connection.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

F01380 **Topology: Actual topology EEPROM defective**

Message value: Preliminary component number: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: When detecting the actual topology, a component with a defective EEPROM was detected.
Fault value (r0949, interpret hexadecimal):
bbbbaaaa hex:
bbbb = reserved
aaaa = preliminary component number of the defective components
Remedy: Output the fault value and remove the defected component.

A01381 **Topology: power unit incorrectly inserted**

Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a power unit in the actual topology that has been incorrectly inserted.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

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|-----------------------|--|
| A01382 | Topology: Sensor Module incorrectly inserted |
| Message value: | Component: %1, to %2: %3, connection : %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>The topology comparison has detected a Sensor Module in the actual topology that has been incorrectly inserted with respect to the target technology.</p> <p>Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1)</p> <p>Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p> |
| Remedy: | <p>Adapting topologies:</p> <ul style="list-style-type: none">- insert the components involved at the right connection (correct the actual topology).- adapt the project/parameterization in the commissioning software (correct the target topology).- automatically remove the topology error (p9904). <p>Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).</p> |

| | |
|-----------------------|--|
| A01383 | Topology: Terminal Module incorrectly inserted |
| Message value: | Component: %1, to %2: %3, connection : %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>The topology comparison has detected a Terminal Module in the actual topology that has been incorrectly inserted with respect to the target technology.</p> <p>Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1)</p> <p>Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p> |
| Remedy: | <p>Adapting topologies:</p> <ul style="list-style-type: none">- insert the components involved at the right connection (correct the actual topology).- adapt the project/parameterization in the commissioning software (correct the target topology).- automatically remove the topology error (p9904). <p>Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).</p> |

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|-----------------------|---|
| A01384 | Topology: DRIVE-CLiQ Hub Module incorrectly inserted |
| Message value: | Component: %1, to %2: %3, connection : %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The topology comparison has detected a DRIVE-CLiQ Hub Module in the actual topology that has been incorrectly inserted with respect to the target topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1) Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled. |
| Remedy: | Adapting topologies: - insert the components involved at the right connection (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). - automatically remove the topology error (p9904). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison). |

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|-----------------------|--|
| A01385 | Topology: Controller Extension incorrectly inserted |
| Message value: | Component: %1, to %2: %3, connection : %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The topology comparison has detected a controller extension 32 (CX32) in the actual topology that has been incorrectly inserted with respect to the target topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = connection number (%4) cc = component number (%3) bb = component class (% 2) aa = component number of the incorrectly inserted component (% 1) Note: The component is described in dd, cc and bb, where the component involved is incorrectly inserted. Component class and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled. |
| Remedy: | Adapting topologies: - insert the components involved at the right connection (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). - automatically remove the topology error (p9904). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison). |

A01386 Topology: DRIVE-CLiQ component incorrectly inserted

Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a DRIVE-CLiQ component in the actual topology that has been incorrectly inserted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01389 Topology: Motor with DRIVE-CLiQ incorrectly inserted

Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a motor with DRIVE-CLiQ in the actual topology that has been incorrectly inserted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

| | |
|-----------------------|---|
| A01416 | Topology: Component additionally inserted |
| Message value: | %1, to %2: %3, connection: %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The topology comparison has found a component in the actual topology which is not specified in the target topology. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: dd = component class (% 2) cc = connection number (%4) bb = component class of the additional component (%1) aa = component number (%3) Note: The component class of the additional component is contained in bb. The component is described in dd, cc and aa, where the additional component is inserted. Component class and connection number are described in F01375. |
| Remedy: | Adapting topologies: - remove the additional component (correct the actual topology). - adapt the project/parameterization in the commissioning software (correct the target topology). Note: Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison). |

| | |
|-----------------------|--|
| A01420 | Topology: Component different |
| Message value: | Component : %1, Soll: %2, actual: %3, difference: %4 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The topology comparison has detected differences in the actual and target topologies in the electronic rating plate. Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: aa = component number (%1), bb = component class of the target topology (%2), cc = component class of the actual topology (%3), dd = difference (%4) dd = 01 hex = 1 dec: Different component type. dd = 02 hex = 2 dec: Different Order No. dd = 03 hex = 3 dec: Different manufacturer. dd = 04 hex = 4 dec: Connection changed over for a multi-component slave (e.g. Double Motor Module), defective EEPROM data in the electronic rating plate, or only part of a multi-component slave set to "de-activate and not present". dd = 05 hex = 5 dec: NX10 or NX15 used instead of CX32. dd = 06 hex = 6 dec: NX10 or NX15 used instead of CX32. dd = 07 hex = 7 dec: Different number of connections. Note: The component class is described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled. |

Remedy: Adapting topologies:

- connect the expected component (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Topology comparison - if required, adapt the comparison level:

- parameterize the topology comparison of all components (p9906).
- parameterize the topology comparison of one components (p9907, p9908).

Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01425

Topology: Serial number different

Message value: Component: %1, %2, differences: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. The serial number is different.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = reserved
cc = number of differences (%3)
bb = component class (% 2)
aa = component number (%1)
Note:

The component class is described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:

- change over the actual topology to match the target topology.
- download the target topology that matches the actual topology (commissioning software).

Re byte cc:
cc = 1 --> can be acknowledged using p9904 or p9905.
cc > 1 --> can be acknowledged using p9905 and can be de-activated using p9906 or p9907/p9908.

Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
See also: p9904 (Topology comparison acknowledge differences), p9905 (Device specialization), p9906 (Topology comparison comparison stage of all components), p9907 (Topology comparison comparison stage of the component number), p9908 (Topology comparison comparison stage of a component)

A01428

Topology: Incorrect connection used

Message value: Component: %1, %2, connection (actual): %3, connection (target): %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. For a component, another connection was used.
The different connections of a component are described in the alarm value.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number of the target topology (%4)
cc = connection number of the actual topology (%3)
bb = component class (% 2)
aa = component number (%1)

Note:

Component class and connection number are described in F01375.

The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy:

Adapting topologies:

- reinsert the DRIVE-CLiQ cable to the component (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
- automatically remove the topology error (p9904).

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

See also: p9904 (Topology comparison acknowledge differences)

F01451

Topology: Target topology is invalid

Message value:

%1

Message class:

Error in the parameterization / configuration / commissioning procedure (18)

Drive object:

All objects

Reaction:

NONE

Acknowledge:

IMMEDIATELY

Cause:

An error was detected in the target topology.

The target topology is invalid.

Fault value (r0949, interpret hexadecimal):

ccccbaa hex: cccc = index error, bb = component number, aa = fault cause

aa = 1B hex = 27 dec: Error not specified.

aa = 1C hex = 28 dec: Value illegal.

aa = 1D hex = 29 dec: Incorrect ID.

aa = 1E hex = 30 dec: Incorrect ID length.

aa = 1F hex = 31 dec: Too few indices left.

aa = 20 hex = 32 dec: component not connected to Control Unit.

Remedy:

Reload the target topology using the commissioning software.

A01481 (N)

Topology: power unit not inserted

Message value:

Component: %1, to %2: %3, connection : %4

Message class:

Error in the parameterization / configuration / commissioning procedure (18)

Drive object:

All objects

Reaction:

NONE

Acknowledge:

NONE

Cause:

The topology comparison has detected a power unit that is missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy:

Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

4 Faults and alarms

4.2 List of faults and alarms

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

Reaction upon N: NONE

Acknowl. upon N: NONE

A01482 Topology: Sensor Module not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Sensor Module that is missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy:

Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01483 Topology: Terminal Module not inserted

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Terminal Module that is missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01484 **Topology: DRIVE-CLiQ Hub Module not inserted**
Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a DRIVE-CLiQ Hub Module missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01485 **Topology: Controller Extension not inserted**
Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a Control Extension (CX32) missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy:

Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01486**Topology: DRIVE-CLiQ component not inserted**

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ component missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy:

Adapting topologies:

- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).

Check the hardware:

- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:

Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01487**Topology: Option slot component not inserted**

Message value: Component: %1, to %2: %3, connection : %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected an option slot component missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):

ddccbbaa hex:

dd = connection number (%4)

cc = component number (%3)

bb = component class (% 2)

aa = component number of the component that has not been inserted (% 1)

Note:

The component is described in dd, cc and bb, where the component has not been inserted.

Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01489 **Topology: Motor with DRIVE-CLiQ not inserted**

Message value: Component: %1, to %2: %3, connection : %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a motor with DRIVE-CLiQ missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterization in the commissioning software (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning software where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

F01505 (A) **BICO: Interconnection cannot be established**

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A PROFIdrive telegram has been set (p0922).
An interconnection contained in the telegram was not able to be established.
Fault value (r0949, interpret decimal):
Parameter receiver that should be changed.

Remedy: Establish another interconnection.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01506 (A) BICO: No standard telegram

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The standard telegram in p0922 is not maintained and therefore p0922 is set to 999.
Fault value (r0949, interpret decimal):
BICO parameter for which the write attempt was unsuccessful.
Remedy: Again set the required standard telegram (p0922).
Reaction upon A: NONE
Acknowl. upon A: NONE

A01507 (F, N) BICO: Interconnections to inactive objects present

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: There are BICO interconnections to an inactive/inoperable drive object.
The BI/CI parameters involved are listed in r9498.
The associated BO/CO parameters are listed in r9499.
The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the de-activated drive object.
Note:
r9498 and r9499 are only written to, if p9495 is not set to 0.
Alarm value (r2124, interpret decimal):
Number of BICO interconnections found to inactive drive objects.
Remedy:
- set all open BICO interconnections centrally to the factory setting with p9495 = 2.
- make the non-operational drive object active/operational again (re-insert or activate components).
Reaction upon F: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A01508 BICO: Interconnections to inactive objects exceeded

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum number of BICO interconnections (signal sinks) when de-activating a drive object was exceeded.
When de-activating a drive object, all BICO interconnections (signal sinks) are listed in the following parameters:
- r9498[0...29]: List of the BI/CI parameters involved.
- r9499[0...29]: List of the associated BO/CO parameters.
Remedy: The alarm automatically disappears as soon as no BICO interconnection (value = 0) is entered in r9498[29] and r9499[29].
Notice:
When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.

| | |
|-----------------------|---|
| F01510 | BICO: Signal source is not float type |
| Message value: | Parameter: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The requested connector output does not have the correct data type. This interconnection is not established. Fault value (r0949, interpret decimal): Parameter number to which an interconnection should be made (connector output). |
| Remedy: | Interconnect this connector input with a connector output having a float data type. |
| <hr/> | |
| F01511 (A) | BICO: Interconnection with different scalings |
| Message value: | Parameter: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values. - the BICO output has different normalized units than the BICO input. - message only for interconnections within a drive object. Example: The BICO output has, as normalized unit, voltage and the BICO input has current. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input. p2002: contains the reference value for current p2001: contains the reference value for voltage Fault value (r0949, interpret decimal): Parameter number of the BICO input (signal sink). |
| Remedy: | Not necessary. |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |
| <hr/> | |
| F01512 | BICO: No scaling available |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | POWER ON |
| Cause: | An attempt was made to determine a conversion factor for a scaling that does not exist. Fault value (r0949, interpret decimal): Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor. |
| Remedy: | Apply scaling or check the transfer value. |
| <hr/> | |
| F01513 (N, A) | BICO: Interconnection cross DO with different scalings |
| Message value: | Parameter: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values. An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different. |

4 Faults and alarms

4.2 List of faults and alarms

Example 1:

BICO output with voltage normalized unit, BICO input with current normalized unit, BICO output and BICO input lie in different drive objects. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input.

p2002: contains the reference value for current

p2001: contains the reference value for voltage

Example 2:

BICO output with voltage normalized unit in drive object 1 (DO1), BICO input with voltage normalized unit in drive object 2 (DO2). The reference values for voltage (p2001) of the two drive objects have different values. This means that the factor p2001(DO1)/p2001(DO2) is calculated between the BICO output and the BICO input.

p2001: contains the reference value for voltage, drive objects 1, 2

Fault value (r0949, interpret decimal):

Parameter number of the BICO input (signal sink).

Remedy: Not necessary.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A01514 (F) BICO: Error when writing during a reconnect

Message value: Parameter: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to.

Example:

When writing to BICO input with double word format (DWORD), in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting.

Alarm value (r2124, interpret decimal):

Parameter number of the BICO input (signal sink).

Remedy: Not necessary.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When changing the number of CDS or when copying from CDS, the master control is active.

Remedy: If required, return the master control and repeat the operation.

Reaction upon A: NONE

Acknowl. upon A: NONE

A01590 (F) Drive: Motor maintenance interval expired

Message value: Fault cause: %1 bin

Message class: General drive fault (19)

Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: NONE

Cause: The selected service/maintenance interval for this motor was reached.

Alarm value (r2124, interpret decimal):

Motor data set number.

Remedy: carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F01800 DRIVE-CLiQ: Hardware/configuration error

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A DRIVE-CLiQ connection fault has occurred.
Fault value (r0949, interpret decimal):
100 ... 107:
Communication via DRIVE-CLiQ socket X100 ... X107 has not been switched to cyclic operation. The cause may be an incorrect structure or a configuration that results in an impossible bus timing.
10:
Loss of the DRIVE-CLiQ connection. The cause may be, for example, that the DRIVE-CLiQ cable was withdrawn from the Control Unit or as a result of a short-circuit for motors with DRIVE-CLiQ. This fault can only be acknowledged in cyclic communication.
11:
Repeated faults when detecting the connection. This fault can only be acknowledged in cyclic communication.
12:
A connection was detected but the node ID exchange mechanism does not function. The reason is probably that the component is defective. This fault can only be acknowledged in cyclic communication.

Remedy: Re fault value = 100 ... 107:
- ensure that the DRIVE-CLiQ components have the same firmware versions.
- avoid longer topologies for short current controller clock cycles.
For fault value = 10:
- check the DRIVE-CLiQ cables at the Control Unit.
- remove any short-circuit for motors with DRIVE-CLiQ.
- carry out a POWER ON.
For fault value = 11:
- check the electrical cabinet design and cable routing for EMC compliance
For fault value = 12:
- replace the component involved.

A01839 DRIVE-CLiQ diagnostics: cable fault to the component

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The fault counter (r9936[0...199]) to monitor the DRIVE-CLiQ connections/cables has been incremented.
Alarm value (r2124, interpret decimal):
Component number.
Note:
The component number specifies the component whose feeder cable from the direction of the Control Unit is faulted. The alarm automatically disappears after 5 seconds, assuming that no other data transfer error has occurred.
See also: r9936 (DRIVE-CLiQ diagnostic error counter connection)

Remedy: - check the corresponding DRIVE-CLiQ cables.
- check the electrical cabinet design and cable routing for EMC compliance

| | |
|-----------------------|--|
| A01900 (F) | PB/PN: Configuration telegram error |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>A controller attempts to establish a connection using an incorrect configuring telegram.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978.</p> <p>2: Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051.</p> <p>3: Uneven number of bytes for input or output.</p> <p>4: Setting data for synchronization not accepted. For more information, see A01902.</p> <p>211: Unknown parameterizing block.</p> <p>223: Clock synchronization for the PZD interface set in p8815[0] is not permissible. More than one PZD interface is operated in clock synchronism.</p> <p>253: PN Shared Device: Illegal mixed configuration of PROFIsafe and PZD.</p> <p>254: PN Shared Device: Illegal double assignment of a slot/subslot.</p> <p>255: PN: Configured drive object and existing drive object do not match.</p> <p>500: Illegal PROFIsafe configuration for the interface set in p8815[1]. More than one PZD interface is operated with PROFIsafe.</p> <p>501: PROFIsafe parameter error (e.g. F_dest).</p> <p>502: PROFIsafe telegram does not match.</p> <p>503: PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).</p> <p>Additional values: Only for internal Siemens troubleshooting.</p> |
| Remedy: | <p>Check the bus configuration on the master and the slave sides.</p> <p>Re alarm value = 1, 2: - Check the list of the drive objects with process data exchange (p0978).</p> <p>Note: With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.</p> <p>Re alarm value = 2: - Check the number of data words for output and input to a drive object.</p> <p>Re alarm value = 211: - Ensure offline version <= online version.</p> <p>Re alarm value = 223, 500: - Check the setting in p8839 and p8815. - Check for inserted but not configured CBE20. - Ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.</p> <p>Re alarm value = 255: - Check configured drive objects.</p> |

Re alarm value = 501:
- Check the set PROFIsafe address (p9610).
Re alarm value = 502:
- Check the set PROFIsafe telegram (p60022, p9611).

Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A01902 PB/PN clock cycle synchronous operation parameterization not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Parameterization for isochronous operation is not permissible.
 Alarm value (r2124, interpret decimal):
 0: Bus cycle time Tdp < 0.5 ms.
 1: Bus cycle time Tdp > 32 ms.
 2: Bus cycle time Tdp is not an integer multiple of the current controller sampling time.
 3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.
 4: Instant of the actual value sensing Ti is not an integer multiple of the current controller sampling time.
 5: Instant of the setpoint acceptance To >= Bus cycle time Tdp or To = 0.
 6: Instant of the setpoint acceptance To is not an integer multiple of the current controller sampling time.
 7: Master application cycle time Tmapc is not an integer multiple of the speed controller sampling time.
 8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller sampling times.
 10: Instant of the setpoint acceptance To <= data exchange time Tdx + current controller sampling time
 11: Master application cycle time Tmapc > 14 x Tdp or Tmapc = 0.
 12: PLL tolerance window Tpll_w > Tpll_w_max.
 13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].
 16: For COMM BOARD, the instant in time for the actual value sensing Ti is less than two current controller sampling times.
Remedy:
 - Adapt the bus parameterization Tdp, Ti, To.
 - adapt the sampling time for the current controller or speed controller.
 Re alarm value = 10:
 - Reduce Tdx by using fewer bus participants or shorter telegrams.
 Note:
 PB: PROFIBUS
 PN: PROFINET

F01910 (N, A) Fieldbus: setpoint timeout

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: The reception of setpoints from the fieldbus interface (onboard, PROFIBUS/PROFINET/USS) has been interrupted.
 - bus connection interrupted.
 - controller switched off.
 - controller set into the STOP state.
 See also: p2040 (Fieldbus interface monitoring time), p2047 (PROFIBUS additional monitoring time)
Remedy: Restore the bus connection and set the controller to RUN.
 Note regarding PROFIBUS slave redundancy:
 For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.
 Reaction upon N: NONE
 Acknowl. upon N: NONE

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon A: NONE
Acknowl. upon A: NONE

F01911 (N, A) PB/PN clock cycle synchronous operation clock cycle failure

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF3)
Acknowledge: IMMEDIATELY
Cause: The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tpllw).
Remedy: - check the physical bus configuration (cable, connector, terminating resistor, shielding, etc.).
- check whether communication was briefly or permanently interrupted.
- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).
PB: PROFIBUS
PN: PROFINET

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01915 (N, A) PB/PN clock cycle synchronous operation sign-of-life failure drive object 1

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Group display for problems with the sign-of-life of the master (clock-cycle synchronous operation) on the drive object 1 (Control Unit).
For central measurements, synchronism with the central master is lost.
Remedy: Note:
PB: PROFIBUS
PN: PROFINET

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A01920 (F) PROFIBUS: Interruption cyclic connection

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic connection to the PROFIBUS master is interrupted.
Remedy: Establish the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode.
Note:
If there is no communication to a higher-level control system, then p2030 should be set = 0 to suppress this message.
See also: p2030 (Field bus int protocol selection)

Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

| | |
|-----------------------|--|
| A01921 (F) | PROFIBUS: Receive setpoints after To |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle. |
| Remedy: | - check bus configuration. - check parameters for clock cycle synchronization (ensure To > Tdx). Note: To: Time of setpoint acceptance Tdx: Data exchange time |
| Reaction upon F: | NONE (OFF1) |
| Acknowl. upon F: | IMMEDIATELY |

| | |
|-----------------------|--|
| A01930 | PB/PN current controller sampling time clock cycle synch. not equal |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The current controller sampling time of all drives must be set the same for the clock cycle synchronous operation. Alarm value (r2124, interpret decimal): Number of the drive object with different current controller sampling time. |
| Remedy: | Set current controller sampling time to identical values (p0115[0]). Note: PB: PROFIBUS PN: PROFINET See also: p0115 |

| | |
|-----------------------|--|
| A01931 | PB/PN speed controller sampling time clock cycle synch. not equal |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The speed controller sampling time of all drives must be set the same for the clock cycle synchronous operation. Alarm value (r2124, interpret decimal): Number of the drive object with the different speed controller sampling time. |
| Remedy: | Set the speed controller sampling times to identical values (p0115[1]). Note: PB: PROFIBUS PN: PROFINET See also: p0115 |

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|-----------------------|---|
| A01940 | PB/PN clock cycle synchronism not reached |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master. |

4 Faults and alarms

4.2 List of faults and alarms

- the master does not send a clock synchronous global control telegram although clock synchronous operation was selected when configuring the bus.
- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
- at least one drive object has a pulse enable (not controlled from PROFIBUS/PROFINET either).

Remedy:

- check the master application and bus configuration.
- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
- check that no drive object has a pulse enable. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives.

Note:

PB: PROFIBUS

PN: PROFINET

A01941 PB/PN clock cycle signal missing when establishing bus communication

Message value: -

Message class: Communication error to the higher-level control system (9)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is not being received.

Remedy: Check the master application and bus configuration.

Note:

PB: PROFIBUS

PN: PROFINET

A01943 PB/PN clock cycle signal error when establishing bus communication

Message value: -

Message class: Communication error to the higher-level control system (9)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram.

The global control telegram for synchronization is being irregularly received.

-.the master is sending an irregular global control telegram.

- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.

Remedy: - check the master application and bus configuration.

- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.

Note:

PB: PROFIBUS

PN: PROFINET

A01945 PROFIBUS: Connection to the Publisher failed

Message value: Fault cause: %1 bin

Message class: Communication error to the higher-level control system (9)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed.

Alarm value (r2124, interpret binary):

Bit 0 = 1: Publisher with address in r2077[0], connection failed.

...

Bit 15 = 1: Publisher with address in r2077[15], connection failed.

Remedy:

- check the PROFIBUS cables.
- carry out a first commissioning of the Publisher that has the failed connection.

See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

F01946 (A) PROFIBUS: Connection to the Publisher aborted

Message value: Fault cause: %1 bin
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation has been aborted.
Fault value (r0949, interpret binary):
Bit 0 = 1: Publisher with address in r2077[0], connection aborted.

...

Bit 15 = 1: Publisher with address in r2077[15], connection aborted.

Remedy:

- check the PROFIBUS cables.
- check the state of the Publisher that has the aborted connection.

See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

Reaction upon A: NONE

Acknowl. upon A: NONE

F01950 (N, A) PB/PN clock cycle synchronous operation synchronization unsuccessful

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: OFF1 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.

Remedy: Only for internal Siemens troubleshooting.

Note:

PB: PROFIBUS

PN: PROFINET

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F01951 CU SYNC: Synchronization application clock cycle missing

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: If DRIVE-CLiQ components with different application clock cycle are operated on a DRIVE-CLiQ port, this requires synchronization with the Control Unit. This synchronization routine was unsuccessful.
Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade the software of the DRIVE-CLiQ components.
- upgrade the Control Unit software.

Note:

If a Controller Extension is being used (e.g. CX32, NX10), then the following applies:

Check whether the Controller Extension is issuing error messages, and if required, remove these.

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|-----------------------|--|
| F01952 | CU DRIVE-CLiQ: Synchronization of component not supported |
| Message value: | %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | All objects |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | The existing system configuration requires that the connected DRIVE-CLiQ components support the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and the application clock cycle. However, not all DRIVE-CLiQ components have this functionality. Fault value (r0949, interpret decimal): Component number of the first faulty DRIVE-CLiQ component. |
| Remedy: | Upgrade the firmware of the component specified in the fault value. Note: If required, also upgrade additional components in the DRIVE-CLiQ line. |

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|-----------------------|--|
| A01953 | CU SYNC: Synchronization not completed |
| Message value: | %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | After the drive system is powered up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. |
| Remedy: | Carry out a POWER ON (power off/on) for all components. If the error occurs after the drive sampling times were changed, and if a Terminal Module 31 (TM31) is being used, the sampling times (p0115, p4099) should be set as integer multiples to the drive clock cycles (p0115). |

| | |
|-----------------------|--|
| F01954 | CU DRIVE-CLiQ: Synchronization unsuccessful |
| Message value: | %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | Synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started and was not able to be successfully completed (e.g. after switch-on). Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting. |
| Remedy: | 1. Remove the cause of a possible DRIVE-CLiQ fault. 2. Initiate a new synchronization, e.g. as follows: - remove the PROFIBUS master and re-insert again. - restart the PROFIBUS master. - switch-off the Control Unit and switch-on again. - carry out a Control Unit hardware reset (RESET button, p0972). - carry out a parameter reset and download the saved parameters (p0009 = 30, p0976 = 2, 3). |

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| A01955 | CU DRIVE-CLiQ: Synchronization DO not completed |
| Message value: | %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | After the drive system is powered up, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance. |

Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: Carry out a POWER ON (power off/on) for all components of the DO.

| | |
|-----------------------|---|
| A01990 (F) | USS: PZD configuration error |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The configuration of the process data (PZD) for the USS protocol is incorrect. Alarm value (r2124, interpret decimal): 2: PZD amount (p2022) too great for the first drive object (p978[0]). The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051. |
| Remedy: | Re alarm value = 2: Check the amount of USS PZD (p2022) and the maximum PZD amount (r2050/p2051) for the first drive object (p0978[0]). |
| Reaction upon F: | NONE (OFF1) |
| Acknowl. upon F: | IMMEDIATELY |

| | |
|-----------------------|--|
| A02000 | Function generator: Start not possible |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The function generator has already been started. |
| Remedy: | Stop the function generator and restart again if necessary. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator. See also: p4800 (Function generator control) |

| | |
|-----------------------|---|
| A02005 | Function generator: Drive does not exist |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The drive object specified for connection does not exist. |
| Remedy: | Use the existing drive object with the corresponding number. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator. |

| | |
|-----------------------|--|
| A02006 | Function generator: No drive specified for connection |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | No drive specified for connection in p4815. |

4 Faults and alarms

4.2 List of faults and alarms

Remedy: At least one drive to be connected must be specified in p4815.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02007 Function generator: Drive not SERVO / VECTOR / DC_CTRL

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The drive object specified for connection is not a SERVO / VECTOR or DC_CTRL.

Remedy: Use a SERVO / VECTOR / DC_CTRL drive object with the corresponding number.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02008 Function generator: Drive specified a multiple number of times

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The drive object specified for connection is already specified.

Alarm value (r2124, interpret decimal):

Drive object number of the drive object that is specified a multiple number of times.

Remedy: Specify a different drive object.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02009 Function generator: Illegal mode

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The set operating mode (p1300) of the drive object is not permissible when using the function generator.

Alarm value (r2124, interpret decimal):

Number of the drive object involved.

Remedy: Change the operating mode for this drive object to p1300 = 20 (encoderless speed control) or p1300 = 21 (speed control with encoder).

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

| | |
|-----------------------|---|
| A02010 | Function generator: Speed setpoint from the drive is not zero |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The speed setpoint of a drive selected for connection is greater than the value for the standstill detection set using p1226. |
| Remedy: | For all of the drives specified for connection, set the speed setpoints to zero. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator. |

| | |
|-----------------------|--|
| A02011 | Function generator: The actual drive speed is not zero |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The speed actual value of a drive selected for connection is greater than the value for the standstill detection set using p1226. |
| Remedy: | Set the relevant drives to zero speed before starting the function generator. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator. |

| | |
|-----------------------|---|
| A02015 | Function generator: Drive enable signals missing |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The master control and/or enable signals are missing to connect to the specified drive. |
| Remedy: | Fetch the master control to the specified drive object and set all enable signals. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator. |

| | |
|-----------------------|--|
| A02016 | Function generator: Magnetizing running |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | Magnetizing has not yet been completed on a drive object specified for connection. Alarm value (r2124, interpret decimal): Number of the drive object involved. |
| Remedy: | Wait for magnetizing of the motor (r0056.4). Note: The alarm is reset as follows: - restart the function generator. See also: r0056 (Status word, closed-loop control) |

A02020 Function generator: Parameter cannot be changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: This parameter setting cannot be changed when the function generator is active (p4800 = 1).
See also: p4810, p4812, p4813, p4820, p4821, p4822, p4823, p4824, p4825, p4826, p4827, p4828, p4829
Remedy: - stop the function generator before parameterizing (p4800 = 0).
- if required, start the function generator (p4800 = 1).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02025 Function generator: Period too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the period is too short.
See also: p4821 (Function generator period)
Remedy: Check and adapt the value for the period.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period)

A02026 Function generator: Pulse width too high

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected pulse width is too high.
The pulse width must be less than the period duration.
See also: p4822 (Function generator pulse width)
Remedy: Reduce pulse width.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period), p4822 (Function generator pulse width)

A02030 Function generator: Physical address equals zero

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The specified physical address is zero.
See also: p4812 (Function generator physical address)

Remedy: Set a physical address with a value other than zero.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

See also: p4812 (Function generator physical address)

A02040 Function generator: Illegal value for offset

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
See also: p4826 (Function generator offset)

Remedy: Adjust the offset value accordingly.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

See also: p4826 (Function generator offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)

A02041 Function generator: Illegal value for bandwidth

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The bandwidth referred to the time slice clock cycle of the function generator has either been set too low or too high.
Depending on the time slice clock cycle, the bandwidth is defined as follows:

$\text{Bandwidth_max} = 1 / (2 \times \text{time slice clock cycle})$

$\text{Bandwidth_min} = \text{Bandwidth_max} / 100000$

Example:

Assumption: p4830 = 125 μs

--> $\text{Bandwidth_max} = 1 / (2 \times 125 \mu\text{s}) = 4000 \text{ Hz}$

--> $\text{Bandwidth_min} = 4000 \text{ Hz} / 100000 = 0.04 \text{ Hz}$

Note:

p4823: Function generator bandwidth

p4830: Function generator time slice clock cycle

See also: p4823 (Function generator bandwidth), p4830 (Function generator time slice cycle)

Remedy: Check the value for the bandwidth and adapt accordingly.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

A02047 Function generator: Time slice clock cycle invalid

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The time slice clock cycle selected does not match any of the existing time slices.

See also: p4830 (Function generator time slice cycle)

4 Faults and alarms

4.2 List of faults and alarms

Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.

Note:

The alarm is reset as follows:

- remove the cause of this alarm.
- restart the function generator.

See also: r7901 (Sampling times)

A02050 Trace: Start not possible

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The trace has already been started.

See also: p4700 (Trace control)

Remedy: Stop the trace and, if necessary, start again.

A02051 Trace: recording not possible as a result of know-how protection

Message value: involves %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: TRACE recording is not possible as at least one signal or trigger signal being used is under know-how protection.

Alarm value (r2124, interpret decimal):

1: Recorder 0

2: Recorder 1

3: Recorders 0 and 1

See also: p4700, p4711, p4730, p4731, p4732, p4733, p4734, p4735, p4736, p4737

Remedy: - Temporarily activate or deactivate know-how protection (p7766).

- Include the signal in the OEM exception list (p7763, p7764).

- Where relevant do not record of the signal.

See also: p7763 (KHP OEM exception list number of indices for p7764), p7764 (KHP OEM exception list)

A02055 Trace: Recording time too short

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The trace duration is too short.

The minimum is twice the value of the trace clock cycle.

See also: p4721 (Trace recording time)

Remedy: Check the selected recording time and, if necessary, adjust.

A02056 Trace: Recording cycle too short

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The selected recording cycle is shorter than the selected basic clock cycle 0 (p0110[0]).

See also: p4720 (Trace recording cycle)

Remedy: Increase the value for the trace cycle.

A02057 Trace: Time slice clock cycle invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice clock cycle selected does not match any of the existing time slices.
See also: p4723 (Trace time slice cycle)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02058 Trace: Time slice clock cycle for endless trace not valid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for the endless trace
See also: p4723 (Trace time slice cycle)
Remedy: Enter the clock cycle of an existing time slice with a cycle time ≥ 2 ms for up to 4 recording channels or ≥ 4 ms from 5 recording channels per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02059 Trace: Time slice clock cycle for 2 x 8 recording channels not valid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for more than 4 recording channels.
See also: p4723 (Trace time slice cycle)
Remedy: Enter the clock cycle of an existing time slice with a cycle time ≥ 4 ms or reduce the number of recording channels to 4 per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02060 Trace: Signal to be traced missing

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: - a signal to be traced was not specified.
- the specified signals are not valid.
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

| | |
|-----------------------|--|
| A02061 | Trace: Invalid signal |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | - the specified signal does not exist. - the specified signal can no longer be traced (recorded). See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3) |
| Remedy: | - specify the signal to be traced. - check whether the relevant signal can be traced. |

| | |
|-----------------------|--|
| A02062 | Trace: Invalid trigger signal |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | - a trigger signal was not specified. - the specified signal does not exist. - the specified signal is not a fixed-point signal. - the specified signal cannot be used as a trigger signal for the trace. See also: p4711 (Trace trigger signal) |
| Remedy: | Specify a valid trigger signal. |

| | |
|-----------------------|---|
| A02063 | Trace: Invalid data type |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The specified data type to select a signal using a physical address is invalid. See also: p4711 (Trace trigger signal), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3) |
| Remedy: | Use a valid data type. |

| | |
|-----------------------|---|
| A02070 | Trace: Parameter cannot be changed |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The trace parameter settings cannot be changed when the trace is active. See also: p4700, p4710, p4711, p4712, p4713, p4714, p4715, p4716, p4720, p4721, p4722, p4730, p4731, p4732, p4733, p4780, p4781, p4782, p4783, p4789, p4795 |
| Remedy: | - stop the trace before parameterization. - if required, start the trace. |

A02075 Trace: Pretrigger time too long

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected pretrigger time must be shorter than the trace time.
See also: p4721 (Trace recording time), p4722 (Trace trigger delay)
Remedy: Check the pretrigger time setting and change if necessary.

F02080 Trace: Parameterization deleted due to unit changeover

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The trace parameterization in the drive unit was deleted due to a unit changeover or a change in the reference parameters.
Remedy: Restart trace.

A02095 MTrace 0: multiple trace cannot be activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 0):
- measuring function
- long-time trace
- trigger condition "immediate recording start" (IMMEDIATE)
- trigger condition "start with function generator" (FG_START)
Remedy: - if required, deactivate the multiple trace (p4840[0] = 0).
- deactivate function or setting that is not permissible
See also: p4840 (MTrace cycle number setting)

A02096 MTrace 0: cannot be saved

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 0).
A multiple trace is not started or is canceled.
Alarm value (r2124, interpret decimal):
1: Memory card cannot be accessed.
- card is not inserted or is blocked by a mounted USB drive.
3: data save operation too slow.
- a second trace has been completed before the measurement results of the first trace were able to be saved.
- writing the measurement result files to the card is blocked by the parameter save.
4: Data save operation canceled.
- for instance, the file required for the data save operation was not able to be found.
See also: p4840 (MTrace cycle number setting)

4 Faults and alarms

4.2 List of faults and alarms

- Remedy:**
- insert or remove the memory card.
 - use a larger memory card.
 - configure a longer trace time or use an endless trace.
 - avoid saving parameters while a multiple trace is running.
 - check whether other functions are presently accessing measurement result files.

A02097 MTrace 1: multiple trace cannot be activated

- Message value:** -
- Message class:** Error in the parameterization / configuration / commissioning procedure (18)
- Drive object:** All objects
- Reaction:** NONE
- Acknowledge:** NONE
- Cause:** The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 1):
- measuring function
 - long-time trace
 - trigger condition "immediate recording start" (IMMEDIATE)
 - trigger condition "start with function generator" (FG_START)
- Remedy:**
- if required, deactivate the multiple trace (p4840[1] = 0).
 - deactivate function or setting that is not permissible
- See also: p4840 (MTrace cycle number setting)

A02098 MTrace 1: cannot be saved

- Message value:** %1
- Message class:** Error in the parameterization / configuration / commissioning procedure (18)
- Drive object:** All objects
- Reaction:** NONE
- Acknowledge:** NONE
- Cause:** It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 1). A multiple trace is not started or is canceled.
- Alarm value (r2124, interpret decimal):
- 1: Memory card cannot be accessed.
 - card is not inserted or is blocked by a mounted USB drive.
 - 3: data save operation too slow.
 - a second trace has been completed before the measurement results of the first trace were able to be saved.
 - writing the measurement result files to the card is blocked by the parameter save.
 - 4: Data save operation canceled.
 - for instance, the file required for the data save operation was not able to be found.
- See also: p4840 (MTrace cycle number setting)
- Remedy:**
- insert or remove the memory card.
 - use a larger memory card.
 - configure a longer trace time or use an endless trace.
 - avoid saving parameters while a multiple trace is running.
 - check whether other functions are presently accessing measurement result files.

A02099 Trace: Insufficient Control Unit memory

- Message value:** -
- Message class:** Error in the parameterization / configuration / commissioning procedure (18)
- Drive object:** All objects
- Reaction:** NONE
- Acknowledge:** NONE
- Cause:** The memory space still available on the Control Unit is no longer sufficient for the trace function.

Remedy: Reduce the memory required, e.g. as follows:
- reduce the trace time.
- increase the trace clock cycle.
- reduce the number of signals to be traced.
See also: r4708 (Trace memory space required), r4799 (Trace memory location free)

A02150 **OA: Application cannot be loaded**
Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The system was not able to load an OA application.
Alarm value (r2124, interpret hexadecimal):
16:
The interface version in the DCB user library is not compatible to the DCC standard library that has been loaded.
Only for internal Siemens troubleshooting.

Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Re alarm value = 16:
Load a compatible DCB user library (compatible to the interface of the DCC standard library).
Note:
OA: Open Architecture
See also: r4950, r4955, p4956, r4957

F02151 (A) **OA: Internal software error**
Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error has occurred within an OA application.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.
Note:
OA: Open Architecture
See also: r4950, r4955, p4956, r4957

Reaction upon A: NONE
Acknowl. upon A: NONE

F02152 (A) **OA: Insufficient memory**
Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

4 Faults and alarms

4.2 List of faults and alarms

Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
- use an additional Control Unit.

Note:

OA: Open Architecture

Reaction upon A: NONE

Acknowl. upon A: NONE

F03000 NVRAM fault on action

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A fault occurred during execution of action p7770 = 1 or 2 for the NVRAM data.

Fault value (r0949, interpret hexadecimal):

yyxx hex: yy = fault cause, xx = application ID

yy = 1:

The action p7770 = 1 is not supported by this version if Drive Control Chart (DCC) is activated for the drive object concerned.

yy = 2:

The data length of the specified application is not the same in the NVRAM and the backup.

yy = 3:

The data checksum in p7774 is not correct.

yy = 4:

No data available to load.

See also: p7770 (NVRAM action)

Remedy: - Perform the remedy according to the results of the troubleshooting.

- If necessary, start the action again.

F03001 NVRAM checksum incorrect

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A checksum error occurred when evaluating the non-volatile data (NVRAM) on the Control Unit.

The NVRAM data affected was deleted.

Remedy: Carry out a POWER ON (power off/on) for all components.

F03500 (A) TM: Initialization

Message value: %1

Message class: Hardware / software error (1)

Drive object: All objects

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: When initializing the Terminal Modules, the terminals of the Control Unit or the Terminal Board 30, an internal software error has occurred.

Fault value (r0949, interpret decimal):

yxxx dex

y = Only for internal Siemens troubleshooting

xxx = component number (p0151)

Remedy:

- power down/power up the power supply for the Control Unit.
- check the DRIVE-CLiQ connection.
- if required, replace the Terminal Module.

The Terminal Module should be directly connected to a DRIVE-CLiQ socket of the Control Unit.
If the fault occurs again, replace the Terminal Module.

Reaction upon A: NONE
Acknowl. upon A: NONE

A03501 TM: Sampling time change

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The sampling times of the inputs/outputs were changed.
This change only becomes valid after the next boot.

Remedy: Carry out a POWER ON.

F03505 (N, A) Analog input wire breakage

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The wire-break monitoring for an analog input has responded.
The input current of the analog input has exceeded the threshold value parameterized in p4061[x].
Index x = 0: Analog input 0 (X521.1/X521.2)
Index x = 1: Analog input 1 (X521.3/X521.4)
Fault value (r0949, interpret decimal):
yxxx dec
y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))
xxx = component number (p0151)
Note:
For the following analog input type, the wire breakage monitoring is active:
p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA))

Remedy:

- check the wiring for interruptions.
- Check the magnitude of the injected current - it is possible that the infed signal is too low.
- Check the load resistor (250 Ohm).

Note:
The input current measured by the Terminal Module can be read out from r4052[x].
For p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F03505 (N, A) Analog input wire breakage

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (NONE, OFF2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The wire-break monitoring for an analog input has responded.

Remedy: Check the wiring for interruptions.

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F03505 (N, A)

TM: Analog input wire breakage

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: TM15DI_DO, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The wire-break monitoring for an analog input has responded.
The input current of the analog input has exceeded the threshold value parameterized in p4061[x].
Index x = 0: Analog input 0 (X521.1/X521.2)
Index x = 1: Analog input 1 (X521.3/X521.4)
Fault value (r0949, interpret decimal):
yxxx dec
y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))
xxx = component number (p0151)
Remedy: Note:
For the following analog input type, the wire breakage monitoring is active:
p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA))
- check the wiring for interruptions.
- Check the magnitude of the injected current - it is possible that the infed signal is too low.
- Check the load resistor (250 Ohm).

Note:
The input current measured by the Terminal Module can be read out from r4052[x].
For p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A03510 (F, N)

Calibration data not plausible

Message value: %1
Message class: Hardware / software error (1)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility.
At least one calibration data point was determined to be invalid.
Alarm value (r2124, interpret binary):
Bit 1: 10 V value, analog input 0 invalid.
Bit 3: 10 V value, analog input 1 invalid.
Bit 4: Offset, analog output 0 invalid.
Bit 5: 10 V value, analog output 0 invalid.
Bit 6: Offset, analog output 1 invalid.
Bit 7: 10 V value, analog input 1 invalid.
Remedy: - power down/power up the power supply for the Control Unit.
- check the DRIVE-CLiQ wiring.
Note:
If it reoccurs, then replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.

Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03510 (F, N) TM: Calibration data not plausible

Message value: %1
Message class: Hardware / software error (1)
Drive object: TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility. At least one calibration data point was determined to be invalid.
Alarm value (r2124, interpret binary):
Bit 1: 10 V value, analog input 0 invalid.
Bit 3: 10 V value, analog input 1 invalid.
Bit 4: Offset, analog output 0 invalid.
Bit 5: 10 V value, analog output 0 invalid.
Bit 6: Offset, analog output 1 invalid.
Bit 7: 10 V value, analog input 1 invalid.
Remedy:
- power down/power up the power supply for the Control Unit.
- check the DRIVE-CLiQ wiring.
Note:
If it reoccurs, then replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03550 TM: Speed setpoint filter natural frequency > Shannon frequency

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The natural filter frequency of the speed setpoint filter (p1417) is greater than or equal to the Shannon frequency. The Shannon frequency is calculated according to the following formula:
 $0.5 / p4099[3]$
Remedy: Reduce the natural frequency of the speed setpoint filter (PT2 low pass) (p1417).

F03590 (N, A) TM: Module not ready

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Terminal Module involved does not send a ready signal and no valid cyclic data.
Fault value (r0949, interpret decimal):
Drive object number of the Terminal Module involved.
Remedy:
- check the 24 V power supply.
- check the DRIVE-CLiQ wiring.
- check whether the sampling time of the drive object involved is not equal to zero (p4099[0]).

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07082

Macro: Execution not possible

Message value: Fault cause: %1, supplementary information: %2, preliminary parameter number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The macro cannot be executed.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex:
cccc = preliminary parameter number, bb = supplementary information, aa = fault cause
Fault causes for the trigger parameter itself:
19: Called file is not valid for the trigger parameter.
20: Called file is not valid for parameter 15.
21: Called file is not valid for parameter 700.
22: Called file is not valid for parameter 1000.
23: Called file is not valid for parameter 1500.
24: Data type of a TAG is incorrect (e.g. Index, number or bit is not U16).
Fault causes for the parameters to be set:
25: Error level has an undefined value.
26: Mode has an undefined value.
27: A value was entered as string in the tag value that is not "DEFAULT".
31: Entered drive object type unknown.
32: A device was not able to be found for the determined drive object number.
34: A trigger parameter was recursively called.
35: It is not permissible to write to the parameter via macro.
36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect.
37: Source parameter for a BICO interconnection was not able to be determined.
38: An index was set for a non-indexed (or CDS-dependent) parameter.
39: No index was set for an indexed parameter.
41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN.
42: A value not equal to 0 or 1 was set for a BitOperation.
43: Reading the parameter to be changed by the BitOperation was unsuccessful.
51: Factory setting for DEVICE may only be executed on the DEVICE.
61: The setting of a value was unsuccessful.
Remedy: - check the parameter involved.
- check the macro file and BICO interconnection.
See also: p0015, p0700, p1000 (Macro Connector Inputs (CI) for speed setpoints), p1500 (Macro Connector Inputs (CI) for torque setpoints)

F07083

Macro: ACX file not found

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The ACX file (macro) to be executed was not able to be found in the appropriate directory.
Fault value (r0949, interpret decimal):
Parameter number with which the execution was started.
See also: p0015, p0700, p1000 (Macro Connector Inputs (CI) for speed setpoints), p1500 (Macro Connector Inputs (CI) for torque setpoints)

Remedy: - check whether the file is saved in the appropriate directory on the memory card.
 Example:
 If p0015 is set to 1501, then the selected ACX file must be located in the following directory:
 ... /PMACROS/DEVICE/P15/PM001501.ACX

F07084 Macro: Condition for WaitUntil not fulfilled

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts.
 Fault value (r0949, interpret decimal):
 Parameter number for which the condition was set.
Remedy: Check and correct the conditions for the WaitUntil loop.

F07086 Units changeover: Parameter limit violation due to reference value change

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit notation.
 The values of the parameters were set to the corresponding violated minimum limit/maximum limit or to the factory setting.
 Possible causes:
 - the steady-state minimum limit/maximum limit or that defined in the application was violated.
 Fault value (r0949, parameter):
 Diagnostics parameter to display the parameters that were not able to be re-calculated.
 See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)
Remedy: Check the adapted parameter value and if required correct.
 See also: r9450 (Reference value change parameter with unsuccessful calculation)

F07088 Units changeover: Parameter limit violation due to units changeover

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A changeover of units was initiated. This resulted in a violation of a parameter limit
 Possible causes for the violation of a parameter limit:
 - When rounding off a parameter corresponding to its decimal places, the steady-state minimum limit or maximum limit was violated.
 - inaccuracies for the data type "FloatingPoint".
 In these cases, when the minimum limit is violated then the parameter value is rounded up and when the maximum limited is violated the parameter value is rounded down.
 Fault value (r0949, interpret decimal):
 Diagnostics parameter r9451 to display all parameters whose value had to be adapted.
 See also: p0595 (Technological unit selection)
Remedy: Check the adapted parameter values and if required correct.
 See also: r9451 (Units changeover adapted parameters)

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|-------------------------|---|
| A07089 | Changing over units: Function module activation is blocked because the units have been changed over |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An attempt was made to activate a function module. This is not permissible if the units have already been changed over. |
| Remedy: | Restore units that have been changed over to the factory setting. |
| F07110 | Drive: Sampling times and basic clock cycle do not match |
| Message value: | Parameter: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The parameterized sampling times do not match the basic clock cycle. Fault value (r0949, interpret decimal): The fault value specifies the parameter involved. See also: r0110, r0111, p0115 |
| Remedy: | Enter the current controller sampling times so that they are identical to the basic clock cycle, e.g. by selecting p0112. Note which basic clock cycle is selected in p0111. The sampling times in p0115 can only be changed manually in the sampling times pre-setting "Expert" (p0112). See also: r0110, r0111, p0112, p0115 |
| A07200 | Drive: Master control ON command present |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The ON/OFF1 command is present (no 0 signal). The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control. |
| Remedy: | Switch the signal via binector input p0840 (current CDS) or control word bit 0 via the master control to 0. |
| F07220 (N, A) | Drive: Master control by PLC missing |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The "master control by PLC" signal was missing in operation. - interconnection of the binector input for "master control by PLC" is incorrect (p0854). - the higher-level control has withdrawn the "master control by PLC" signal. - data transfer via the fieldbus (master/drive) was interrupted. |
| Remedy: | - check the interconnection of the binector input for "master control by PLC" (p0854). - check the "master control by PLC" signal and, if required, switch in. - check the data transfer via the fieldbus (master/drive). Note: If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized to NONE or the message type should be parameterized as alarm. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

Reaction upon A: NONE
Acknowl. upon A: NONE

A07350 (F) Drive: Measuring probe parameterized to a digital output

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output.
Alarm value (r2124, interpret decimal):
8: DI/DO 8 (X122.9/X132.1)
9: DI/DO 9 (X122.10/X132.2)
10: DI/DO 10 (X122.12/X132.3)
11: DI/DO 11 (X122.13/X132.4)
12: DI/DO 12 (X132.9)
13: DI/DO 13 (X132.10)
14: DI/DO 14 (X132.12)
15: DI/DO 15 (X132.13)
To the terminal designation:
The first designation is valid for CU320, the second for CU305.
Remedy:
- set the terminal as input (p0728).
- de-select the measuring probe (p0488, p0489, p0580).
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

F07426 (A) Technology controller actual value limited

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The actual value for the technology controller, interconnected via connector input p2264, has reached a limit.
Fault value (r0949, interpret decimal):
1: upper limit reached.
2: lower limit reached.
Remedy:
- adapt the limits to the signal level (p2267, p2268).
- Check the actual value normalization (p0595, p0596).
- Deactivate evaluation of the limits (p2252 bit 3)
See also: p0595 (Technological unit selection), p0596 (Technological unit reference quantity), p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)
Reaction upon A: NONE
Acknowl. upon A: NONE

A07428 (N) Technology controller parameterizing error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The technology controller has a parameterizing error.
Alarm value (r2124, interpret decimal):
1:
The upper output limit in p2291 is set lower than the lower output limit in p2292.

4 Faults and alarms

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Remedy: Re alarm value = 1:
Set the output limit in p2291 higher than in p2292.
See also: p2291 (Technology controller maximum limiting), p2292 (Technology controller minimum limiting)

Reaction upon N: NONE
Acknowl. upon N: NONE

F07447 **Load gear: Position tracking, maximum actual value exceeded**

Message value: Component number: %1, encoder data set: %2, drive data set: %3
Message class: Application / technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When the position tracking of the load gear is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.
Maximum value: $p0408 * p2721 * 2^{p0419}$
Fault value (r0949, interpret hexadecimal):
ccbbaa hex
aa = encoder data set
bb = component number
cc = drive data set
See also: p0408 (Rotary encoder pulse number), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear rotary absolute encoder revolutions virtual)

Remedy: - reduce the fine resolution (p0419).
- reduce the multiturn resolution (p2721).
See also: p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear rotary absolute encoder revolutions virtual)

F07448 (A) **Load gear: Position tracking, linear axis has exceeded the maximum range**

Message value: -
Message class: Application / technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a configured linear axis/no modulo axis, the currently effective motor encoder (encoder 1) has exceeded the maximum possible traversing range.
For the configured linear axis, the maximum traversing range is defined to be $64x (+/- 32x)$ of p0421. It should be read in p2721 and interpreted as the number of load revolutions.
Note:
Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in $x = r0051$ and the corresponding motor encoder is specified in $p0187[x]$.

Remedy: The fault should be resolved as follows:
- select encoder commissioning ($p0010 = 4$).
- reset position tracking, position ($p2720.2 = 1$).
- de-select encoder commissioning ($p0010 = 0$).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon A: NONE
Acknowl. upon A: NONE

F07449 (A) **Load gear: Position tracking actual position outside tolerance window**

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When powered down, the currently effective motor encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.

Note:

Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x].

Fault value (r0949, interpret decimal):

Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gear - if one is being used. The sign designates the traversing direction.

Note:

The deviation (difference) found is also displayed in r2724.

See also: p2722 (Load gear position tracking tolerance window), r2724 (Load gear position difference)

Remedy:

Reset the position tracking as follows:

- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).

See also: p0010

Reaction upon A: NONE

Acknowl. upon A: NONE

F07500 Drive: Power unit data set PDS not configured

Message value: Drive data set: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Only for controlled line supply infeed/regenerative feedback units:

The power unit data set was not configured - this means that a data set number was not entered into the drive data set.

Fault value (r0949, interpret decimal):

Drive data set number of p0185.

Remedy: The index of the power unit data set associated with the drive data set should be entered into p0185.

F07501 Drive: Motor Data Set MDS not configured

Message value: Drive data set: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Only for power units:

The motor data set was not configured - this means that a data set number was not entered into the associated drive data set.

Fault value (r0949, interpret decimal):

The fault value includes the drive data set number of p0186.

Remedy: The index of the motor data set associated with the drive data set should be entered into p0186.

F07502 Drive: Encoder Data Set EDS not configured

Message value: Drive data set: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Only for power units:

The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set.

Fault value (r0949, interpret decimal):

The fault value includes the drive data set number of p0187, p0188 and p0189.

The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).

4 Faults and alarms

4.2 List of faults and alarms

Remedy: The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).

A07504 Drive: Motor data set is not assigned to a drive data set

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: A motor data set is not assigned to a drive object.

All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0...n]). There must be at least as many drive data sets as motor data sets.

Alarm value (r2124, interpret decimal):

Number of the motor data set that has not been assigned.

Remedy: In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0...n]).

- check whether all of the motor data sets are assigned to drive data sets.

- if required, delete superfluous motor data sets.

- if required, set up new drive data sets and assign to the corresponding motor data sets.

F07509 Drive: Component assignment missing

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A Drive Data Set (DDS) is assigned to a Motor Data Set (MDS) or Encoder Data Set (EDS) that does not have a component number.

Alarm value (r2124, interpret decimal):

nnmmmxxyyy

nn: Number of the MDS/EDS.

mmm: Parameter number of the missing component number.

xx: Number of the DDS that is assigned to the MDS/EDS.

yyy: Parameter number that references the MDS/EDS.

Example:

p0186[7] = 5: DDS 7 is assigned MDS 5.

p0131[5] = 0: There is no component number set in MDS 5.

Alarm value = 0513107186

Remedy: In the drive data sets, no longer assign MDS/EDS using p0186, p0187, p0188, p0189 or set a valid component number.

See also: p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

F07510 Drive: Identical encoder in the drive data set

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: More than one encoder with identical component number is assigned to a single drive data set. In one drive data set, it is not permissible that identical encoders are operated together.

Fault value (r0949, interpret decimal):

1000 * first identical encoder + 100 * second identical encoder + drive data set.

Example:

Fault value = 1203 means:

In drive data set 3, the first (p0187[3]) and second encoder (p0188[3]) are identical.

Remedy: Assign the drive data set to different encoders.
See also: p0141 (Encoder interface (Sensor Module) component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

F07511 Drive: Encoder used a multiple number of times

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated.
 Fault value (r0949, interpret decimal):
 The two parameters in coded form, that refer to the same component number.
 First parameter:
 Index: First and second decimal place (99 for EDS, not assigned DDS)
 Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS)
 Drive number: Fourth and fifth decimal place
 Second parameter:
 Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS)
 Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS)
 Drive number: Ninth and tenth decimal place
 See also: p0141 (Encoder interface (Sensor Module) component number)

Remedy: Correct the double use of a component number using the two parameters coded in the fault value.

F07512 Drive: Encoder data set changeover cannot be parameterized

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Using p0141, a changeover of the encoder data set is prepared that is illegal. In this firmware release, an encoder data set changeover is only permitted for the components in the actual topology.
 Alarm value (r2124, interpret decimal):
 Incorrect EDS data set number.
 See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

Remedy: Every encoder data set must be assigned its own dedicated DRIVE-CLiQ socket. The component numbers of the encoder interfaces (p0141) must have different values within a drive object.
 The following must apply:
 p0141[0] not equal to p0141[1] not equal to ... not equal to p0141[n]

F07515 Drive: Power unit and motor incorrectly connected

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology. It is possible that a motor has not been assigned to the power unit (p0131).
 Fault value (r0949, interpret decimal):
 Number of the incorrectly parameterized drive data set.

Remedy: - assign the drive data set to a combination of motor and power unit permitted by the target topology.
 - adapt the target topology.
 - If required, for a missing motor, recreate the component (drive Wizard).
 See also: p0121 (Power unit component number)

4 Faults and alarms

4.2 List of faults and alarms

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| F07516 | Drive: Re-commission the data set |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned. Fault value (r0949, interpret decimal): Drive data set to be re-commissioned. |
| Remedy: | Commission the drive data set specified in the fault value (r0949). |

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|-----------------------|--|
| F07517 | Drive: Encoder data set changeover incorrectly parameterized |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | An MDS cannot have different motor encoders in two different DDS. The following parameterization therefore results results in an error: p0186[0] = 0, p0187[0] = 0 p0186[0] = 0, p0187[0] = 1 Alarm value (r2124, interpret decimal): The lower 16 bits indicate the first DDS and the upper 16 bits indicate the second DDS. |
| Remedy: | If you wish to operate a motor once with one motor encoder and then another time with the other motor encoder, then you must set up two different MDSs, in which the motor data are the same. Example: p0186[0] = 0, p0187[0] = 0 p0186[0] = 1, p0187[0] = 1 |

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| F07518 | Drive: Motor data set changeover incorrectly parameterized |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The system has identified that two motor data sets were incorrectly parameterized. Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor data sets are assigned different motors. p0827 is used to assign the motors and/contactors. It is not possible to toggle between motor data sets. Alarm value (r2124, interpret hexadecimal): xxxxyyyy: xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS |
| Remedy: | Correct the parameterization of the motor data sets. |

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| A07530 | Drive: Drive Data Set DDS not present |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The selected drive data set is not available (p0837 > p0180). The drive data set was not changed over. See also: p0180 (Number of Drive Data Sets (DDS)), p0820 (Drive Data Set selection DDS bit 0), p0821 (Drive Data Set selection DDS bit 1), r0837 (Drive Data Set DDS selected) |
| Remedy: | - select the existing drive data set. - set up additional drive data sets. |

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| A07531 | Drive: Command Data Set CDS not present |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The selected command data set is not available (p0836 > p0170). The command data set was not changed over. See also: p0810 (Command data set selection CDS bit 0), r0836 (Command Data Set CDS selected) |
| Remedy: | - select the existing command data set. - set up additional command data sets. |

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| A07541 | Drive: Data set changeover not possible |
| Message value: | - |
| Message class: | Application / technological function faulted (17) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out. For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348). See also: r0063 (Speed actual value) |
| Remedy: | Reduce the speed to below the speed at the start of field weakening (r0063 < p0348). |

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| A07550 (F, N) | Drive: Not possible to reset encoder parameters |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ. Alarm value (r2124, interpret decimal): Component number of the encoder involved. |
| Remedy: | - repeat the operation. - check the DRIVE-CLiQ connection. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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| F07551 | Drive encoder: No commutation angle information |
| Message value: | Fault cause: %1, drive data set: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (IASC/DCBRK) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | The commutation angle information is missing. This means that synchronous motors cannot be controlled (closed-loop control) Fault value (r0949, interpret decimal): yyyyxxxx dec: yyyy = fault cause, xxxx = drive data set yyyy = 1 dec: The motor encoder used does not supply an absolute commutation angle. yyyy = 2 dec: The selected ratio of the measuring gear does not match the motor pole pair number. |

Remedy: Re fault cause = 1:
 - check the encoder parameterization (p0404).
 - use an encoder with track C/D, EnDat interface of Hall sensors.
 - use an encoder with sinusoidal A/B track for which the motor pole pair number (r0313) is an integer multiple of the encoder pulse number (p0408).
 - activate the pole position identification routine (p1982 = 1).
 Re fault cause = 2:
 - the quotient of the pole pair number divided by the ratio of the measuring gear must be an integer number: $(p0314 * p0433) / p0432$.
 Note:
 For operation with track C/D, this quotient must be less than 8.
 See also: p0402 (Gearbox type selection), p0404 (Encoder configuration effective), p0432 (Gearbox factor encoder revolutions), p0433 (Gearbox factor motor/load revolutions)

F07552 (A) Drive encoder: Encoder configuration not supported

Message value: Fault cause: %1, component number: %2, encoder data set: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456.
 Fault value (r0949, interpret decimal):
 ccccbbaa hex: cccc = fault cause, bb = component number, aa = encoder data set
 cccc = 1: encoder sin/cos with absolute track (is supported by SME25).
 cccc = 3: Squarewave encoder (this is supported by SMC30).
 cccc = 4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).
 cccc = 10: DRIVE-CLiQ encoder (is supported by DQI).
 cccc = 12: sin/cos encoder with reference mark (this is supported by SME20).
 cccc = 15: Commutation with zero mark for separately-excited synchronous motors with VECTORMV.
 cccc = 23: Resolver (this is supported by SMC10, SMI10).
 cccc = 65535: Other function (compare r0456 and p0404).
 See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)
Remedy:
 - check the encoder parameterization (p0400, p0404).
 - use the matching encoder evaluation (r0456).
 Reaction upon A: NONE
 Acknowled. upon A: NONE

F07553 (A) Drive encoder: Sensor Module configuration not supported

Message value: Encoder data set: %1, first incorrect bit: %2, incorrect parameter: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Sensor Module does not support the requested configuration.
 For incorrect p0430 (cc = 0), the following applies:
 - In p0430 (requested functions), at least 1 bit was set that is not set in r0458 (supported functions) (exception: Bit 19, 28, 29, 30, 31).
 - p1982 > 0 (pole position identification requested), but r0458.16 = 0 (pole position identification not supported).
 For incorrect p0437 (cc = 1), the following applies:
 - In p0437 (requested functions), at least 1 bit was set that is not set in r0459 (supported functions).
 Fault value (r0949, interpret hexadecimal):
 ddccbaa hex
 aa: encoder data set number
 bb: first incorrect bit

cc: incorrect parameter
cc = 0: incorrect parameter is p0430
cc = 1: incorrect parameter is p0437
cc = 2: incorrect parameter is r0459
dd: reserved (always 0)

Remedy:

- check the encoder parameterization (p0430, p0437).
- check the pole position identification routine (p1982).
- use the matching encoder evaluation (r0458, r0459).

See also: p0430 (Sensor Module configuration), p0437 (Sensor Module configuration extended), r0458 (Sensor Module properties), r0459 (Sensor Module properties extended)

Reaction upon A: NONE

Acknowl. upon A: NONE

F07555 (A) Drive encoder: Configuration position tracking

Message value: Component number: %1, encoder data set: %2, drive data set: %3, fault cause: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause:

For position tracking, the configuration is not supported.
Position tracking can only be activated for absolute encoders.
For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears.
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex
aa = encoder data set
bb = component number
cc = drive data set
dd = fault cause
dd = 00 hex = 0 dec
An absolute encoder is not being used.
dd = 01 hex = 1 dec
Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
dd = 02 hex = 2 dec
For a linear axis, the position tracking was activated for the load and measuring gear.
dd = 03 hex = 3 dec
Position tracking cannot be activated because position tracking with another gear ratio, axis type or tolerance window has already been detected for this encoder data set.
dd = 04 hex = 4 dec
A linear encoder is being used.
See also: p0404 (Encoder configuration effective), p0411 (Measuring gear configuration)

Remedy:

For fault value 0:
- use an absolute encoder.

For fault value 1:
- use a Control Unit with sufficient NVRAM.

Re fault value = 2, 4:
- if necessary, de-select the position tracking (p0411 for the measuring gear, p2720 for the load gear).

For fault value 3:
- Only activate position tracking of the load gear in the same encoder data set if the gear ratio (p2504, p2505), axis type (p2720.1) and tolerance window (p2722) are also the same. These parameters must be the same in all drive data sets, which use the same motor encoder (p187).

Reaction upon A: NONE

Acknowl. upon A: NONE

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|-----------------------|--|
| F07556 | Measuring gear: Position tracking, maximum actual value exceeded |
| Message value: | Component number: %1, encoder data set: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | When the position tracking of the measuring gear is configured, the drive/encoder identifies a maximum possible absolute position actual value (r0483) that cannot be represented within 32 bits. Maximum value: $p0408 * p0412 * 2^{p0419}$ Fault value (r0949, interpret decimal): aaaayyxx hex: yy = component number, xx = encoder data set See also: p0408 (Rotary encoder pulse number), p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)) |
| Remedy: | - reduce the fine resolution (p0419). - reduce the multiturn resolution (p0412). See also: p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)) |

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| F07560 | Drive encoder: Number of pulses is not to the power of two |
| Message value: | Encoder data set: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For rotary absolute encoders, the pulse number in p0408 must be to the power of two. Fault value (r0949, interpret decimal): The fault value includes the encoder data set number involved. |
| Remedy: | - check the parameterization (p0408, p0404.1, r0458.5). - upgrade the Sensor Module firmware if necessary |

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| F07561 | Drive encoder: Number of multiturn pulses is not to the power of two |
| Message value: | Encoder data set: %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | The multiturn resolution in p0421 must be to the power of two. Fault value (r0949, interpret decimal): The fault value includes the encoder data set number involved. |
| Remedy: | - check the parameterization (p0421, p0404.1, r0458.5). - upgrade the Sensor Module firmware if necessary |

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|-----------------------|--|
| F07562 (A) | Drive, encoder: Position tracking, incremental encoder not possible |
| Message value: | Fault cause: %1, component number: %2, encoder data set: %3 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | The requested position tracking for incremental encoders is not supported. Fault value (r0949, interpret hexadecimal): ccccbaa hex aa = encoder data set bb = component number |

cccc = fault cause
 cccc = 00 hex = 0 dec
 The encoder type does not support the "Position tracking incremental encoder" function.
 cccc = 01 hex = 1 dec
 Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
 cccc = 04 hex = 4 dec
 A linear encoder is used that does not support the "position tracking" function.
 See also: p0404 (Encoder configuration effective), p0411 (Measuring gear configuration), r0456 (Encoder configuration supported)

Remedy:

- check the encoder parameterization (p0400, p0404).
- use a Control Unit with sufficient NVRAM.
- if required, de-select position tracking for the incremental encoder (p0411.3 = 0).

Reaction upon A: NONE

Acknowl. upon A: NONE

F07563 (A) Drive encoder: XIST1_ERW configuration incorrect

Message value: Fault cause: %1, encoder data set: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An incorrect configuration was identified for the "Absolute position for incremental encoder" function.
 Fault value (r0949, interpret decimal):
 Fault cause:
 1 (= 01 hex):
 The "Absolute value for incremental encoder" function is not supported (r0459.13 = 0).
 Note regarding the message value:
 The individual information is coded as follows in the message value (r0949/r2124):
 yyxx dec: yy = fault cause, xx = encoder data set
 See also: r0459 (Sensor Module properties extended), p4652 (XIST1_ERW reset mode)

Remedy:

For fault value = 1:

- upgrade the Sensor Module firmware version.
- check the mode (p4652 = 1, 3 requires the property r0459.13 = 1).

Reaction upon A: NONE

Acknowl. upon A: NONE

A07565 (F, N) Drive: Encoder error in PROFIdrive encoder interface 1

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15).
 Alarm value (r2124, interpret decimal):
 Error code from G1_XIST2, refer to the description regarding r0483.
 Note:
 This alarm is only output if p0480[0] is not equal to zero.

Remedy: Acknowledge the encoder error using the encoder control word (G1_STW.15 = 1).

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

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|-----------------------|---|
| A07566 (F, N) | Drive: Encoder error in PROFIdrive encoder interface 2 |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15). Alarm value (r2124, interpret decimal): Error code from G2_XIST2, refer to the description regarding r0483. Note: This alarm is only output if p0480[1] is not equal to zero. |
| Remedy: | Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1). |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|---|
| A07567 (F, N) | Drive: Encoder error in PROFIdrive encoder interface 3 |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An encoder error was signaled for encoder 3 via the PROFIdrive encoder interface (G3_ZSW.15). Alarm value (r2124, interpret decimal): Error code from G3_XIST2, refer to the description regarding r0483. Note: This alarm is only output if p0480[2] is not equal to zero. |
| Remedy: | Acknowledge the encoder error using the encoder control word (G3_STW.15 = 1). |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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| A07569 (F) | Enc identification active |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | During encoder identification (waiting) with p0400 = 10100, the encoder could still not be identified. Either the wrong encoder has been installed or no encoder has been installed, the wrong encoder cable has been connected or no encoder cable has been connected to the Sensor Module, or the DRIVE-CLiQ component has not been connected. Note: Encoder identification must be supported by the encoder and is possible in the following cases: - Encoder with EnDat interface. - Encoder with SSI interface. - Motor with DRIVE-CLiQ. |
| Remedy: | - check and, if necessary, connect the encoder / encoder cable. - check and, if necessary, establish the DRIVE-CLiQ connection. - for SSI encoders, carry out the required operator actions (see the Function Manual). - in the case of encoders that cannot be identified (e.g. encoders without EnDat interface), enter the correct encoder type in p0400. |

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

N07570 (F) Encoder identification data transfer running

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: NONE
Cause: The encoder type was automatically determined using p0400 = 10100.
This fault causes the pulses to be suppressed - this is necessary to transfer the encoder parameterization to p0400ff.
See also: p0400 (Encoder type selection)
Remedy: The fault can be acknowledged without any additional measures.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F07575 Drive: Motor encoder not ready

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2 (ENCODER)
Acknowledge: IMMEDIATELY
Cause: The motor encoder signals that it is not ready.
- initialization of encoder 1 (motor encoder) was unsuccessful.
- the function "parking encoder" is active (encoder control word G1_STW.14 = 1).
- the encoder interface (Sensor Module) is de-activated (p0145).
- the Sensor Module is defective.
Remedy: Evaluate other queued faults via encoder 1.

A07580 (F, N) Drive: No Sensor Module with matching component number

Message value: Encoder data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: A Sensor Module with the component number specified in p0141 was not found.
Alarm value (r2124, interpret decimal):
Encoder data set involved (index of p0141).
Remedy: Correct parameter p0141.
Reaction upon F: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A07850 (F) External alarm 1

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The condition for "External alarm 1" is satisfied.
Note:
The "External alarm 1" is initiated by a 1/0 edge via binector input p2112.
See also: p2112 (External alarm 1)
Remedy: Eliminate the causes of this alarm.

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

A07851 (F) External alarm 2

Message value: -

Message class: External measured value / signal state outside the permissible range (16)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The condition for "External alarm 2" is satisfied.

Note:

The "External alarm 2" is initiated by a 1/0 edge via binector input p2116.

See also: p2116 (External alarm 2)

Remedy: Eliminate the causes of this alarm.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

A07852 (F) External alarm 3

Message value: -

Message class: External measured value / signal state outside the permissible range (16)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The condition for "External alarm 3" is satisfied.

Note:

The "External alarm 3" is initiated by a 1/0 edge via binector input p2117.

See also: p2117 (External alarm 3)

Remedy: Eliminate the causes of this alarm.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

F07860 (A) External fault 1

Message value: -

Message class: External measured value / signal state outside the permissible range (16)

Drive object: All objects

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The condition for "External fault 1" is satisfied.

Note:

The "External fault 1" is initiated by a 1/0 edge via binector input p2106.

See also: p2106 (External fault 1)

Remedy: - eliminate the causes of this fault.

- acknowledge fault.

Reaction upon A: NONE

Acknowl. upon A: NONE

F07861 (A) External fault 2

Message value: -

Message class: External measured value / signal state outside the permissible range (16)

Drive object: All objects

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The condition for "External fault 2" is satisfied.

Note:

The "External fault 2" is initiated by a 1/0 edge via binector input p2107.

See also: p2107 (External fault 2)

Remedy: - eliminate the causes of this fault.
- acknowledge fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07862 (A) External fault 3

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The condition for "External fault 3" is satisfied.
Note:
The "External fault 3" is initiated by a 1/0 edge via the following parameters.
- AND logic operation, binector input p2108, p3111, p3112.
- switch-on delay p3110.
See also: p2108, p3110, p3111, p3112

Remedy: - eliminate the causes of this fault.
- acknowledge fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F08000 (N, A) TB: +/-15 V power supply faulted

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Terminal Board 30 detects an incorrect internal power supply voltage.
Fault value (r0949, interpret decimal):
0: Error when testing the monitoring circuit.
1: Fault in normal operation.

Remedy: - replace Terminal Board 30.
- replace Control Unit.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F08010 (N, A) TB: Analog-digital converter

Message value: -
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The analog/digital converter on Terminal Board 30 has not supplied any converted data.

Remedy: - check the power supply.
- replace Terminal Board 30.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

4 Faults and alarms

4.2 List of faults and alarms

F08500 (A) COMM BOARD: Monitoring time configuration expired

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The monitoring time for the configuration has expired.
Fault value (r0949, interpret decimal):
0: The transfer time of the send configuration data has been exceeded.
1: The transfer time of the receive configuration data has been exceeded.
Remedy: Check communications link.
Reaction upon A: NONE
Acknowl. upon A: NONE

F08501 (N, A) PN/COMM BOARD: Setpoint timeout

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: The reception of setpoints from the COMM BOARD has been interrupted.
- bus connection interrupted.
- controller switched off.
- controller set into the STOP state.
- COMM BOARD defective.
Remedy: - Restore the bus connection and set the controller to RUN.
- check the set monitoring time if the error persists (p2040).
See also: p8840 (COMM BOARD monitoring time)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F08502 (A) PN/COMM BOARD: Monitoring time sign-of-life expired

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The monitoring time for the sign-of-life counter has expired.
The connection to the COMM BOARD was interrupted.
Remedy: - check communications link.
- check COMM BOARD.
Reaction upon A: NONE
Acknowl. upon A: NONE

A08504 (F) PN/COMM BOARD: Internal cyclic data transfer error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic actual and/or setpoint values were not transferred within the specified times.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy: Check the parameterizing telegram (Ti, To, Tdp, etc.).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F08510 (A) PN/COMM BOARD: Send configuration data invalid
Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: COMM BOARD did not accept the send-configuration data.
Fault value (r0949, interpret decimal):
Return value of the send-configuration data check.
Remedy: Check the send configuration data.
Reaction upon A: NONE
Acknowl. upon A: NONE

A08511 (F) PN/COMM BOARD: Receive configuration data invalid
Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive unit did not accept the receive configuration data.
Alarm value (r2124, interpret decimal):
Return value of the receive configuration data check.
1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978.
2: Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051 for PZD IF1, and in r8850/p8851 for PZD IF2.
3: Uneven number of bytes for input or output.
4: Setting data for synchronization not accepted. For more information, see A01902.
5: Cyclic operation not active.
17: CBE20 Shared Device: Configuration of the F-CPU has been changed.
223: Illegal clock synchronization for the PZD interface set in p8815[0].
500: Illegal PROFIsafe configuration for the interface set in p8815[1].
501: PROFIsafe parameter error (e.g. F_dest).
503: PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).
Additional values:
Only for internal Siemens troubleshooting.
Remedy: Check the receive configuration data.
Re alarm value = 1, 2:
- Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
Re alarm value = 2:
- Check the number of data words for output and input to a drive object.
Re alarm value = 17:
- CBE20 Shared Device: Unplug/plug A-CPU.
Re alarm value = 223, 500:
- Check the setting in p8839 and p8815.
- Ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.
Re alarm value = 501:
- Check the set PROFIsafe address (p9610).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

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| A08520 (F) | PN/COMM BOARD: Non-cyclic channel error |
| Message value: | %1 |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The memory or the buffer status of the non-cyclic channel has an error. Alarm value (r2124, interpret decimal): 0: Error in the buffer status. 1: Error in the memory. |
| Remedy: | Check communications link. |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |

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|-----------------------|---|
| A08526 (F) | PN/COMM BOARD: No cyclic connection |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | There is no cyclic connection to the control. |
| Remedy: | Establish the cyclic connection and activate the control with cyclic operation. For PROFINET, check the parameters "Name of Station" and "IP of Station" (r61000, r61001). If a CBE20 is inserted and PROFIBUS is to communicate via PZD Interface 1, then this must be parameterized using the STARTER commissioning tool or directly using p8839. |
| Reaction upon F: | NONE (OFF1) |
| Acknowl. upon F: | IMMEDIATELY |

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|-----------------------|--|
| A08530 (F) | PN/COMM BOARD: Message channel error |
| Message value: | %1 |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The memory or the buffer status of the message channel has an error. Alarm value (r2124, interpret decimal): 0: Error in the buffer status. 1: Error in the memory. |
| Remedy: | Check communications link. |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |

| | |
|-----------------------|--|
| A08550 | PZD Interface Hardware assignment error |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The assignment of the hardware to the PZD interface has been incorrectly parameterized. Alarm value (r2124, interpret decimal): 3: Assigned COMM BOARD missing. See also: p8839 (PZD interface hardware assignment) |
| Remedy: | Check the parameterization and if required, correct (p8839). |

| | |
|-----------------------|---|
| A08550 | PZD Interface Hardware assignment error |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The assignment of the hardware to the PZD interface has been incorrectly parameterized. Alarm value (r2124, interpret decimal): 1: Only one of the two indices is not equal to 99 (automatic). 2: Both PZD interfaces are assigned to the same hardware. 3: Assigned COMM BOARD missing. 4: CBC10 is assigned to interface 1. See also: p8839 (PZD interface hardware assignment) |
| Remedy: | Check the parameterization and if required, correct (p8839). |

| | |
|-----------------------|--|
| A08564 | CBE20: Syntax error in configuration file |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A syntax error has been detected in the ASCII configuration file for the Communication Board Ethernet 20 (CBE20). The saved configuration file has not been loaded. |
| Remedy: | - Check the CBE20 configuration (p8940 and following), correct if necessary, and activate (p8945 = 2). Note: The configuration is not applied until the next POWER ON! - reconfigure the CBE20 (e.g. using the STARTER commissioning software) See also: p8945 (CBE2x interface configuration) |

| | |
|-----------------------|--|
| A08565 | PNCOMM BOARD : Consistency error affecting adjustable parameters |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A consistency error was detected when activating the configuration (p8945) for the Communication Board Ethernet 20 (CBE20). Alarm value (r2124, interpret decimal): 0: general consistency error 1: error in the IP configuration (IP address, subnet mask or standard gateway). 2: Error in the station names. 3: DHCP was not able to be activated, as a cyclic PROFINET connection already exists. 4: a cyclic PROFINET connection is not possible as DHCP is activated. Note: For all alarm values, the following applies: currently set configuration has not been activated. DHCP: Dynamic Host Configuration Protocol See also: p8940 (CBE2x Name of Station), p8941 (CBE2x IP Address of Station), p8942 (CBE2x Default Gateway of Station), p8943 (CBE2x Subnet Mask of Station), p8944 (CBE2x DHCP Mode) |
| Remedy: | - Check the required interface configuration (p8940 and following), correct if necessary, and activate (p8945). or - Reconfigure the station via the "Edit Ethernet node" screen form (e.g. with STARTER commissioning software). See also: p8945 (CBE2x interface configuration) |

| | |
|-----------------------|---|
| A13000 | License not adequate |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | - for the drive unit, the options that require a license are being used but the licenses are not sufficient. - an error occurred when checking the existing licenses. Alarm value (r2124, interpret decimal): 0: The existing license is not sufficient. 1: An adequate license was not able to be determined as the memory card with the required licensing data was withdrawn in operation. 2: An adequate license was not able to be determined as there is no licensing data available on the memory card. 3: An adequate license was not able to be determined as there is a checksum error in the license key. 4: An internal error occurred when checking the license. |
| Remedy: | Re alarm value = 0: Additional licenses are required and these must be activated (p9920, p9921). Re alarm value = 1: With the system powered down, re-insert the memory card that matches the system. Re alarm value = 2: Enter and activate the license key (p9920, p9921). Re alarm value = 3: Compare the license key (p9920) entered with the license key on the certificate of license. Re-enter the license key and activate (p9920, p9921). Re alarm value = 4: - carry out a POWER ON. - upgrade firmware to later version. - contact the Hotline. |

| | |
|-----------------------|--|
| A13001 | Error in license checksum |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When checking the checksum of the license key, an error was detected. |
| Remedy: | Compare the license key (p9920) entered with the license key on the certificate of license. Re-enter the license key and activate (p9920, p9921). |

| | |
|-----------------------|---|
| F13009 | Licensing OA application not licensed |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | All objects |
| Reaction: | OFF1 |
| Acknowledge: | IMMEDIATELY |
| Cause: | At least one OA application which is under license does not have a license. Note: Refer to r4955 and p4955 for information about the installed OA applications. |

Remedy:

- enter and activate the license key for OA applications under license (p9920, p9921).
- if necessary, de-activate unlicensed OA applications (p4956).

See also: p9920 (Licensing enter license key), p9921 (Licensing activate license key)

F13010 Licensing function module not licensed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: At least one function module which is under license does not have a license.
Fault value (r0949, interpret hexadecimal):
Bit x = 1: The corresponding function module does not have a license.
Note:
Refer to p0108 or r0108 for the assignment between the bit number and function module.

Remedy:

- enter and activate the license key for function modules under license (p9920, p9921).
- if necessary, de-activate unlicensed function modules (p0108, r0108).

See also: p9920 (Licensing enter license key), p9921 (Licensing activate license key)

F13100 Know-how protection: Copy protection error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: The know-how protection with copy protection for the memory card is active.
An error has occurred when checking the memory card.
Fault value (r0949, interpret decimal):
0: A memory card is not inserted.
2: An invalid memory card is inserted.
3: The memory card is being used in another Control Unit.
12: An invalid memory card is inserted (OEM input incorrect, p7769).
13: The memory card is being used in another Control Unit (OEM input incorrect, p7759).
See also: p7765 (KHP configuration)

Remedy:

For fault value = 0:
- Insert the correct memory card and carry out POWER ON.

Re fault value = 2, 3, 12, 13:
- contact the responsible OEM.
- Deactivate copy protection (p7765) and acknowledge the fault (p3981).
- Deactivate know-how protection (p7766 ... p7768) and acknowledge the fault (p3981).

Note:
In general, the copy protection can only be changed when know-how protection is deactivated.
KHP: Know-How Protection
See also: p3981 (Faults acknowledge drive object), p7765 (KHP configuration)

F13101 Know-how protection: Copy protection cannot be activated

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error occurred when attempting to activate the copy protection for the memory card.
Fault value (r0949, interpret decimal):
0: A memory card is not inserted.

4 Faults and alarms

4.2 List of faults and alarms

Note:

KHP: Know-How Protection

Remedy:

- insert the memory card and carry out POWER ON.
- Try to activate copy protection again (p7765).

See also: p7765 (KHP configuration)

F13102

Know-how protection: Consistency error of the protected data

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Reaction: OFF1

Acknowledge: IMMEDIATELY

Cause: An error was identified when checking the consistency of the protected files. As a consequence, the project on the memory card cannot be run.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: yyyy = object number, xxxx = fault cause

xxxx = 1:

A file has a checksum error.

xxxx = 2:

The files are not consistent with one another.

xxxx = 3:

The project files, which were loaded into the file system via load (download from the memory card), are inconsistent.

Note:

KHP: Know-How Protection

Remedy:

- Replace the project on the memory card or replace project files for download from the memory card.
- Restore the factory setting and download again.

F30001

Power unit: Overcurrent

Message value: Fault cause: %1 bin

Message class: Power electronics faulted (5)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The power unit has detected an overcurrent condition.

- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: Rated motor current is significantly greater than that of the Motor Module.
- infeed: High discharge and post-charging currents for voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at power-up due to the missing line reactor.
- power cables are not correctly connected.
- the power cables exceed the maximum permissible length.
- power unit defective.
- line phase interrupted.

Additional causes for a parallel switching device (r0108.15 = 1):

- a power unit has tripped (powered down) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.

Fault value (r0949, interpret bitwise binary):

Bit 0: Phase U.

Bit 1: Phase V.

Bit 2: Phase W.

Bit 3: Overcurrent in the DC link.

Note:

Fault value = 0 means that the phase with overcurrent is not recognized (e.g. for blocksize device).

- Remedy:**
- check the motor data - if required, carry out commissioning.
 - check the motor circuit configuration (star/delta).
 - U/f operation: Increase up ramp.
 - U/f operation: Check the assignment of the rated currents of the motor and Motor Module.
 - infeed: Check the line supply quality.
 - infeed: Reduce the motor load.
 - infeed: Check the correct connection of the line filter and the line commutating reactor.
 - check the power cable connections.
 - check the power cables for short-circuit or ground fault.
 - check the length of the power cables.
 - replace power unit.
 - check the line supply phases.
- For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
 - check the setting of the closed-loop circulating current control (p7036, p7037).

F30002 Power unit: DC link voltage overvoltage

- Message value:** %1
Message class: DC link overvoltage (4)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected overvoltage in the DC link.
- motor regenerates too much energy.
 - device connection voltage too high.
 - when operating with a Voltage Sensing Module (VSM), the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.
 - line phase interrupted.
- Fault value (r0949, interpret decimal):
DC link voltage at the time of trip [0.1 V].
- Remedy:**
- increase the ramp-down time
 - activate the DC link voltage controller (p1240)
 - use a brake resistor or Active Line Module
 - increase the current limit of the infeed or use a larger module (for the Active Line Module)
 - check the device supply voltage
 - check and correct the phase assignment at the VSM and at the power unit
 - check the line supply phases.

F30003 Power unit: DC link voltage undervoltage

- Message value:** -
Message class: Infeed faulted (13)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an undervoltage condition in the DC link.
- line supply failure
 - line supply voltage below the permissible value.
 - line supply infeed failed or interrupted.
 - line phase interrupted.
- Note:**
The monitoring threshold for undervoltage in the DC link is indicated in r0296.

4 Faults and alarms

4.2 List of faults and alarms

- Remedy:**
- check the line supply voltage
 - check the line supply infeed and observe the fault messages relating to it (if there are any)
 - check the line supply phases.
 - check the line supply voltage setting (p0210).
 - booksize units: check the setting of p0278.
- Note:**
The ready signal for the infeed (r0863) must be interconnected to the associated drive inputs (p0864).

F30004 Power unit: Overtemperature heat sink AC inverter

- Message value:** %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature of the power unit heat sink has exceeded the permissible limit value.

- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.

Fault value (r0949):

Temperature [1 bit = 0.01 °C].

- Remedy:**
- check whether the fan is running.
 - check the fan elements.
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - reduce the pulse frequency if this is higher than the rated pulse frequency.

Notice:

This fault can only be acknowledged after this alarm threshold for alarm A05000 has been undershot.

F30005 Power unit: Overload I2t

- Message value:** %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit was overloaded (r0036 = 100 %).
- the permissible rated power unit current was exceeded for an inadmissibly long time.
- the permissible load duty cycle was not maintained.
Fault value (r0949, interpret decimal):

I2t [100 % = 16384].

- Remedy:**
- reduce the continuous load.
 - adapt the load duty cycle.
 - check the motor and power unit rated currents.

F30006 Power unit: Thyristor Control Board

- Message value:** -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The Thyristor Control Board (TCB) of the Basic Line Module signals a fault.
- there is no line supply voltage.
- the line contactor is not closed.
- the line supply voltage is too low.
- line supply frequency outside the permissible range (45 ... 66 Hz).

- there is a DC link short-circuit.
- there is a DC link short-circuit (during the pre-charging phase).
- voltage supply for the Thyristor Control Board outside the nominal range (5 ... 18 V) and line voltage >30 V.
- there is an internal fault in the Thyristor Control Board.

Remedy:

The faults must be saved in the Thyristor Control Board and must be acknowledged. To do this, the supply voltage of the Thyristor Control Board must be switched out for at least 10 s!

- check the line supply voltage
- check or energize the line contactor.
- check the monitoring time and, if required, increase (p0857).
- if required, observe additional power unit messages/signals.
- check the DC link regarding short-circuit or ground fault.
- evaluate diagnostic LEDs for the Thyristor Control Board.

F30008 Power unit: Sign-of-life error cyclic data**Message value:** -**Message class:** Internal (DRIVE-CLiQ) communication error (12)**Drive object:** DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S**Reaction:** NONE (OFF1, OFF2, OFF3)**Acknowledge:** IMMEDIATELY**Cause:** The Control Unit has not punctually updated the cyclic setpoint telegram. The number of consecutive sign-of-life errors has exceeded the fault threshold (p7789).**Remedy:**

- check the electrical cabinet design and cable routing for EMC compliance
- for projects with the VECTOR drive object, check whether p0117 = 6 has been set on the Control Unit.
- increase the fault threshold (p7789).

A30010 (F) Power unit: Sign-of-life error cyclic data**Message value:** -**Message class:** Internal (DRIVE-CLiQ) communication error (12)**Drive object:** DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S**Reaction:** NONE**Acknowledge:** NONE**Cause:** A DRIVE-CLiQ communication error has occurred between the Control Unit and the power unit involved. The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least one clock cycle.**Remedy:** Check the electrical cabinet design and cable routing for EMC compliance.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY (POWER ON)

F30011 Power unit: Line phase failure in main circuit**Message value:** %1**Message class:** Network fault (2)**Drive object:** DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S**Reaction:** OFF2 (OFF1)**Acknowledge:** IMMEDIATELY**Cause:** At the power unit, the DC link voltage ripple has exceeded the permissible limit value.

Possible causes:

- A line phase has failed.
- The 3 line phases are inadmissibly unsymmetrical.
- The capacitance of the DC link capacitor forms a resonance frequency with the line inductance and the reactor integrated in the power unit.
- the fuse of a phase of a main circuit has ruptured.
- A motor phase has failed.

Fault value (r0949, interpret decimal):

Only for internal Siemens troubleshooting.

4 Faults and alarms

4.2 List of faults and alarms

- Remedy:**
- check the main circuit fuses.
 - Check whether a single-phase load is distorting the line voltages.
 - Detune the resonant frequency with the line inductance by using an upstream line reactor.
 - Dampen the resonant frequency with the line inductance by switching over the DC link voltage compensation in the software (see p1810) – or increase the smoothing (see p1806). However, this can have a negative impact on the torque ripple at the motor output.
 - check the motor feeder cables.

| | |
|-----------------------|---|
| F30012 | Power unit: Temperature sensor heat sink wire breakage |
| Message value: | %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The connection to a heat sink temperature sensor in the power unit is interrupted. Fault value (r0949, interpret hexadecimal): Bit 0: Module slot (electronics slot) Bit 1: Air intake Bit 2: Inverter 1 Bit 3: Inverter 2 Bit 4: Inverter 3 Bit 5: Inverter 4 Bit 6: Inverter 5 Bit 7: Inverter 6 Bit 8: Rectifier 1 Bit 9: Rectifier 2 |
| Remedy: | Contact the manufacturer. |

| | |
|-----------------------|---|
| F30013 | Power unit: Temperature sensor heat sink short-circuit |
| Message value: | %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The heat sink temperature sensor in the power unit is short-circuited. Fault value (r0949, interpret hexadecimal): Bit 0: Module slot (electronics slot) Bit 1: Air intake Bit 2: Inverter 1 Bit 3: Inverter 2 Bit 4: Inverter 3 Bit 5: Inverter 4 Bit 6: Inverter 5 Bit 7: Inverter 6 Bit 8: Rectifier 1 Bit 9: Rectifier 2 |
| Remedy: | Contact the manufacturer. |

| | |
|-----------------------|---|
| F30017 | Power unit: Hardware current limit has responded too often |
| Message value: | Fault cause: %1 bin |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The number of times the limit has been exceeded depends on the design and type of power unit. |

For infeed units, the following applies:

- closed-loop control is incorrectly parameterized.
- load on the infeed is too high.
- Voltage Sensing Module incorrectly connected.
- line reactor missing or the incorrect type.
- power unit defective.

The following applies to Motor Modules:

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Fault value (r0949, interpret binary):

Bit 0: Phase U

Bit 1: Phase V

Bit 2: Phase W

Remedy:

For infeed units, the following applies:

- check the controller settings and reset and identify the controller if necessary (p0340 = 2, p3410 = 5)
- reduce the load and increase the DC-link capacitance or use a higher-rating infeed if necessary
- check the connection of the optional Voltage Sensing Module
- check the connection and technical data of the line reactor
- check the power cables for short-circuit or ground fault.
- replace power unit.

The following applies to Motor Modules:

- check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

| | |
|-----------------------|---|
| F30021 | Power unit: Ground fault |
| Message value: | %1 |
| Message class: | Ground fault / inter-phase short-circuit detected (7) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | The Power unit has detected a ground fault. Possible causes: <ul style="list-style-type: none">- ground fault in the power cables.- Ground fault at the motor.- CT defective.- when the brake closes, this causes the hardware DC current monitoring to respond.- short-circuit at the braking resistor.- the closed-loop circulating current control for devices connected in parallel (r0108.15 = 1) is either too slow or has been set too fast. Note: For power units, a ground fault is also emulated in r3113.5. |

4 Faults and alarms

4.2 List of faults and alarms

Fault value (r0949, interpret decimal):

0:

- the hardware DC current monitoring has responded.
- short-circuit at the braking resistor.

> 0:

Absolute value, total current amplitude [20479 = r0209 * 1.4142].

Remedy:

- check the power cable connections.
- check the motor.
- check the CT.
- check the cables and contacts of the brake connection (a wire is possibly broken).
- check the braking resistor.

For parallel switching devices (r0108.15 = 1) the following additionally applies:

- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30022

Power unit: Monitoring U_{ce}

Message value:

Fault cause: %1 bin

Message class:

Ground fault / inter-phase short-circuit detected (7)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

OFF2

Acknowledge:

POWER ON

Cause:

In the power unit, the monitoring of the collector-emitter voltage (U_{ce}) of the semiconductor has responded.

Possible causes:

- fiber-optic cable interrupted.
- power supply of the IGBT gating module missing.
- short-circuit at the power unit output.
- defective semiconductor in the power unit.

Fault value (r0949, interpret binary):

Bit 0: Short-circuit in phase U

Bit 1: Short circuit in phase V

Bit 2: Short-circuit in phase W

Bit 3: Light transmitter enable defective

Bit 4: U_{ce} group fault signal interrupted

See also: r0949 (Fault value)

Remedy:

- check the fiber-optic cable and if required, replace.
- check the power supply of the IGBT gating module (24 V).
- check the power cable connections.
- select the defective semiconductor and replace.

F30025

Power unit: Chip overtemperature

Message value:

%1

Message class:

Power electronics faulted (5)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

The chip temperature of the semiconductor has exceeded the permissible limit value.

- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.

Fault value (r0949, interpret decimal):

Temperature difference between the heat sink and chip [0.01 °C].

- Remedy:**
- adapt the load duty cycle.
 - check whether the fan is running.
 - check the fan elements.
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - reduce the pulse frequency if this is higher than the rated pulse frequency.

Notice:

This fault can only be acknowledged after this alarm threshold for alarm A05001 has been undershot.

F30027**Power unit: Precharging DC link time monitoring**

Message value: Enable signals: %1, Status: %2

Message class: Infeed faulted (13)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The power unit DC link was not able to be pre-charged within the expected time.

- 1) There is no line supply voltage connected.
- 2) The line contactor/line side switch has not been closed.
- 3) The line supply voltage is too low.
- 4) Line supply voltage incorrectly set (p0210).
- 5) The pre-charging resistors are overheated as there were too many pre-charging operations per time unit.
- 6) The pre-charging resistors are overheated as the DC link capacitance is too high.
- 7) The pre-charging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link.
- 8) The pre-charging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module.
- 9) The DC link has either a ground fault or a short-circuit.
- 10) The pre-charging circuit is possibly defective (only for chassis units).
- 11) Infeed is defective and/or fuse has ruptured in the Motor Module (only Booksize units).

Fault value (r0949, interpret binary):

yyyyxxxx hex:

yyyy = power unit state

0: Fault status (wait for OFF and fault acknowledgement).

1: Restart inhibit (wait for OFF).

2: Overvoltage condition detected -> change into the fault state.

3: Undervoltage condition detected -> change into the fault state.

4: Wait for bridging contactor to open -> change into the fault state.

5: Wait for bridging contactor to open -> change into restart inhibit.

6: Commissioning.

7: Ready for pre-charging.

8: Pre-charging started, DC link voltage less than the minimum switch-on voltage.

9: Pre-charging, DC link voltage end of pre-charging still not detected.

10: Wait for the end of the de-bounce time of the main contactor after pre-charging has been completed.

11: Pre-charging completed, ready for pulse enable.

12: It was detected that the STO terminal was energized at the power unit.

xxxx = Missing internal enable signals, power unit (inverted bit-coded, FFFF hex -> all internal enable signals available)

Bit 0: Power supply of the IGBT gating shut down.

Bit 1: Ground fault detected.

Bit 2: Peak current intervention.

Bit 3: I2t exceeded.

Bit 4: Thermal model overtemperature calculated.

Bit 5: (heat sink, gating module, power unit) overtemperature measured.

Bit 6: Reserved.

Bit 7: Overvoltage detected.

Bit 8: Power unit has completed pre-charging, ready for pulse enable.

4 Faults and alarms

4.2 List of faults and alarms

- Bit 9: STO terminal missing.
- Bit 10: Overcurrent detected.
- Bit 11: Armature short-circuit active.
- Bit 12: DRIVE-CLiQ fault active.
- Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit.
- Bit 14: Undervoltage detected.

Remedy:

In general:

- check the line supply voltage at the input terminals.
- check the line supply voltage setting (p0210).

For booksize drive units, the following applies:

- wait (approx. 8 minutes) until the pre-charging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.

Re 5):

- carefully observe the permissible pre-charging frequency (refer to the appropriate Equipment Manual).

Re 6):

- check the total capacitance of the DC link and reduce in accordance with the maximum permissible DC-link capacitance if necessary (refer to the appropriate Equipment Manual)

Re 7):

- interconnect the ready-for-operation signal from the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link

Re 8):

- check the connections of the external line contactor. The line contactor must be open during DC-link fast discharge.

Re 9):

- check the DC link for ground faults or short circuits.

Re 11):

- Check the DC link voltage of the infeed (r0070) and Motor Modules (r0070).

If the DC link voltage generated by the infeed (or external) is not displayed for the Motor Modules (r0070), then a fuse has ruptured in the Motor Module.

A30030 **Power unit: Internal overtemperature alarm**

Message value: %1

Message class: Power electronics faulted (5)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: The temperature inside the drive converter has exceeded the permissible temperature limit.

- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.

Alarm value (r2124, interpret decimal):

Only for internal Siemens troubleshooting.

Remedy: - possibly use an additional fan.

- check whether the ambient temperature is in the permissible range.

Notice:

This fault can only be acknowledged once the permissible temperature limit minus 5 K has been fallen below.

A30031 **Power unit: Hardware current limiting in phase U**

Message value: -

Message class: Power electronics faulted (5)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.

- motor load too high
- power unit defective.

Note:

Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy:

- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30032**Power unit: Hardware current limiting in phase V****Message value:**

-

Message class:

Power electronics faulted (5)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

NONE

Acknowledge:

NONE

Cause:

Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:

Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy:

- Check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30033**Power unit: Hardware current limiting in phase W****Message value:**

-

Message class:

Power electronics faulted (5)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

NONE

Acknowledge:

NONE

Cause:

Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:

Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy:

- check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

F30035 Power unit: Air intake overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The air intake in the power unit has exceeded the permissible temperature limit.
For air-cooled power units, the temperature limit is at 55 °C.
- ambient temperature too high.
- insufficient cooling, fan failure.
Fault value (r0949, interpret decimal):
Temperature [0.01 °C].
Remedy:
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05002 has been undershot.

F30037 Power unit: Rectifier overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature in the rectifier of the power unit has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- line supply phase failure.
Fault value (r0949, interpret decimal):
Temperature [0.01 °C].
Remedy:
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- check the line supply phases.
Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05004 has been undershot.

F30040 Power unit: Undervolt 24/48 V

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The undervoltage threshold of the 24 V power supply for the power unit was fallen below for longer than 3 ms.
Note:
- for booksize power units, the undervoltage threshold is 15 V.
- for CU310-2, CUA31 and CUA32 the undervoltage threshold is 16 V.
- for all other power units (e.g. S120M), the undervoltage threshold depends on the power unit, and is not displayed.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply

Remedy:

- Check the power supply of the power unit.
- carry out a POWER ON (power off/on) for the component.

A30041 (F) Power unit: Undervolt 24/48 V alarm

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: For the power unit power supply, the lower threshold has been violated.
Alarm value (r2124, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply

Remedy:

- Check the power supply of the power unit.
- carry out a POWER ON (power off/on) for the component.

Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A30042 Power unit: Fan has reached the maximum operating hours

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The maximum operating time of at least one fan will soon be reached, or has already been exceeded.
Fault value (r0949, interpret binary):
Bit 0: heat sink fan will reach the maximum operating time in 500 hours.
Bit 1: heat sink fan has exceeded the maximum operating time.
Bit 8: internal device fan will reach the maximum operating time in 500 hours.
Bit 9: internal device fan has exceeded the maximum operating time.
Note:
The maximum operating time of the heat sink fan in the power unit is displayed in p0252.
The maximum operating time of the internal device fan in the power unit is internally specified and is fixed.

Remedy:

For the fan involved, carry out the following:

- replace the fan.
- reset the operating hours counter (p0251, p0254).

F30043 Power unit: Overvolt 24/48 V

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: POWER ON
Cause: For the power unit power supply, the upper threshold has been violated.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply

Remedy:

Check the power supply of the power unit.

4 Faults and alarms

4.2 List of faults and alarms

| | |
|-----------------------|--|
| A30044 (F) | Power unit: Overvolt 24/48 V alarm |
| Message value: | Channel: %1, voltage: %2 [0.1 V] |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For the power unit power supply, the upper threshold has been violated. Alarm value (r2124, interpret hexadecimal): yyxxxx hex: yy = channel, xxxx = voltage [0.1 V] yy = 0: 24 V power supply yy = 1: 48 V power supply |
| Remedy: | Check the power supply of the power unit. |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |

| | |
|-----------------------|--|
| F30045 | Power unit: Supply undervoltage |
| Message value: | %1 |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | Power supply fault in the power unit. - The voltage monitor signals an undervoltage fault on the module. The following applies for CU31x: - the voltage monitoring on the DAC board signals an undervoltage fault on the module. For S120M, the following applies: - This message is displayed for undervoltage or overvoltage. |
| Remedy: | - Check the power supply of the power unit. - carry out a POWER ON (power off/on) for the component. - replace the module if necessary. |

| | |
|-----------------------|---|
| A30046 (F) | Power unit: Undervoltage alarm |
| Message value: | %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | Before the last restart, a problem occurred at the power unit power supply. The voltage monitor in the internal FPGA of the PSA signals an undervoltage fault on the module. Fault value (r0949, interpret decimal): Register value of the voltage fault register. |
| Remedy: | - check the 24 V DC voltage supply to power unit. - carry out a POWER ON (power off/on) for the component. - replace the module if necessary. |
| Reaction upon F: | NONE (OFF1, OFF2) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |

| | |
|-----------------------|---|
| F30050 | Power unit: 24 V supply overvoltage |
| Message value: | - |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | POWER ON |
| Cause: | The voltage monitor signals an overvoltage fault on the module. |

Remedy:

- check the 24 V power supply.
- replace the module if necessary.

F30051 Power unit: Motor holding brake short circuit detected

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A short-circuit at the motor holding brake terminals has been detected.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:

- check the motor holding brake for a short-circuit.
- check the connection and cable for the motor holding brake.

F30052 EEPROM data error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: POWER ON
Cause: EEPROM data error of the power unit module.
 Fault value (r0949, interpret decimal):
 0, 2, 3, 4:
 The EEPROM data read in from the power unit module are incorrect.
 1:
 EEPROM data is not compatible to the firmware of the power unit application.
 Additional values:
 Only for internal Siemens troubleshooting.

Remedy:

Re fault value = 0, 2, 3, 4:
 Replace the power unit module or update the EEPROM data.

For fault value = 1:
 The following applies for CU31x and CUA31:
 Update the firmware \SIEMENS\SINAMICS\CODE\SAC\cu31xi.ufw (cua31.ufw)

F30053 FPGA data faulty

Message value: %1
Message class: Hardware / software error (1)
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: The FPGA data of the power unit are faulty.

Remedy: Replace the power unit or update the FPGA data.

F30070 Cycle requested by the power unit module not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle is requested that is not supported by the power unit.
 Fault value (r0949, interpret hexadecimal):
 0: The current control cycle is not supported.
 1: The DRIVE-CLiQ cycle is not supported.
 2: Internal timing problem (clearance between RX and TX instants too low).
 3: Internal timing problem (TX instant too early).

4 Faults and alarms

4.2 List of faults and alarms

Remedy: The power unit only supports the following cycles:
62.5 µs, 125 µs, 250 µs and 500 µs
For fault value = 0:
Set a permitted current control cycle.
For fault value = 1:
Set a permitted DRIVE-CLiQ cycle.
Re fault value = 2, 3:
Contact the manufacturer (you may have an incompatible firmware version).

F30071 No new actual values received from the power unit

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The number of actual value telegrams from the power unit module that have failed has exceeded the permissible number.
Remedy: Check the interface (adjustment and locking) to the power unit module.

F30072 Setpoints are no longer being transferred to the power unit

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
More than one setpoint telegram was not able to be transferred to the power unit module.
Remedy: The following applies for CU31x and CUA31:
Check the interface (adjustment and locking) to the power unit module.

A30073 (N) Actual value/setpoint preprocessing no longer synchronous

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Communication with the power unit module is no longer in synchronism with the current control cycle.
Remedy: Wait until synchronization is re-established.
Reaction upon N: NONE
Acknowl. upon N: NONE

F30074 (A) Communication error between the Control Unit and Power Module

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Communications between the Control Unit (CU) and Power Module (PM) via the interface no longer possible. The CU may have been withdrawn or is incorrectly inserted.
Fault value (r0949, interpret hexadecimal):
0 hex:
- a Control Unit with external 24 V supply was withdrawn from the Power Module during operation.
- with the Power Module switched off, the external 24 V supply for the Control unit was interrupted for some time.

1 hex:

The Control Unit was withdrawn from the Power Module during operation, although the encoderless safe motion monitoring functions are enabled. This is not supported. After re-inserting the Control Unit in operation, communications to the Power Module no longer possible.

20A hex:

The Control Unit was inserted on a Power Module, which has another code number.

20B hex:

The Control Unit was inserted on a Power Module, which although it has the same code number, has a different serial number.

601 hex:

The Control Unit was inserted on a Power Module, whose power/performance class (chassis unit) is not supported.

Remedy:

Reinsert the Control Unit (CU) or the Control Unit adapter (CUAxx) onto the original Power Module and continue operation. If required, carry out a POWER ON for the CU and/or the CUA.

Reaction upon A: NONE

Acknowl. upon A: NONE

F30080 Power unit: Current increasing too quickly

Message value: Fault cause: %1 bin

Message class: Power electronics faulted (5)

Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The power unit has detected an excessive rate of rise in the overvoltage range.

- closed-loop control is incorrectly parameterized.
 - motor has a short-circuit or fault to ground (frame).
 - U/f operation: Up ramp set too low.
 - U/f operation: rated current of motor much greater than that of power unit.
 - infeed: High discharge and post-charging currents for voltage dip.
 - infeed: High post-charging currents for overload when motoring and DC link voltage dip.
 - infeed: Short-circuit currents at power-up due to the missing line reactor.
 - power cables are not correctly connected.
 - power cables exceed the maximum permissible length.
 - power unit defective.
- Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (powered down) due to a ground fault.
 - the closed-loop circulating current control is either too slow or has been set too fast.
- Fault value (r0949, interpret bitwise binary):

Bit 0: Phase U.

Bit 1: Phase V.

Bit 2: Phase W.

Remedy:

- check the motor data - if required, carry out commissioning.
 - check the motor circuit configuration (star-delta)
 - U/f operation: Increase up ramp.
 - U/f operation: Check assignment of rated currents of motor and power unit.
 - infeed: Check the line supply quality.
 - infeed: Reduce the motor load.
 - infeed: Correct connection of the line reactor.
 - check the power cable connections.
 - check the power cables for short-circuit or ground fault.
 - check the length of the power cables.
 - replace power unit.
- For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
 - check the setting of the closed-loop circulating current control (p7036, p7037).

| | |
|-----------------------|---|
| F30081 | Power unit: Switching operations too frequent |
| Message value: | Fault cause: %1 bin |
| Message class: | Power electronics faulted (5) |
| Drive object: | All objects |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>The power unit has executed too many switching operations for current limitation.</p> <ul style="list-style-type: none">- closed-loop control is incorrectly parameterized.- motor has a short-circuit or fault to ground (frame).- U/f operation: Up ramp set too low.- U/f operation: rated current of motor much greater than that of power unit.- infeed: High discharge and post-charging currents for voltage dip.- infeed: High post-charging currents for overload when motoring and DC link voltage dip.- infeed: Short-circuit currents at power-up due to the missing line reactor.- power cables are not correctly connected.- power cables exceed the maximum permissible length.- power unit defective. <p>Additional causes for a parallel switching device (r0108.15 = 1):</p> <ul style="list-style-type: none">- a power unit has tripped (powered down) due to a ground fault.- the closed-loop circulating current control is either too slow or has been set too fast. <p>Fault value (r0949, interpret bitwise binary):</p> <p>Bit 0: Phase U. Bit 1: Phase V. Bit 2: Phase W.</p> |
| Remedy: | <ul style="list-style-type: none">- check the motor data - if required, carry out commissioning.- check the motor circuit configuration (star-delta)- U/f operation: Increase up ramp.- U/f operation: Check assignment of rated currents of motor and power unit.- infeed: Check the line supply quality.- infeed: Reduce the motor load.- infeed: Correct connection of the line reactor.- check the power cable connections.- check the power cables for short-circuit or ground fault.- check the length of the power cables.- replace power unit. <p>For a parallel switching device (r0108.15 = 1) the following additionally applies:</p> <ul style="list-style-type: none">- check the ground fault monitoring thresholds (p0287).- check the setting of the closed-loop circulating current control (p7036, p7037). |

| | |
|-----------------------|--|
| F30105 | PU: Actual value sensing fault |
| Message value: | - |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).</p> <p>The incorrect actual value channels are displayed in the following diagnostic parameters.</p> |
| Remedy: | <p>Evaluate the diagnostic parameters.</p> <p>If the actual value channel is incorrect, check the components and if required, replace.</p> |

| | |
|-----------------------|--|
| N30800 (F) | Power unit: Group signal |
| Message value: | - |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | NONE |
| Cause: | The power unit has detected at least one fault. |
| Remedy: | Evaluate the other messages that are presently available. |
| Reaction upon F: | OFF2 |
| Acknowl. upon F: | IMMEDIATELY |
| F30801 | Power unit DRIVE-CLiQ: Sign-of-life missing |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. The computing time load might be too high. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - check the electrical cabinet design and cable routing for EMC compliance - remove DRIVE-CLiQ components that are not required. - de-select functions that are not required. - if required, increase the sampling times (p0112, p0115). - replace the component involved. |
| F30802 | Power unit: Time slice overflow |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A time slice overflow has occurred. Fault value (r0949, interpret decimal): xx: Time slice number xx |
| Remedy: | - carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline. |
| F30804 (N, A) | Power unit: CRC |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A CRC error has occurred for the power unit. |
| Remedy: | - carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline. |

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F30805 Power unit: EEPROM checksum error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.

F30809 Power unit: Switching information not valid

Message value: -
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: For 3P gating unit, the following applies:
The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

A30810 (F) Power unit: Watchdog timer

Message value: -
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY

F30820 Power unit DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.

- 4 (= 04 hex):
The length of the receive telegram does not match the receive list.
 - 5 (= 05 hex):
The type of the receive telegram does not match the receive list.
 - 6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
 - 7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
 - 8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
 - 9 (= 09 hex):
The error bit in the receive telegram is set.
 - 16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
- Remedy:**
- carry out a POWER ON (power off/on).
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30835 **Power unit DRIVE-CLiQ: Cyclic data transfer error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON.
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30836 **Power unit DRIVE-CLiQ: Send error for DRIVE-CLiQ data**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.

4 Faults and alarms

4.2 List of faults and alarms

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F30837**Power unit DRIVE-CLiQ: Component fault**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

A30840**Power unit DRIVE-CLiQ: error below the signaling threshold**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.

Fault cause:

1 (= 01 hex):

Checksum error (CRC error).

2 (= 02 hex):

Telegram is shorter than specified in the length byte or in the receive list.

3 (= 03 hex):

Telegram is longer than specified in the length byte or in the receive list.

4 (= 04 hex):

The length of the receive telegram does not match the receive list.

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the component in the telegram and in the receive list do not match.

7 (= 07 hex):

A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):

No SYNC telegram is expected - but the received telegram is one.

9 (= 09 hex):

The error bit in the receive telegram is set.

10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.

11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.

16 (= 10 hex):
The receive telegram is too early.

32 (= 20 hex):
Error in the telegram header.

33 (= 21 hex):
The cyclic telegram has not been received.

34 (= 22 hex):
Timeout in the telegram receive list.

35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.

64 (= 40 hex):
Timeout in the telegram send list.

65 (= 41 hex):
Telegram type does not match send list.

66 (= 42 hex):
Send error: The telegram buffer memory contains an error.

67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30845 **Power unit DRIVE-CLiQ: Cyclic data transfer error**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON (power off/on).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F30850 **Power unit: Internal software error**

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: POWER ON

Cause: An internal software error has occurred in the power unit.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- replace power unit.
- if required, upgrade the firmware in the power unit.
- contact the Hotline.

F30851 **Power unit DRIVE-CLiQ (CU): Sign-of-life missing**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

F30860 **Power unit DRIVE-CLiQ (CU): Telegram error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30875

Power unit DRIVE-CLiQ (CU): Supply voltage failed

Message value:

Component number: %1, fault cause: %2

Message class:

Supply voltage fault (undervoltage) (3)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F30885

CU DRIVE-CLiQ (CU): Cyclic data transfer error

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.

The nodes do not send and receive in synchronism.

Fault cause:

26 (= 1A hex):

Sign-of-life bit in the receive telegram not set and the receive telegram is too early.

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

98 (= 62 hex):

Error at the transition to cyclic operation.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F30886 **PU DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F30887 **Power unit DRIVE-CLiQ (CU): Component fault**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component (power unit) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

| | |
|-----------------------|---|
| F30895 | PU DRIVE-CLiQ (CU): Alternating cyclic data transfer error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master) |
| F30896 | Power unit DRIVE-CLiQ (CU): Inconsistent component properties |
| Message value: | Component number: %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The properties of the DRIVE-CLiQ component (power unit), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number. |
| Remedy: | - carry out a POWER ON. - when a component is replaced, the same component type and if possible the same firmware version should be used. - when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length). |
| F30899 (N, A) | Power unit: Unknown fault |
| Message value: | New message: %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. Note: If required, the significance of this new fault can be read about in a more recent description of the Control Unit. |
| Remedy: | - replace the firmware on the power unit by an older firmware version (r0128). - upgrade the firmware on the Control Unit (r0018). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F30903 | Power unit: I2C bus error occurred |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | Communications error with an EEPROM or A/D converter. Fault value (r0949, interpret hexadecimal): 80000000 hex: - internal software error. 00000001 hex ... 0000FFFF hex: - module fault. |
| Remedy: | Re fault value = 80000000 hex: - upgrade firmware to later version. Re fault value = 00000001 hex ... 0000FFFF hex: - replace the module. |

| | |
|-----------------------|---|
| F30907 | Power unit: FPGA configuration unsuccessful |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | During initialization within the power unit, an internal software error has occurred. |
| Remedy: | - if required, upgrade the firmware in the power unit. - replace power unit. - contact the Hotline. |

| | |
|-----------------------|---|
| A30920 (F) | Power unit: Temperature sensor fault |
| Message value: | %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm, PT100: R > 375 Ohm). 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT100: R < 30 Ohm). Note: A temperature sensor is connected to the following terminals: - "Booksizer" format: X21.1/.2 or X22.1/.2 - "Chassis" format: X41.4/.3 Information on temperature sensors is provided in the following literature for example: SINAMICS S120 Function Manual Drive Functions |
| Remedy: | - make sure that the sensor is connected correctly. - replace the sensor. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowled. upon F: | IMMEDIATELY |

| | |
|-----------------------|--|
| A30999 (F, N) | Power unit: Unknown alarm |
| Message value: | New message: %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit. |
| Remedy: | - replace the firmware on the power unit by an older firmware version (r0128). - upgrade the firmware on the Control Unit (r0018). |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| F31100 (N, A) | Encoder 1: Zero mark distance error |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Fault value (r0949, interpret decimal): Last measured zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance. See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - if message output above speed threshold, reduce filter time if necessary (p0438). - replace the encoder or encoder cable. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F31101 (N, A) | Encoder 1: Zero mark failed |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). |

Fault value (r0949, interpret decimal):

Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31103 (N, A) Encoder 1: Amplitude error track R

Message value: R track: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause:

The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 1. The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)

The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.

The response threshold for the differential signal level of the encoder is < -1600 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.

The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).

The signal level is not evaluated unless the following conditions are satisfied:

- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check the encoder type (encoder with zero marks).
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly.
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

| | |
|-----------------------|---|
| F31110 (N, A) | Encoder 1: Serial communications error |
| Message value: | Fault cause: %1 bin |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | Serial communication protocol transfer error between the encoder and evaluation module. Fault value (r0949, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it. Bit 5: Internal error in the serial driver: An illegal mode command was requested. Bit 6: Timeout when cyclically reading. Bit 7: Timeout for the register communication. Bit 8: Protocol is too long (e.g. > 64 bits). Bit 9: Receive buffer overflow. Bit 10: Frame error when reading twice. Bit 11: Parity error. Bit 12: Data line signal level error during the monoflop time. Bit 13: Data line incorrect. Bit 14: Fault for the register communication. Bit 15: Internal communication error. Note: For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described. |
| Remedy: | Re fault value, bit 0 = 1: - Enc defect F31111 may provide additional details. Re fault value, bit 1 = 1: - Incorrect encoder type / replace the encoder or encoder cable. Re fault value, bit 2 = 1: - Incorrect encoder type / replace the encoder or encoder cable. Re fault value, bit 3 = 1: - EMC / connect the cable shield, replace the encoder or encoder cable. Re fault value, bit 4 = 1: - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. Re fault value, bit 5 = 1: - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. Re fault value, bit 6 = 1: - Update Sensor Module firmware. Re fault value, bit 7 = 1: - Incorrect encoder type / replace the encoder or encoder cable. Re fault value, bit 8 = 1: - Check parameterization (p0429.2). Re fault value, bit 9 = 1: - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. Re fault value, bit 10 = 1: - Check parameterization (p0429.2, p0449). Re fault value, bit 11 = 1: - Check parameterization (p0436). Re fault value, bit 12 = 1: - Check parameterization (p0429.6). Re fault value, bit 13 = 1: - Check data line. |

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| | Re fault value, bit 14 = 1: |
| | - Incorrect encoder type / replace the encoder or encoder cable. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

F31111 (N, A) Encoder 1: Absolute encoder internal error

| | |
|-----------------------|---|
| Message value: | Fault cause: %1 bin, additional information: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The absolute encoder fault word supplies fault bits that have been set. |

Fault value (r0949, interpret binary):

yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause

yyyy = 0:

Bit 0: Lighting system failed.

Bit 1: Signal amplitude too low.

Bit 2: Position value incorrect.

Bit 3: Encoder power supply overvoltage condition.

Bit 4: Encoder power supply undervoltage condition.

Bit 5: Encoder power supply overcurrent condition.

Bit 6: The battery must be changed.

yyyy = 1:

Bit 0: Signal amplitude outside the control range.

Bit 1: Error multiturn interface

Bit 2: Internal data error (singleturn/multiturn not with single steps).

Bit 3: Error EEPROM interface.

Bit 4: SAR converter error.

Bit 5: Fault for the register data transfer.

Bit 6: Internal error identified at the error pin (nErr).

Bit 7: Temperature threshold exceeded or fallen below.

See also: p0491 (Motor encoder fault response ENCODER)

Remedy: For yyyy = 0:

Re fault value, bit 0 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 1 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 2 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 3 = 1:

5 V power supply voltage fault.

When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.

When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.

Re fault value, bit 4 = 1:

5 V power supply voltage fault.

When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.

When using a motor with DRIVE-CLiQ: Replace the motor.

Re fault value, bit 5 = 1:

Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).
For yyyy = 1:
Encoder is defective. Replace encoder.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31112 (N, A) Encoder 1: Error bit set in the serial protocol

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The encoder sends a set error bit via the serial protocol.

Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.
Remedy: For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31115 (N, A) Encoder 1: Amplitude error track A or B ($A^2 + B^2$)

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The amplitude (root of $A^2 + B^2$) for encoder 1 exceeds the permissible tolerance.

Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 170 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).

The following applies to measuring systems without their own bearing system:

- adjust the scanning head and check the bearing system of the measuring wheel.

The following applies for measuring systems with their own bearing system:

- ensure that the encoder housing is not subject to any axial force.

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31116 (N, A)

Encoder 1: Amplitude error monitoring track A + B

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: The amplitude of the rectified encoder signals A and B and the amplitude from the roots of $A^2 + B^2$ for encoder 1 are not within the tolerance bandwidth.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV $-25/+20$ %).
The response thresholds are < 130 mV (observe the frequency response of the encoder) and > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31117 (N, A)

Encoder 1: Inversion error signals A/B/R

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
Fault value (r0949, interpret binary):
Bits 0 ... 15: Only for internal Siemens troubleshooting.
Bit 16: Error track A.
Bit 17: Error track B.
Bit 18: Error track R.
Note:
For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies:
A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- Check the encoder/cable.
- Does the encoder supply signals and the associated inverted signals?

Note:
For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:
- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):

- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31118 (N, A) Encoder 1: Speed difference outside the tolerance range

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Encoder 1 is used as motor encoder and can be effective has fault response to change over to encoderless operation.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0491 (Motor encoder fault response ENCODER), p0492 (Square-wave encoder maximum speed difference per sampling cycle)

Remedy:

- check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31120 (N, A) Encoder 1: Power supply voltage fault

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: A power supply fault was detected for encoder 1.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 7: Hardware fault at the EnDat connection of the converter.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
See also: p0491 (Motor encoder fault response ENCODER)

4 Faults and alarms

4.2 List of faults and alarms

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| Remedy: | Re fault value, bit 0 = 1: <ul style="list-style-type: none">- correct encoder cable connected?- check the plug connections of the encoder cable.- SMC30: Check the parameterization (p0404.22). Re fault value, bit 1 = 1: <ul style="list-style-type: none">- correct encoder cable connected?- replace the encoder or encoder cable. Re fault value, bit 2 = 1: <ul style="list-style-type: none">- correct encoder cable connected?- replace the encoder or encoder cable. Re fault value, bit 3 = 1: <ul style="list-style-type: none">- correct encoder cable connected?- replace the encoder or encoder cable. Re fault value, bit 5 = 1: <ul style="list-style-type: none">- Measuring unit correctly connected at the converter?- Replace the measuring unit or the cable to the measuring unit. Re fault value, bit 6, 7 = 1: <ul style="list-style-type: none">- Replace the defective EnDat 2.2 converter. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

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| F31121 (N, A) | Encoder 1: Coarse position error |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position. See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

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| F31122 | Encoder 1: Internal power supply voltage faulty |
| Message value: | %1 |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER |
| Acknowledge: | IMMEDIATELY |
| Cause: | Fault in internal reference voltage of ASICs for encoder 1. Fault value (r0949, interpret decimal): 1: Reference voltage error. 2: Internal undervoltage. 3: Internal overvoltage. |
| Remedy: | Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module. |

F31123 (N, A) Encoder 1: Signal level A/B unipolar outside tolerance

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The unipolar level (AP/AN or BP/BN) for encoder 1 is outside the permissible tolerance.
Fault value (r0949, interpret binary):
Bit 0 = 1: Either AP or AN outside the tolerance.
Bit 16 = 1: Either BP or BN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31125 (N, A) Encoder 1: Amplitude error track A or B overcontrolled

Message value: A track: %1, B-track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The amplitude of track A or B for encoder 1 exceeds the permissible tolerance band.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

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| F31126 (N, A) | Encoder 1: Amplitude AB too high |
| Message value: | Amplitude: %1, Angle: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The amplitude (root of $A^2 + B^2$ or $ A + B $) for encoder 1 exceeds the permissible tolerance. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex: yyyy = Angle xxxx = Amplitude, i.e. root from $A^2 + B^2$ (16 bits without sign) The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response threshold for ($ A + B $) is > 1120 mV or the root of $(A^2 + B^2) > 955$ mV. A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec. The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B. Note: The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module. See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check that the encoder cables and shielding are routed in compliance with EMC. - replace the encoder or encoder cable. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

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|-----------------------|--|
| F31129 (N, A) | Encoder 1: Position difference hall sensor/track C/D and A/B too large |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

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| F31130 (N, A) | Encoder 1: Zero mark and position error from the coarse synchronization |
| Message value: | Angular deviation, electrical: %1, angle, mechanical: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | <p>After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.</p> <p>When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.</p> <p>When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.</p> <p>Fault value (r0949, interpret hexadecimal): yyyyxxxx hex yyyy: Determined mechanical zero mark position (can only be used for track C/D). xxxx: Deviation of the zero mark from the expected position as electrical angle. Scaling: 32768 dec = 180 °</p> <p>See also: p0491 (Motor encoder fault response ENCODER)</p> |
| Remedy: | <ul style="list-style-type: none"> - Check p0431 and, if necessary, correct (trigger via p1990 = 1 if necessary). - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - if the Hall sensor is used as an equivalent for track C/D, check the connection. - Check the connection of track C or D. - replace the encoder or encoder cable. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |
| F31131 (N, A) | Encoder 1: Deviation position incremental/absolute too large |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | <p>Absolute encoder:</p> <p>When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.</p> <p>Limit value for the deviation:</p> <ul style="list-style-type: none"> - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants). - other encoders: 15 pulses = 60 quadrants. <p>Incremental encoder:</p> <p>When the zero pulse is passed, a deviation in the incremental position was detected.</p> <p>For equidistant zero marks, the following applies:</p> <ul style="list-style-type: none"> - The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark. <p>For distance-coded zero marks, the following applies:</p> <ul style="list-style-type: none"> - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair. <p>Fault value (r0949, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants). See also: p0491 (Motor encoder fault response ENCODER)</p> |

4 Faults and alarms

4.2 List of faults and alarms

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check whether the coding disk is dirty or there are strong ambient magnetic fields.
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31135

Encoder 1: Fault when determining the position

Message value: Fault cause: %1 bin

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The encoder supplies status information bit by bit in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):

Bit 0: F1 (safety status display).

Bit 1: F2 (safety status display).

Bit 2: Reserved (lighting).

Bit 3: Reserved (signal amplitude).

Bit 4: Reserved (position value).

Bit 5: Reserved (overvoltage).

Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).

Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).

Bit 16: Lighting (--> F3x135, x = 1, 2, 3).

Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).

Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).

Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).

Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).

Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).

Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).

Bit 23: Singleturn position 2 (safety status display).

Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).

Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).

Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).

Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).

Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).

Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).

Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).

Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.

Note:

An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.

If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F31136 Encoder 1: Error when determining multiturn information

Message value: Fault cause: %1 bin

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The encoder supplies status information bit by bit in an internal status/fault word.

Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):

Bit 0: F1 (safety status display).

Bit 1: F2 (safety status display).

Bit 2: Reserved (lighting).

Bit 3: Reserved (signal amplitude).

Bit 4: Reserved (position value).

Bit 5: Reserved (overvoltage).

Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).

Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).

Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).

Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).

Bit 16: Lighting (--> F3x135, x = 1, 2, 3).

Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).

Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).

Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).

Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).

Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).

Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).

Bit 23: Singleturn position 2 (safety status display).

Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).

Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).

Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).

Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).

Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).

Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).

Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).

Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.

Note:

An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.

If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F31137 Encoder 1: Internal fault when determining the position

| | |
|-----------------------|---|
| Message value: | Fault cause: %1 bin |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary): yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause For yy = 08 hex (bit 27 = 1), the following bit definition applies: Bit 1: Signal monitoring (sin/cos). Bit 8: F1 (safety status display) fault position word 1. Bit 9: F2 (safety status display) fault position word 2. Bit 16: LED monitoring iC-LG (opto ASIC). Bit 17: Fault in the multiturn. Bit 23: Temperature outside the limit values. Note: For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding. |
| Remedy: | - determine the detailed cause of the fault using the fault value. - if required, replace the DRIVE-CLiQ encoder. |

F31138 Encoder 1: Internal error when determining multiturn information

| | |
|-----------------------|---|
| Message value: | Fault cause: %1 bin |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary): yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause For yy = 08 hex (bit 27 = 1), the following bit definition applies: Bit 1: Signal monitoring (sin/cos). Bit 8: F1 (safety status display) fault position word 1. Bit 9: F2 (safety status display) fault position word 2. Bit 16: LED monitoring iC-LG (opto ASIC). Bit 17: Fault in the multiturn. Bit 23: Temperature outside the limit values. Note: For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding. |
| Remedy: | - determine the detailed cause of the fault using the fault value. - if required, replace the DRIVE-CLiQ encoder. |

F31142 (N, A) Encoder 1: Battery voltage fault

| | |
|-----------------------|---|
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information. |
| Remedy: | Replace battery. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

Reaction upon A: NONE
Acknowl. upon A: NONE

F31150 (N, A) Encoder 1: Initialization error
Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Encoder functionality selected in p0404 is not operating correctly.
Fault value (r0949, interpret hexadecimal):
Encoder malfunction.
The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
See also: p0404 (Encoder configuration effective), p0491 (Motor encoder fault response ENCODER)
Remedy:
- Check that p0404 is correctly set.
- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
- if relevant, note additional fault messages that describe the fault in detail.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31151 (N, A) Encoder 1: Encoder speed for initialization AB too high
Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high while initializing the Sensor Module.
Remedy: Reduce the speed of the encoder accordingly during initialization.
If necessary, de-activate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31152 (N, A) Encoder 1: Maximum input frequency exceeded
Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum input frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual input frequency in Hz.
See also: p0408 (Rotary encoder pulse number)
Remedy:
- Reduce the speed.
- Use an encoder with a lower pulse number (p0408).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31153 (N, A) Encoder 1: Identification error

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: An error has occurred when identifying the encoder (waiting) p0400=10100.
The connected encoder was not able to be identified.
Fault value (r0949, interpret hexadecimal):
Bit 0: Data length incorrect
See also: p0400 (Encoder type selection)

Remedy: Manually configure the encoder according to the data sheet.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31160 (N, A) Encoder 1: Analog sensor channel A failed

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4673).
3: The absolute value of the input voltage has exceeded the range limit (p4676).

Remedy: For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4673).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31161 (N, A) Encoder 1: Analog sensor channel B failed

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).

Remedy: For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4675).

For fault value = 3:
 - check the range limit setting and increase it if necessary (p4676).
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31163 (N, A) Encoder 1: Analog sensor position value exceeds limit value

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
 Fault value (r0949, interpret decimal):
 1: Position value from the LVDT sensor.
 2: Position value from the encoder characteristic.

Remedy: For fault value = 1:
 - Check the LVDT ratio (p4678).
 - check the reference signal connection at track B.
 For fault value = 2:
 - check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A31400 (F, N) Encoder 1: Alarm threshold zero mark distance error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
 For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Alarm value (r2124, interpret decimal):
 Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
 The sign designates the direction of motion when detecting the zero mark distance.

Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the distance between zero marks (p0424, p0425).
 - replace the encoder or encoder cable.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

| | |
|-----------------------|---|
| A31401 (F, N) | Encoder 1: Alarm threshold zero mark failed |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse). |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - replace the encoder or encoder cable. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| F31405 (N, A) | Encoder 1: Temperature in the encoder evaluation inadmissible |
| Message value: | %1 |
| Message class: | Overtemperature of the electronic components (6) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature. The fault threshold is 125 ° C. Alarm value (r2124, interpret decimal): Measured board/module temperature in 0.1 °C. |
| Remedy: | Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |
| A31407 (F, N) | Encoder 1: Function limit reached |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The encoder has reached one of its function limits. A service is recommended. Alarm value (r2124, interpret decimal): 1 : Incremental signals 3 : Absolute track 4 : Code connection |
| Remedy: | Perform service. Replace the encoder if necessary. Note: The actual functional reserve of an encoder can be displayed via r4651. See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve) |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |

Reaction upon N: NONE
Acknowl. upon N: NONE

A31410 (F, N) Encoder 1: Serial communications

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31411 (F, N) Encoder 1: Absolute encoder signals internal alarms

Message value: Fault cause: %1 bin, additional information: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The absolute encoder fault word includes alarm bits that have been set.
Alarm value (r2124, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.
Bit 3: Battery discharged.
Bit 4: Reference point passed.
yyyy = 1:
Bit 0: Signal amplitude outside the control range.
Bit 1: Error multiturn interface
Bit 2: Internal data error (singleturn/multiturn not with single steps).
Bit 3: Error EEPROM interface.
Bit 4: SAR_converter error.
Bit 5: Fault for the register data transfer.

4 Faults and alarms

4.2 List of faults and alarms

Bit 6: Internal error identified at the error pin (nErr).
Bit 7: Temperature threshold exceeded or fallen below.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Replace encoder.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31412 (F, N) Encoder 1: Error bit set in the serial protocol

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The encoder sends a set error bit via the serial protocol.

Alarm value (r2124, interpret binary):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31414 (F, N) Encoder 1: Amplitude error track C or D (C² + D²)

Message value: C track: %1, D track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (C² + D²) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:

If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

| | |
|-----------------------|---|
| N31415 (F, A) | Encoder 1: Amplitude alarm track A or B ($A^2 + B^2$) |
| Message value: | Amplitude: %1, Angle: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>The amplitude (root of $A^2 + B^2$) for encoder 1 exceeds the permissible tolerance.</p> <p>Alarm value (r2124, interpret hexadecimal): yyyyxxxx hex: yyyy = Angle xxxx = Amplitude, i.e. root from $A^2 + B^2$ (16 bits without sign)</p> <p>The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response threshold is < 230 mV (observe the frequency response of the encoder). A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec. The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.</p> <p>Note for Sensor Modules for resolvers (e.g. SMC10): The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms). A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.</p> <p>Note: The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.</p> <p>See also: p0491 (Motor encoder fault response ENCODER)</p> |
| Remedy: | <ul style="list-style-type: none"> - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range. - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). - if the coding disk is soiled or the lighting aged, replace the encoder. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| A31418 (F, N) | Encoder 1: Speed difference per sampling rate exceeded |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492.</p> <p>The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.</p> <p>Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.</p> <p>See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle)</p> |
| Remedy: | <ul style="list-style-type: none"> - check the tachometer feeder cable for interruptions. - check the grounding of the tachometer shielding. - if required, increase the setting of p0492. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A31419 (F, N) | Encoder 1: Track A or B outside tolerance |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The amplitude/phase/offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27 Phase: <84 degrees or >96 degrees SMC20: Offset correction: +/-140 mV SMC10: Offset correction: +/-650 mV Alarm value (r2124, interpret hexadecimal): xxxx1: Minimum of the offset correction, track B xxxx2: Maximum of the offset correction, track B xxx1x: Minimum of the offset correction, track A xxx2x: Maximum of the offset correction, track A xx1xx: Minimum of the amplitude correction, track B/A xx2xx: Maximum of the amplitude correction, track B/A x1xxx: Minimum of the phase error correction x2xxx: Maximum of the phase error correction 1xxxx: Minimum of the cubic correction 2xxxx: Maximum of the cubic correction See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders). - check the plug connections (also the transition resistance). - check the encoder signals. - replace the encoder or encoder cable. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A31421 (F, N) | Encoder 1: Coarse position error |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position. Alarm value (r2124, interpret decimal): 3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse. |
| Remedy: | Re alarm value = 3: - For a standard encoder with cable, contact the manufacturer where relevant. - correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

A31422 (F, N) Encoder 1: Pulses per revolution square-wave encoder outside tolerance bandwidth

| | |
|-----------------------|--|
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The measured zero mark distance does not correspond to the parameterized zero mark distance. This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684. The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder). Alarm value (r2124, interpret decimal): accumulated differential pulses in encoder pulses. See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the distance between zero marks (p0424, p0425). - replace the encoder or encoder cable. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

A31429 (F, N) Encoder 1: Position difference hall sensor/track C/D and A/B too large

| | |
|-----------------------|---|
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. Alarm value (r2124, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A31431 (F, N) | Encoder 1: Deviation position incremental/absolute too large |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark. For distance-coded zero marks, the following applies: - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair. Alarm value (r2124, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants). See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - Clean coding disk or remove strong magnetic fields. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| <hr/> | |
| A31432 (F, N) | Encoder 1: Rotor position adaptation corrects deviation |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance. |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425). |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| <hr/> | |
| A31442 (F, N) | Encoder 1: Battery voltage pre-alarm |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further. |
| Remedy: | Replace battery. |

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31443 (F, N) Encoder 1: Unipolar CD signal level outside specification

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Either CP or CN outside the tolerance.
Bit 16 = 1: Either DP or DN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:

The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- Monitoring active (p0437.31 = 1).

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)?
- replace the encoder cable.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31460 (N) Encoder 1: Analog sensor channel A failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).

Remedy:
Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4673).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A31461 (N) Encoder 1: Analog sensor channel B failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE

A31462 (N) Encoder 1: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
Reaction upon N: NONE
Acknowl. upon N: NONE

A31463 (N) Encoder 1: Analog sensor position value exceeds limit value

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE

| | |
|-----------------------|---|
| A31470 (F, N) | Encoder 1: Soiling detected |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7. |
| Remedy: | - check the plug connections. - replace the encoder or encoder cable. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|--|
| F31500 (N, A) | Encoder 1: Position tracking traversing range exceeded |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions. For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421. For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419). |
| Remedy: | The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). The fault should then be acknowledged and the absolute encoder adjusted. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F31501 (N, A) | Encoder 1: Position tracking encoder position outside tolerance window |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder. Fault value (r0949, interpret decimal): Deviation (difference) to the last encoder position in increments of the absolute value. The sign designates the traversing direction. Note: The deviation (difference) found is also displayed in r0477. See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference) |

4 Faults and alarms

4.2 List of faults and alarms

Remedy: Reset the position tracking as follows:

- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31502 (N, A) Encoder 1: Encoder with measuring gear without valid signals

Message value: -

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The encoder with measuring gear no longer provides any valid signals.

Remedy: It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31503 (N, A) Encoder 1: Position tracking cannot be reset

Message value: -

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The position tracking for the measuring gear cannot be reset.

Remedy: The fault should be resolved as follows:

- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31700 Encoder 1: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin

Message class: Safety monitoring channel has identified an error (10)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.

Remedy: Replace encoder.

| | |
|-----------------------|---|
| N31800 (F) | Encoder 1: Group signal |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | NONE |
| Cause: | The motor encoder has detected at least one fault. See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | Evaluate the other messages that are presently available. |
| Reaction upon F: | ENCODER (IASC/DCBRK, NONE) |
| Acknowl. upon F: | IMMEDIATELY |
| F31801 (N, A) | Encoder 1 DRIVE-CLiQ: Sign-of-life missing |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check the electrical cabinet design and cable routing for EMC compliance - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |
| F31802 (N, A) | Encoder 1: Time slice overflow |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A time slice overflow has occurred in encoder 1. Fault value (r0949, interpret hexadecimal): yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved x = 9: Time slice overflow of the fast (current controller clock cycle) time slice. x = A: Time slice overflow of the average time slice. x = C: Time slice overflow of the slow time slice. yx = 3E7: Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation). See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | Increase the current controller sampling time Note: For a current controller sampling time = 31.25 µs, use an SMx20 with order number 6SL3055-0AA00-5xA3. |

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31804 (N, A) Encoder 1: Checksum error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: POWER ON (IMMEDIATELY)
Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
- carry out a POWER ON (power off/on).
- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31805 (N, A) Encoder 1: EEPROM checksum error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Replace the module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31806 (N, A) Encoder 1: Initialization error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
Bit 2: Mid-voltage matching for track A unsuccessful.
Bit 3: Mid-voltage matching for track B unsuccessful.
Bit 4: Mid-voltage matching for acceleration input unsuccessful.

Bit 5: Mid-voltage matching for track safety A unsuccessful.
 Bit 6: Mid-voltage matching for track safety B unsuccessful.
 Bit 7: Mid-voltage matching for track C unsuccessful.
 Bit 8: Mid-voltage matching for track D unsuccessful.
 Bit 9: Mid-voltage matching for track R unsuccessful.
 Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
 Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
 Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
 Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
 Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
 Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
 Bit 16: Internal fault - fault when reading a register (CAFE)
 Bit 17: Internal fault - fault when writing a register (CAFE)
 Bit 18: Internal fault: No mid-voltage matching available
 Bit 19: Internal error - ADC access error.
 Bit 20: Internal error - no zero crossover found.
 Bit 28: Error while initializing the EnDat 2.2 measuring unit.
 Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
 Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
 Bit 31: Data of the EnDat 2.2 measuring unit inconsistent.

Note:

Bit 0, 1: Up to 6SL3055-0AA00-5*A0

Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

Acknowledge fault.

If the fault cannot be acknowledged:

Bits 2 ... 9: Check encoder power supply.

Bits 2 ... 14: Check the corresponding cable.

Bit 15 with no other bits: Check track R, check settings in p0404.

Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.

Bit 29 ... 31: Replace the defective measuring unit.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A31811 (F, N) Encoder 1: Encoder serial number changed

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).

Cause 1:

- The encoder was replaced.

Cause 2:

- A third-party, built-in or linear motor was re-commissioned.

Cause 3:

- The motor with integrated and adjusted encoder was replaced.

Cause 4:

- The firmware was updated to a version that checks the encoder serial number.

4 Faults and alarms

4.2 List of faults and alarms

Note:

With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).

When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).

Proceed as follows to hide serial number monitoring:

- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.

- parameterize F07414 as message type N (p2118, p2119).

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

Re causes 1, 2:

Carry out an automatic adjustment using the pole position identification routine. Acknowledge fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.

SERVO:

If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.

or

Set the adjustment via p0431. In this case, the new serial number is automatically accepted.

or

Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.

Re causes 3, 4:

Accept the new serial number with p0440 = 1.

Reaction upon F: NONE (ENCODER, OFF2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.

Fault value (r0949, interpret decimal):

0: Application cycle is not supported.

1: DRIVE-CLiQ cycle is not supported.

2: Distance between RX and TX instants in time too low.

3: TX instant in time too early.

Remedy: Carry out a POWER ON (power off/on) for all components.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31813 Encoder 1: Hardware logic unit failed

Message value: Fault cause: %1 bin

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.

Fault value (r0949, interpret binary):

Bit 0: ALU watchdog has responded.

Bit 1: ALU has detected a sign-of-life error.

Remedy: Replace encoder.

| | |
|-----------------------|--|
| F31820 (N, A) | Encoder 1 DRIVE-CLiQ: Telegram error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F31835 (N, A) | Encoder 1 DRIVE-CLiQ: Cyclic data transfer error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism. Fault cause: 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. |

4 Faults and alarms

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64 (= 40 hex):

Timeout in the telegram send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- carry out a POWER ON.

- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31836 (N, A) Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

Carry out a POWER ON.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31840 Encoder 1 DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.

4 Faults and alarms

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67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F31845 (N, A)

Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

ENCODER (IASC/DCBRK, NONE)

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.

Fault cause:

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

Carry out a POWER ON (power off/on).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N:

NONE

Acknowl. upon N:

NONE

Reaction upon A:

NONE

Acknowl. upon A:

NONE

F31850 (N, A)

Encoder 1: Encoder evaluation internal software error

Message value:

%1

Message class:

Hardware / software error (1)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

ENCODER (IASC/DCBRK, NONE)

Acknowledge:

POWER ON

Cause:

An internal software error has occurred in the Sensor Module of encoder 1.

Fault value (r0949, interpret decimal):

1: Background time slice is blocked.

2: Checksum over the code memory is not OK.

10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.

11000 ... 11499: Descriptive data from EEPROM incorrect.

11500 ... 11899: Calibration data from EEPROM incorrect.

11900 ... 11999: Configuration data from EEPROM incorrect.

12000 ... 12008: Communication with AD converter faulted.

16000: DRIVE-CLiQ encoder initialization application error.

16001: DRIVE-CLiQ encoder initialization ALU error.

16002: DRIVE-CLiQ encoder HISI / SISI initialization error.

16003: DRIVE-CLiQ encoder safety initialization error.

16004: DRIVE-CLiQ encoder internal system error.

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- replace the Sensor Module.

- if required, upgrade the firmware in the Sensor Module.

- contact the Hotline.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31851 (N, A) Encoder 1 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy:
- Upgrade the firmware of the component involved.
- carry out a POWER ON (power off/on) for the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31860 (N, A) Encoder 1 DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.

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19 (= 13 hex):

The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.

20 (= 14 hex):

The length of the receive telegram does not match the receive list and the receive telegram is too early.

21 (= 15 hex):

The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the electrical cabinet design and cable routing for EMC compliance

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31875 (N, A) Encoder 1 DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2

Message class: Supply voltage fault (undervoltage) (3)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the power supply for the DRIVE-CLiQ component.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31885 (N, A) Encoder 1 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. The nodes do not send and receive in synchronism.

Fault cause:

26 (= 1A hex):

Sign-of-life bit in the receive telegram not set and the receive telegram is too early.

33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:
- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31886 (N, A) Encoder 1 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:
- carry out a POWER ON.
- check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31887 (N, A) Encoder 1 DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

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66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

96 (= 60 hex):

Response received too late during runtime measurement.

97 (= 61 hex):

Time taken to exchange characteristic data too long.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31895 (N, A) Encoder 1 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.

Fault cause:

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31896 (N, A) Encoder 1 DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2 (ENCODER, IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.

Fault value (r0949, interpret decimal):

Component number.

Remedy:

- carry out a POWER ON.

- when a component is replaced, the same component type and if possible the same firmware version should be used.

- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31899 (N, A) Encoder 1: Unknown fault

Message value: New message: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31902 (F, N) Encoder 1: SPI-BUS error occurred

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31903 (F, N) Encoder 1: I2C-BUS error occurred

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

4 Faults and alarms

4.2 List of faults and alarms

| | |
|------------------|---|
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

F31905 (N, A)

Encoder 1: Parameterization error

| | |
|-----------------------|--|
| Message value: | Parameter: %1, supplementary information: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>A parameter of encoder 1 was detected as being incorrect.</p> <p>It is possible that the parameterized encoder type does not match the connected encoder.</p> <p>The parameter involved can be determined as follows:</p> <ul style="list-style-type: none">- determine the parameter number using the fault value (r0949).- determine the parameter index (p0187). <p>Fault value (r0949, interpret decimal): yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter xxxx = 421:</p> <p>For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.</p> <p>yyyy = 0: No information available.</p> <p>yyyy = 1: The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).</p> <p>yyyy = 2: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.</p> <p>yyyy = 3: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.</p> <p>yyyy = 4: This component does not support SSI encoders (p0404.9 = 1) without track A/B.</p> <p>yyyy = 5: For SQW encoder, value in p4686 greater than in p0425.</p> <p>yyyy = 6: DRIVE-CLiQ encoder cannot be used with this firmware version.</p> <p>yyyy = 7: For an SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks.</p> <p>yyyy = 8: The motor pole pair width is not supported by the linear scale being used.</p> <p>yyyy = 9: The length of the position in the EnDat protocol may be a maximum of 32 bits.</p> <p>yyyy = 10: The connected encoder is not supported.</p> <p>yyyy = 11: The hardware does not support track monitoring.</p> <p>See also: p0491 (Motor encoder fault response ENCODER)</p> |
| Remedy: | <ul style="list-style-type: none">- check whether the connected encoder type matches the encoder that has been parameterized.- correct the parameter specified by the fault value (r0949) and p0187.- re parameter number = 314:- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

F31912 Encoder 1: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The selected device combination is not supported.
 Fault value (r0949, interpret decimal):
 1003:
 The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n .
 1005:
 The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
 1006:
 The maximum duration (31.25 μ s) of the EnDat transfer was exceeded.
 2001:
 The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
 2002:
 The resolution of the linear measuring unit does not match the pole pair width of the linear motor
Remedy: Re fault value = 1003, 1005, 1006:
 - Use a measuring unit that is permissible.
 For fault value = 2001:
 - Set a permissible cycle combination (if required, use standard settings).
 For fault value = 2002:
 - Use a measuring unit with a lower resolution (p0422).

A31915 (F, N) Encoder 1: Configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 1 is incorrect.
 Alarm value (r2124, interpret decimal):
 1:
 Re-parameterization between fault/alarm is not permissible.
 419:
 When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy: Re alarm value = 1:
 No re-parameterization between fault/alarm.
 Re alarm value = 419:
 Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
 Reaction upon F: NONE (ENCODER, IASC/DCBRK)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F31916 (N, A)**Encoder 1: Parameterization fault**

| | |
|-----------------------|--|
| Message value: | Parameter: %1, supplementary information: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A parameter of encoder 1 was detected as being incorrect. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows: - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). Fault value (r0949, interpret decimal): Parameter number. See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

A31920 (F, N)**Encoder 1: Temperature sensor fault**

| | |
|-----------------------|---|
| Message value: | Fault cause: %1, channel number: %2 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Fault cause: 1 (= 01 hex): Wire breakage or sensor not connected (KTY: R > 1630 Ohm). 2 (= 02 hex): Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm). Additional values: Only for internal Siemens troubleshooting. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = channel number, xx = error cause See also: p0491 (Motor encoder fault response ENCODER) |
| Remedy: | - check that the encoder cable is the correct type and is correctly connected. - check the temperature sensor selection in p0600 to p0603. - replace the Sensor Module (hardware defect or incorrect calibration data). |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A31930 (N) | Encoder 1: Data logger has saved data |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card. The diagnostics data is saved in the following folder: /USER/SINAMICS/DATA/SMTRC00.BIN ... /USER/SINAMICS/DATA/SMTRC07.BIN /USER/SINAMICS/DATA/SMTRCIDX.TXT The following information is contained in the TXT file: - Display of the last written BIN file. - Number of write operations that are still possible (from 10000 downwards). Note: Only Siemens can evaluate the BIN files. |
| Remedy: | Not necessary. The alarm disappears automatically. The data logger is ready to record the next fault case. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A31940 (F, N) | Encoder 1: Spindle sensor S1 voltage incorrect |
| Message value: | %1 |
| Message class: | Application / technological function faulted (17) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The voltage of analog sensor S1 is outside the permissible range. Fault value (r0949, interpret decimal): Signal level from sensor S1. Note: A signal level of 500 mV corresponds to the numerical value 500 dec. |
| Remedy: | - Check the clamped tool. - Check the tolerance and if required, adapt (p5040). - Check the thresholds and if required, adapt (p5041). - Check analog sensor S1 and connections. |
| Reaction upon F: | NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| F31950 | Encoder 1: Internal software error |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | ENCODER (OFF2) |
| Acknowledge: | POWER ON |
| Cause: | An internal software error has occurred. Fault value (r0949, interpret decimal): The fault value contains information regarding the fault source. Only for internal Siemens troubleshooting. |

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- If necessary, upgrade the firmware in the Sensor Module to a later version.
- contact the Hotline.

A31999 (F, N) Encoder 1: Unknown alarm

Message value: New message: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

F32100 (N, A) Encoder 2: Zero mark distance error

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32101 (N, A) Encoder 2: Zero mark failed

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).

Fault value (r0949, interpret decimal):

Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).
 - when p0437.1 is active, check p4686.
 - replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32103 (N, A) Encoder 2: Amplitude error track R

Message value: R track: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 2. The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)

The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.

The response threshold for the differential signal level of the encoder is < -1600 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.

The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).

The signal level is not evaluated unless the following conditions are satisfied:

- Sensor Module properties available (r0459.31 = 1).

- Monitoring active (p0437.31 = 1).

- Remedy:**
- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
 - check that the encoder cables and shielding are routed in compliance with EMC.
 - check the plug connections and contacts of the encoder cable.
 - check the encoder type (encoder with zero marks).
 - check whether the zero mark is connected and the signal cables RP and RN have been connected correctly.
 - replace the encoder cable.
 - if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32110 (N, A) Encoder 2: Serial communications error

Message value: Fault cause: %1 bin

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: Serial communication protocol transfer error between the encoder and evaluation module.

Fault value (r0949, interpret binary):

Bit 0: Alarm bit in the position protocol.

Bit 1: Incorrect quiescent level on the data line.

Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).

Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.

Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.

Bit 5: Internal error in the serial driver: An illegal mode command was requested.

Bit 6: Timeout when cyclically reading.

Bit 7: Timeout for the register communication.

Bit 8: Protocol is too long (e.g. > 64 bits).

Bit 9: Receive buffer overflow.

Bit 10: Frame error when reading twice.

Bit 11: Parity error.

Bit 12: Data line signal level error during the monoflop time.

Bit 13: Data line incorrect.

Bit 14: Fault for the register communication.

Bit 15: Internal communication error.

Note:

For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.

Remedy:

Re fault value, bit 0 = 1:

- Enc defect F31111 may provide additional details.

Re fault value, bit 1 = 1:

- Incorrect encoder type / replace the encoder or encoder cable.

Re fault value, bit 2 = 1:

- Incorrect encoder type / replace the encoder or encoder cable.

Re fault value, bit 3 = 1:

- EMC / connect the cable shield, replace the encoder or encoder cable.

Re fault value, bit 4 = 1:

- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

Re fault value, bit 5 = 1:

- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

Re fault value, bit 6 = 1:

- Update Sensor Module firmware.

Re fault value, bit 7 = 1:

- Incorrect encoder type / replace the encoder or encoder cable.

Re fault value, bit 8 = 1:

- Check parameterization (p0429.2).

Re fault value, bit 9 = 1:

- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

Re fault value, bit 10 = 1:

- Check parameterization (p0429.2, p0449).

Re fault value, bit 11 = 1:

- Check parameterization (p0436).

Re fault value, bit 12 = 1:

- Check parameterization (p0429.6).

Re fault value, bit 13 = 1:

- Check data line.

Re fault value, bit 14 = 1:

- Incorrect encoder type / replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

| | |
|-----------------------|---|
| F32111 (N, A) | Encoder 2: Absolute encoder internal fault |
| Message value: | Fault cause: %1 bin, additional information: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The absolute encoder fault word supplies fault bits that have been set. Fault value (r0949, interpret binary): yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause yyyy = 0: Bit 0: Lighting system failed. Bit 1: Signal amplitude too low. Bit 2: Position value incorrect. Bit 3: Encoder power supply overvoltage condition. Bit 4: Encoder power supply undervoltage condition. Bit 5: Encoder power supply overcurrent condition. Bit 6: The battery must be changed. yyyy = 1: Bit 0: Signal amplitude outside the control range. Bit 1: Error multiturn interface Bit 2: Internal data error (singleturn/multiturn not with single steps). Bit 3: Error EEPROM interface. Bit 4: SAR converter error. Bit 5: Fault for the register data transfer. Bit 6: Internal error identified at the error pin (nErr). Bit 7: Temperature threshold exceeded or fallen below. |
| Remedy: | For yyyy = 0: Re fault value, bit 0 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 1 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 2 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 3 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor. Re fault value, bit 4 = 1: 5 V power supply voltage fault. When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC. When using a motor with DRIVE-CLiQ: Replace the motor. Re fault value, bit 5 = 1: Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor. Re fault value, bit 6 = 1: The battery must be changed (only for encoders with battery back-up). For yyyy = 1: Encoder is defective. Replace encoder. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32112 (N, A) | Encoder 2: Error bit set in the serial protocol |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The encoder sends a set error bit via the serial protocol. Fault value (r0949, interpret binary): Bit 0: Fault bit in the position protocol. |
| Remedy: | For fault value, bit 0 = 1: In the case of an EnDat encoder, F31111 may provide further details. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32115 (N, A) | Encoder 2: Amplitude error track A or B ($A^2 + B^2$) |
| Message value: | A track: %1, B-track: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The amplitude (root of $A^2 + B^2$) for encoder 2 exceeds the permissible tolerance. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex: yyyy = Signal level, track B (16 bits with sign). xxxx = Signal level, track A (16 bits with sign). The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response thresholds are < 170 mV (observe the frequency response of the encoder) and > 750 mV. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note for Sensor Modules for resolvers (e.g. SMC10): The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV. A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec. Note: The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module. |
| Remedy: | - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). The following applies to measuring systems without their own bearing system: - adjust the scanning head and check the bearing system of the measuring wheel. The following applies for measuring systems with their own bearing system: - ensure that the encoder housing is not subject to any axial force. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32116 (N, A) | Encoder 2: Amplitude error monitoring track A + B |
| Message value: | A track: %1, B-track: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>The amplitude of the rectified encoder signals A and B and the amplitude from the roots of $A^2 + B^2$ for encoder 2 are not within the tolerance bandwidth.</p> <p>Fault value (r0949, interpret hexadecimal): yyyyxxxx hex: yyyy = Signal level, track B (16 bits with sign). xxxx = Signal level, track A (16 bits with sign).</p> <p>The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response thresholds are < 130 mV (observe the frequency response of the encoder) and > 955 mV. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.</p> <p>Note: The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.</p> |
| Remedy: | <ul style="list-style-type: none"> - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check the Sensor Module (e.g. contacts). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32117 (N, A) | Encoder 2: Inversion error signals A/B/R |
| Message value: | Fault cause: %1 bin |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.</p> <p>Fault value (r0949, interpret binary): Bits 0 ... 15: Only for internal Siemens troubleshooting. Bit 16: Error track A. Bit 17: Error track B. Bit 18: Error track R.</p> <p>Note: For SMC30 (order no.. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), CUA32, and CU310, the following applies: A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.</p> |
| Remedy: | <ul style="list-style-type: none"> - Check the encoder/cable. - Does the encoder supply signals and the associated inverted signals? <p>Note: For SMC30 (order no. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies: - check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520). For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310): - pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground) - pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)</p> |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon A: NONE
Acknowl. upon A: NONE

F32118 (N, A) Encoder 2: Speed difference outside the tolerance range

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle)
Remedy:
- check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32120 (N, A) Encoder 2: Power supply voltage fault

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: A power supply fault was detected for encoder 2.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 7: Hardware fault at the EnDat connection of the converter.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
Remedy:
Re fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).
Re fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.
Re fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.
Re fault value, bit 3 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

Re fault value, bit 5 = 1:
 - Measuring unit correctly connected at the converter?
 - Replace the measuring unit or the cable to the measuring unit.
 Re fault value, bit 6, 7 = 1:
 - Replace the defective EnDat 2.2 converter.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32121 (N, A) Encoder 2: Coarse position error

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: For the actual value sensing, an error was detected on the module.
 As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32122 Encoder 2: Internal power supply voltage faulty

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: Fault in internal reference voltage of ASICs for encoder 2.
 Fault value (r0949, interpret decimal):
 1: Reference voltage error.
 2: Internal undervoltage.
 3: Internal overvoltage.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F32123 (N, A) Encoder 2: Signal level A/B unipolar outside tolerance

Message value: Fault cause: %1 bin
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The unipolar level (AP/AN or BP/BN) for encoder 2 is outside the permissible tolerance.
 Fault value (r0949, interpret binary):
 Bit 0 = 1: Either AP or AN outside the tolerance.
 Bit 16 = 1: Either BP or BN outside the tolerance.
 The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
 The response thresholds are < 1700 mV and > 3300 mV.
Note:
 The signal level is not evaluated unless the following conditions are satisfied:
 - Sensor Module properties available (r0459.31 = 1).
 - Monitoring active (p0437.31 = 1).

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32125 (N, A) Encoder 2: Amplitude error track A or B overcontrolled

Message value: A track: %1, B-track: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The amplitude of track A or B for encoder 2 exceeds the permissible tolerance band.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Signal level, track B (16 bits with sign).

xxxx = Signal level, track A (16 bits with sign).

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note for Sensor Modules for resolvers (e.g. SMC10):

The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV.

A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy:

- check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32126 (N, A) Encoder 2: Amplitude AB too high

Message value: Amplitude: %1, Angle: %2

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The amplitude (root of $A^2 + B^2$ or $|A| + |B|$) for encoder 2 exceeds the permissible tolerance.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Angle

xxxx = Amplitude, i.e. root from $A^2 + B^2$ (16 bits without sign)

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response threshold for $(|A| + |B|)$ is > 1120 mV or the root of $(A^2 + B^2)$ > 955 mV.

A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.

The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

| | |
|------------------|---|
| Remedy: | - check that the encoder cables and shielding are routed in compliance with EMC. - replace the encoder or encoder cable. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32129 (N, A) | Encoder 2: Position difference hall sensor/track C/D and A/B too large |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429. Fault value (r0949, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °). |
| Remedy: | - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F32130 (N, A) | Encoder 2: Zero mark and position error from the coarse synchronization |
| Message value: | Angular deviation, electrical: %1, angle, mechanical: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out. When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical. When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex yyyy: Determined mechanical zero mark position (can only be used for track C/D). xxxx: Deviation of the zero mark from the expected position as electrical angle. Scaling: 32768 dec = 180 ° |

4 Faults and alarms

4.2 List of faults and alarms

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - if the Hall sensor is used as an equivalent for track C/D, check the connection.
 - Check the connection of track C or D.
 - replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32131 (N, A) Encoder 2: Deviation position incremental/absolute too large

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: Absolute encoder:

When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.

Limit value for the deviation:

- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).

- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check whether the coding disk is dirty or there are strong ambient magnetic fields.
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32135 Encoder 2: Fault when determining the position

Message value: Fault cause: %1 bin

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The encoder supplies status information bit by bit in an internal status/fault word.

Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.

Note regarding the bit designation:

The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.

Fault value (r0949, interpret binary):
 Bit 0: F1 (safety status display).
 Bit 1: F2 (safety status display).
 Bit 2: Reserved (lighting).
 Bit 3: Reserved (signal amplitude).
 Bit 4: Reserved (position value).
 Bit 5: Reserved (overvoltage).
 Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
 Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
 Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
 Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
 Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
 Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
 Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
 Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
 Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
 Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
 Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
 Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
 Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
 Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
 Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
 Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
 Bit 23: Singleturn position 2 (safety status display).
 Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
 Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
 Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
 Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
 Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
 Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
 Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
 Bit 31: Multiturn battery (reserved).

Remedy:
 - determine the detailed cause of the fault using the fault value.
 - replace the encoder if necessary.

Note:
 An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
 If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

| | |
|-----------------------|--|
| F32136 | Encoder 2: Error when determining multiturn information |
| Message value: | Fault cause: %1 bin |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The encoder supplies status information bit by bit in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value. Note regarding the bit designation: The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders. Fault value (r0949, interpret binary): Bit 0: F1 (safety status display). Bit 1: F2 (safety status display). Bit 2: Reserved (lighting). Bit 3: Reserved (signal amplitude). |

- Bit 4: Reserved (position value).
- Bit 5: Reserved (overvoltage).
- Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
- Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
- Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
- Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
- Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
- Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
- Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
- Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
- Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
- Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
- Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
- Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
- Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
- Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
- Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
- Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
- Bit 23: Singleturn position 2 (safety status display).
- Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
- Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3).
- Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
- Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
- Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
- Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
- Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
- Bit 31: Multiturn battery (reserved).

Remedy:

- determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.

Note:

An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.

If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/on) is necessary to acknowledge the fault.

F32137 Encoder 2: Internal fault when determining the position

Message value: Fault cause: %1 bin

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
 Fault value (r0949, interpret binary):
 yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
 For yy = 08 hex (bit 27 = 1), the following bit definition applies:
 Bit 1: Signal monitoring (sin/cos).
 Bit 8: F1 (safety status display) fault position word 1.
 Bit 9: F2 (safety status display) fault position word 2.
 Bit 16: LED monitoring iC-LG (opto ASIC).
 Bit 17: Fault in the multiturn.
 Bit 23: Temperature outside the limit values.

Note:

For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.

Remedy:

- determine the detailed cause of the fault using the fault value.
- if required, replace the DRIVE-CLiQ encoder.

| | |
|-----------------------|--|
| F32138 | Encoder 2: Internal error when determining multiturn information |
| Message value: | Fault cause: %1 bin |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | A position determination fault has occurred in the DRIVE-CLiQ encoder. Fault value (r0949, interpret binary): yyxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause For yy = 08 hex (bit 27 = 1), the following bit definition applies: Bit 1: Signal monitoring (sin/cos). Bit 8: F1 (safety status display) fault position word 1. Bit 9: F2 (safety status display) fault position word 2. Bit 16: LED monitoring iC-LG (opto ASIC). Bit 17: Fault in the multiturn. Bit 23: Temperature outside the limit values. Note: For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding. |
| Remedy: | - determine the detailed cause of the fault using the fault value. - if required, replace the DRIVE-CLiQ encoder. |
| F32142 (N, A) | Encoder 2: Battery voltage fault |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information. |
| Remedy: | Replace battery. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |
| F32150 (N, A) | Encoder 2: Initialization error |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | Encoder functionality selected in p0404 is not operating correctly. Fault value (r0949, interpret hexadecimal): Encoder malfunction. The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D). |
| Remedy: | - Check that p0404 is correctly set. - check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable. - if relevant, note additional fault messages that describe the fault in detail. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

4 Faults and alarms

4.2 List of faults and alarms

F32151 (N, A) Encoder 2: Encoder speed for initialization AB too high

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high while initializing the Sensor Module.
Remedy: Reduce the speed of the encoder accordingly during initialization.
If necessary, de-activate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32152 (N, A) Encoder 2: Maximum input frequency exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum input frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual input frequency in Hz.
See also: p0408 (Rotary encoder pulse number)

Remedy:
- Reduce the speed.
- Use an encoder with a lower pulse number (p0408).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32153 (N, A) Encoder 2: Identification error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error has occurred when identifying the encoder (waiting) p0400=10100.
The connected encoder was not able to be identified.
Fault value (r0949, interpret hexadecimal):
Bit 0: Data length incorrect
See also: p0400 (Encoder type selection)

Remedy: Manually configure the encoder according to the data sheet.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

| | |
|-----------------------|--|
| F32160 (N, A) | Encoder 2: Analog sensor channel A failed |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4673). 3: The absolute value of the input voltage has exceeded the range limit (p4676). |
| Remedy: | For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4673). For fault value = 3: - check the range limit setting and increase it if necessary (p4676). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32161 (N, A) | Encoder 2: Analog sensor channel B failed |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The input voltage of the analog sensor is outside the permissible limits. Fault value (r0949, interpret decimal): 1: Input voltage outside detectable measuring range. 2: Input voltage outside the measuring range set in (p4675). 3: The absolute value of the input voltage has exceeded the range limit (p4676). |
| Remedy: | For fault value = 1: - check the output voltage of the analog sensor. For fault value = 2: - check the voltage setting for each encoder period (p4675). For fault value = 3: - check the range limit setting and increase it if necessary (p4676). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F32163 (N, A) | Encoder 2: Analog sensor position value exceeds limit value |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The position value has exceeded the permissible range of -0.5 ... +0.5. Fault value (r0949, interpret decimal): 1: Position value from the LVDT sensor. 2: Position value from the encoder characteristic. |

4 Faults and alarms

4.2 List of faults and alarms

Remedy: For fault value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32400 (F, N) Encoder 2: Alarm threshold zero mark distance error

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE

Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32401 (F, N) Encoder 2: Alarm threshold zero mark failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE

Cause: The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

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| F32405 (N, A) | Encoder 2: Temperature in the encoder evaluation inadmissible |
| Message value: | %1 |
| Message class: | Overtemperature of the electronic components (6) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature. The fault threshold is 125 ° C. Alarm value (r2124, interpret decimal): Measured board/module temperature in 0.1 °C. |
| Remedy: | Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

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| A32407 (F, N) | Encoder 2: Function limit reached |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The encoder has reached one of its function limits. A service is recommended. Alarm value (r2124, interpret decimal): 1 : Incremental signals 3 : Absolute track 4 : Code connection |
| Remedy: | Perform service. Replace the encoder if necessary. Note: The actual functional reserve of an encoder can be displayed via r4651. See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve) |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|---|
| A32410 (F, N) | Encoder 2: Serial communications |
| Message value: | Fault cause: %1 bin |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | Serial communication protocol transfer error between the encoder and evaluation module. Alarm value (r2124, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it. Bit 5: Internal error in the serial driver: An illegal mode command was requested. Bit 6: Timeout when cyclically reading. Bit 8: Protocol is too long (e.g. > 64 bits). Bit 9: Receive buffer overflow. Bit 10: Frame error when reading twice. |

4 Faults and alarms

4.2 List of faults and alarms

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|------------------|---|
| | Bit 11: Parity error. |
| | Bit 12: Data line signal level error during the monoflop time. |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

A32411 (F, N) Encoder 2: Absolute encoder signals internal alarms

| | |
|-----------------------|---|
| Message value: | Fault cause: %1 bin, additional information: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The absolute encoder fault word includes alarm bits that have been set. Alarm value (r2124, interpret binary): yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause yyyy = 0: Bit 0: Frequency exceeded (speed too high). Bit 1: Temperature exceeded. Bit 2: Control reserve, lighting system exceeded. Bit 3: Battery discharged. Bit 4: Reference point passed. yyyy = 1: Bit 0: Signal amplitude outside the control range. Bit 1: Error multiturn interface Bit 2: Internal data error (singleturn/multiturn not with single steps). Bit 3: Error EEPROM interface. Bit 4: SAR converter error. Bit 5: Fault for the register data transfer. Bit 6: Internal error identified at the error pin (nErr). Bit 7: Temperature threshold exceeded or fallen below. |
| Remedy: | Replace encoder. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

A32412 (F, N) Encoder 2: Error bit set in the serial protocol

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|-----------------------|--|
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The encoder sends a set error bit via the serial protocol. Alarm value (r2124, interpret binary): Bit 0: Fault bit in the position protocol. Bit 1: Alarm bit in the position protocol. |
| Remedy: | - carry out a POWER ON (power off/on) for all components. - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace encoder. |

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32414 (F, N) Encoder 2: Amplitude error track C or D ($C^2 + D^2$)

Message value: C track: %1, D track: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude ($C^2 + D^2$) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.

Alarm value (r2124, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Signal level, track D (16 bits with sign).

xxxx = Signal level, track C (16 bits with sign).

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

N32415 (F, A) Encoder 2: Amplitude alarm track A or B ($A^2 + B^2$)

Message value: Amplitude: %1, Angle: %2
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (root of $A^2 + B^2$) for encoder 2 exceeds the permissible tolerance.

Alarm value (r2124, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Angle

xxxx = Amplitude, i.e. root from $A^2 + B^2$ (16 bits without sign)

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response threshold is < 230 mV (observe the frequency response of the encoder).

A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.

The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.

Note for Sensor Modules for resolvers (e.g. SMC10):

The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).

A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

4 Faults and alarms

4.2 List of faults and alarms

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| Remedy: | <ul style="list-style-type: none">- check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.- check that the encoder cables and shielding are routed in compliance with EMC.- check the plug connections.- replace the encoder or encoder cable.- check the Sensor Module (e.g. contacts).- if the coding disk is soiled or the lighting aged, replace the encoder. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| A32418 (F, N) | Encoder 2: Speed difference per sampling rate exceeded |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle) |
| Remedy: | <ul style="list-style-type: none">- check the tachometer feeder cable for interruptions.- check the grounding of the tachometer shielding.- if required, increase the setting of p0492. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A32419 (F, N) | Encoder 2: Track A or B outside tolerance |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The amplitude/phase/offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27 Phase: <84 degrees or >96 degrees SMC20: Offset correction: +/-140 mV SMC10: Offset correction: +/-650 mV Alarm value (r2124, interpret hexadecimal): xxxx1: Minimum of the offset correction, track B xxxx2: Maximum of the offset correction, track B xxx1x: Minimum of the offset correction, track A xxx2x: Maximum of the offset correction, track A xx1xx: Minimum of the amplitude correction, track B/A xx2xx: Maximum of the amplitude correction, track B/A x1xxx: Minimum of the phase error correction x2xxx: Maximum of the phase error correction 1xxxx: Minimum of the cubic correction 2xxxx: Maximum of the cubic correction |

Remedy:

- check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A32421 (F, N) Encoder 2: Coarse position error

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.

Alarm value (r2124, interpret decimal):

3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.

Remedy: Re alarm value = 3:

- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A32422 (F, N) Encoder 2: Pulses per revolution square-wave encoder outside tolerance bandwidth

Message value: %1

Message class: Position/speed actual value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.

This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.

The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).

Alarm value (r2124, interpret decimal):

accumulated differential pulses in encoder pulses.

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the distance between zero marks (p0424, p0425).
 - replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

| | |
|-----------------------|--|
| A32429 (F, N) | Encoder 2: Position difference hall sensor/track C/D and A/B too large |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.</p> <p>One period of track C/D corresponds to 360 ° mechanical.</p> <p>One period of the Hall signal corresponds to 360 ° electrical.</p> <p>The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.</p> <p>Alarm value (r2124, interpret decimal):</p> <p>For track C/D, the following applies:</p> <p>Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).</p> <p>For Hall signals, the following applies:</p> <p>Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).</p> |
| Remedy: | <ul style="list-style-type: none"> - track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|--|
| A32431 (F, N) | Encoder 2: Deviation position incremental/absolute too large |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | <p>When the zero pulse is passed, a deviation in the incremental position was detected.</p> <p>For equidistant zero marks, the following applies:</p> <ul style="list-style-type: none"> - The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark. <p>For distance-coded zero marks, the following applies:</p> <ul style="list-style-type: none"> - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair. <p>Alarm value (r2124, interpret decimal):</p> <p>Deviation in quadrants (1 pulse = 4 quadrants).</p> |
| Remedy: | <ul style="list-style-type: none"> - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - Clean coding disk or remove strong magnetic fields. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|--|
| A32432 (F, N) | Encoder 2: Rotor position adaptation corrects deviation |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance. |
| Remedy: | - check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425). |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|--|
| A32442 (F, N) | Encoder 2: Battery voltage pre-alarm |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further. |
| Remedy: | Replace battery. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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| A32443 (F, N) | Encoder 2: Unipolar CD signal level outside specification |
| Message value: | Fault cause: %1 bin |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance. Alarm value (r2124, interpret binary): Bit 0 = 1: Either CP or CN outside the tolerance. Bit 16 = 1: Either DP or DN outside the tolerance. The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV. The response thresholds are < 1700 mV and > 3300 mV. Note: The signal level is not evaluated unless the following conditions are satisfied: - Sensor Module properties available (r0459.31 = 1). - Monitoring active (p0437.31 = 1). |
| Remedy: | - check that the encoder cables and shielding are routed in compliance with EMC. - check the plug connections and contacts of the encoder cable. - are the C/D tracks connected correctly (have the signal lines CP and CN or DP and DN been interchanged)? - replace the encoder cable. |

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32460 (N) Encoder 2: Analog sensor channel A failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4673).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE

A32461 (N) Encoder 2: Analog sensor channel B failed

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: Re alarm value = 1:
- check the output voltage of the analog sensor.
Re alarm value = 2:
- check the voltage setting for each encoder period (p4675).
Re alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE

A32462 (N) Encoder 2: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32463 (N) Encoder 2: Analog sensor position value exceeds limit value

Message value: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.

Remedy: Re alarm value = 1:
- Check the LVDT ratio (p4678).
- check the reference signal connection at track B.
Re alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32470 (F, N) Encoder 2: Soiling detected

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: In the case of the alternative encoder system interface on the Sensor Module Cabinet 30 (SMC30), encoder soiling is signaled via a 0 signal at terminal X521.7.

Remedy: - check the plug connections.
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32500 (N, A) Encoder 2: Position tracking traversing range exceeded

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- de-select encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon A: NONE
Acknowl. upon A: NONE

| | |
|-----------------------|---|
| F32501 (N, A) | Encoder 2: Position tracking encoder position outside tolerance window |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder. Fault value (r0949, interpret decimal): Deviation (difference) to the last encoder position in increments of the absolute value. The sign designates the traversing direction. Note: The deviation (difference) found is also displayed in r0477. See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference) |
| Remedy: | Reset the position tracking as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507). See also: p0010 |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F32502 (N, A) | Encoder 2: Encoder with measuring gear without valid signals |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The encoder with measuring gear no longer provides any valid signals. |
| Remedy: | It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32503 (N, A) | Encoder 2: Position tracking cannot be reset |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The position tracking for the measuring gear cannot be reset. |
| Remedy: | The fault should be resolved as follows: - select encoder commissioning (p0010 = 4). - reset the position tracking as follows (p0411.2 = 1). - de-select encoder commissioning (p0010 = 0). The fault should then be acknowledged and the absolute encoder adjusted. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

Reaction upon A: NONE
Acknowl. upon A: NONE

A32700 Encoder 2: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

N32800 (F) Encoder 2: Group signal

Message value: -
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluates other actual messages.
 Reaction upon F: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

F32801 (N, A) Encoder 2 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
 Fault cause:
 10 (= 0A hex):
 The sign-of-life bit in the receive telegram is not set.
 Note regarding the message value:
 The individual information is coded as follows in the message value (r0949/r2124):
 0000yyxx hex: yy = component number, xx = error cause
Remedy:
 - check the electrical cabinet design and cable routing for EMC compliance
 - replace the component involved.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32802 (N, A) Encoder 2: Time slice overflow

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred in encoder 2.

4 Faults and alarms

4.2 List of faults and alarms

Fault value (r0949, interpret hexadecimal):
yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
x = 9:

Time slice overflow of the fast (current controller clock cycle) time slice.

x = A:

Time slice overflow of the average time slice.

x = C:

Time slice overflow of the slow time slice.

yx = 3E7:

Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).

Remedy: Increase the current controller sampling time

Note:

For a current controller sampling time = 31.25 µs, use an SMx20 with order number 6SL3055-0AA00-5xA3.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32804 (N, A) Encoder 2: Checksum error

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: POWER ON (IMMEDIATELY)

Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex

yyyy: Memory area involved.

xxxx: Difference between the checksum at POWER ON and the actual checksum.

Remedy:

- carry out a POWER ON (power off/on).

- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).

- check whether the permissible ambient temperature for the component is maintained.

- replace the Sensor Module.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32805 (N, A) Encoder 2: EEPROM checksum error

Message value: %1

Message class: Hardware / software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Internal parameter data is corrupted.

Fault value (r0949, interpret hexadecimal):

01: EEPROM access error.

02: Too many blocks in the EEPROM.

Remedy: Replace the module.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

| | |
|-----------------------|--|
| F32806 (N, A) | Encoder 2: Initialization error |
| Message value: | %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The encoder was not successfully initialized. Fault value (r0949, interpret hexadecimal): Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4). Bit 2: Mid-voltage matching for track A unsuccessful. Bit 3: Mid-voltage matching for track B unsuccessful. Bit 4: Mid-voltage matching for acceleration input unsuccessful. Bit 5: Mid-voltage matching for track safety A unsuccessful. Bit 6: Mid-voltage matching for track safety B unsuccessful. Bit 7: Mid-voltage matching for track C unsuccessful. Bit 8: Mid-voltage matching for track D unsuccessful. Bit 9: Mid-voltage matching for track R unsuccessful. Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V) Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V) Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V) Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V) Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V) Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V) Bit 16: Internal fault - fault when reading a register (CAFE) Bit 17: Internal fault - fault when writing a register (CAFE) Bit 18: Internal fault: No mid-voltage matching available Bit 19: Internal error - ADC access error. Bit 20: Internal error - no zero crossover found. Bit 28: Error while initializing the EnDat 2.2 measuring unit. Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit. Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect. Bit 31: Data of the EnDat 2.2 measuring unit inconsistent. Note: Bit 0, 1: Up to 6SL3055-0AA00-5*A0 Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher |
| Remedy: | Acknowledge fault. If the fault cannot be acknowledged: Bits 2 ... 9: Check encoder power supply. Bits 2 ... 14: Check the corresponding cable. Bit 15 with no other bits: Check track R, check settings in p0404. Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit. Bit 29 ... 31: Replace the defective measuring unit. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| A32811 (F, N) | Encoder 2: Encoder serial number changed |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders). - The encoder was replaced. Note: With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2). When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1). Proceed as follows to hide serial number monitoring: - set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0. |
| Remedy: | Mechanically adjust the encoder. Accept the new serial number with p0440 = 1. |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| F32812 (N, A) | Encoder 2: Requested cycle or RX-/TX timing not supported |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A cycle requested from the Control Unit or RX/TX timing is not supported. Fault value (r0949, interpret decimal): 0: Application cycle is not supported. 1: DRIVE-CLiQ cycle is not supported. 2: Distance between RX and TX instants in time too low. 3: TX instant in time too early. |
| Remedy: | Carry out a POWER ON (power off/on) for all components. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32813 | Encoder 2: Hardware logic unit failed |
| Message value: | Fault cause: %1 bin |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The DRIVE-CLiQ encoder fault word supplies fault bits that have been set. Fault value (r0949, interpret binary): Bit 0: ALU watchdog has responded. Bit 1: ALU has detected a sign-of-life error. |
| Remedy: | Replace encoder. |

| | |
|-----------------------|--|
| F32820 (N, A) | Encoder 2 DRIVE-CLiQ: Telegram error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32835 (N, A) | Encoder 2 DRIVE-CLiQ: Cyclic data transfer error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism. Fault cause: 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. |

4 Faults and alarms

4.2 List of faults and alarms

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON.

- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32836 (N, A)

Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32837 (N, A)

Encoder 2 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

- check the electrical cabinet design and cable routing for EMC compliance

- if required, use another DRIVE-CLiQ socket (p9904).

- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32840 Encoder 2 DRIVE-CLiQ: error below the signaling threshold

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.

4 Faults and alarms

4.2 List of faults and alarms

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F32845 (N, A)**Encoder 2 DRIVE-CLiQ: Cyclic data transfer error**

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.

Fault cause:

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON (power off/on).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N:

NONE

Acknowl. upon N:

NONE

Reaction upon A:

NONE

Acknowl. upon A:

NONE

F32850 (N, A)**Encoder 2: Encoder evaluation internal software error**

Message value:

%1

Message class:

Hardware / software error (1)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge:

POWER ON

Cause:

An internal software error has occurred in the Sensor Module of encoder 2.

Fault value (r0949, interpret decimal):

1: Background time slice is blocked.

2: Checksum over the code memory is not OK.

10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.

11000 ... 11499: Descriptive data from EEPROM incorrect.

11500 ... 11899: Calibration data from EEPROM incorrect.

11900 ... 11999: Configuration data from EEPROM incorrect.

12000 ... 12008: Communication with AD converter faulted.

16000: DRIVE-CLiQ encoder initialization application error.

16001: DRIVE-CLiQ encoder initialization ALU error.

16002: DRIVE-CLiQ encoder HISI / SISI initialization error.

16003: DRIVE-CLiQ encoder safety initialization error.

16004: DRIVE-CLiQ encoder internal system error.

Remedy:

- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon N:

NONE

Acknowl. upon N:

NONE

Reaction upon A:

NONE

Acknowl. upon A:

NONE

| | |
|-----------------------|--|
| F32851 (N, A) | Encoder 2 DRIVE-CLiQ (CU): Sign-of-life missing |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - Upgrade the firmware of the component involved. - carry out a POWER ON (power off/on) for the component involved. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F32860 (N, A) | Encoder 2 DRIVE-CLiQ (CU): Telegram error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the power unit in the telegram and in the receive list do not match. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. 17 (= 11 hex): CRC error and the receive telegram is too early. 18 (= 12 hex): The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 19 (= 13 hex): The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex): The length of the receive telegram does not match the receive list and the receive telegram is too early. |

21 (= 15 hex):

The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the electrical cabinet design and cable routing for EMC compliance

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32875 (N, A) Encoder 2 DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2

Message class: Supply voltage fault (undervoltage) (3)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the power supply for the DRIVE-CLiQ component.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32885 (N, A) Encoder 2 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. The nodes do not send and receive in synchronism.

Fault cause:

26 (= 1A hex):

Sign-of-life bit in the receive telegram not set and the receive telegram is too early.

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy:
- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32886 (N, A) Encoder 2 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy:
Carry out a POWER ON.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32887 (N, A) Encoder 2 DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.

4 Faults and alarms

4.2 List of faults and alarms

97 (= 61 hex):

Time taken to exchange characteristic data too long.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32895 (N, A) Encoder 2 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.

Fault cause:

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32896 (N, A) Encoder 2 DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.

Fault value (r0949, interpret decimal):

Component number.

Remedy:

- carry out a POWER ON.

- when a component is replaced, the same component type and if possible the same firmware version should be used.

- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32899 (N, A) Encoder 2: Unknown fault

Message value: New message: %1
Message class: Position/speed actual value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy:
- replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32902 (F, N) Encoder 2: SPI-BUS error occurred

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32903 (F, N) Encoder 2: I2C-BUS error occurred

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

| | |
|-----------------------|---|
| F32905 (N, A) | Encoder 2: Parameterization error |
| Message value: | Parameter: %1, supplementary information: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>A parameter of encoder 2 was detected as being incorrect.</p> <p>It is possible that the parameterized encoder type does not match the connected encoder.</p> <p>The parameter involved can be determined as follows:</p> <ul style="list-style-type: none"> - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). <p>Fault value (r0949, interpret decimal): yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter xxxx = 421:</p> <p>For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits. yyyy = 0: No information available.</p> <p>yyyy = 1: The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).</p> <p>yyyy = 2: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.</p> <p>yyyy = 3: A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.</p> <p>yyyy = 4: This component does not support SSI encoders (p0404.9 = 1) without track A/B.</p> <p>yyyy = 5: For SQW encoder, value in p4686 greater than in p0425.</p> <p>yyyy = 6: DRIVE-CLiQ encoder cannot be used with this firmware version.</p> <p>yyyy = 7: For an SQW encoder, the Xact1 correction (p0437.2) is only permitted with equidistant zero marks.</p> <p>yyyy = 8: The motor pole pair width is not supported by the linear scale being used.</p> <p>yyyy = 9: The length of the position in the EnDat protocol may be a maximum of 32 bits.</p> <p>yyyy = 10: The connected encoder is not supported.</p> <p>yyyy = 11: The hardware does not support track monitoring.</p> |
| Remedy: | <ul style="list-style-type: none"> - check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187. - re parameter number = 314: - check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F32912 | Encoder 2: Device combination is not permissible |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The selected device combination is not supported. Fault value (r0949, interpret decimal): 1003: The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n . 1005: The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter. 1006: The maximum duration (31.25 μ s) of the EnDat transfer was exceeded. 2001: The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter. 2002: The resolution of the linear measuring unit does not match the pole pair width of the linear motor |
| Remedy: | Re fault value = 1003, 1005, 1006: - Use a measuring unit that is permissible. For fault value = 2001: - Set a permissible cycle combination (if required, use standard settings). For fault value = 2002: - Use a measuring unit with a lower resolution (p0422). |
| <hr/> | |
| A32915 (F, N) | Encoder 2: Configuration error |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The configuration for encoder 2 is incorrect. Alarm value (r2124, interpret decimal): 1: Re-parameterization between fault/alarm is not permissible. 419: When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits. |
| Remedy: | Re alarm value = 1: No re-parameterization between fault/alarm. Re alarm value = 419: Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required. |
| Reaction upon F: | NONE (IASC/DCBRK) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| F32916 (N, A) | Encoder 2: Parameterization fault |
| Message value: | Parameter: %1, supplementary information: %2 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A parameter of encoder 2 was detected as being incorrect. It is possible that the parameterized encoder type does not match the connected encoder. The parameter involved can be determined as follows: - determine the parameter number using the fault value (r0949). - determine the parameter index (p0187). Fault value (r0949, interpret decimal): Parameter number. |
| Remedy: | - check whether the connected encoder type matches the encoder that has been parameterized. - correct the parameter specified by the fault value (r0949) and p0187. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| A32920 (F, N) | Encoder 2: Temperature sensor fault |
| Message value: | Fault cause: %1, channel number: %2 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Fault cause: 1 (= 01 hex): Wire breakage or sensor not connected (KTY: R > 1630 Ohm). 2 (= 02 hex): Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm). Additional values: Only for internal Siemens troubleshooting. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = channel number, xx = error cause |
| Remedy: | - check that the encoder cable is the correct type and is correctly connected. - check the temperature sensor selection in p0600 to p0603. - replace the Sensor Module (hardware defect or incorrect calibration data). |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A32930 (N) | Encoder 2: Data logger has saved data |
| Message value: | - |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card. |

The diagnostics data is saved in the following folder:
/USER/SINAMICS/DATA/SMTRC00.BIN
...
/USER/SINAMICS/DATA/SMTRC07.BIN
/USER/SINAMICS/DATA/SMTRCIDX.TXT
The following information is contained in the TXT file:
- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).
Note:
Only Siemens can evaluate the BIN files.

Remedy:

Not necessary.
The alarm disappears automatically.
The data logger is ready to record the next fault case.

Reaction upon N: NONE
Acknowl. upon N: NONE

A32940 (F, N) Encoder 2: Spindle sensor S1 voltage incorrect

Message value: %1
Message class: Application / technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: NONE
Acknowledge: NONE
Cause: The voltage of analog sensor S1 is outside the permissible range.
Fault value (r0949, interpret decimal):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.

Remedy:

- Check the clamped tool.
- Check the tolerance and if required, adapt (p5040).
- Check the thresholds and if required, adapt (p5041).
- Check analog sensor S1 and connections.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32950 Encoder 2: Internal software error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (OFF2)
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Information about the fault source.
Only for internal Siemens troubleshooting.

Remedy:

- If necessary, upgrade the firmware in the Sensor Module to a later version.
- contact the Hotline.

| | |
|-----------------------|---|
| A32999 (F, N) | Encoder 2: Unknown alarm |
| Message value: | New message: %1 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit. |
| Remedy: | - replace the firmware on the Sensor Module by an older firmware version (r0148). - upgrade the firmware on the Control Unit (r0018). |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| F33125 (N, A) | Encoder 3: Amplitude error track A or B overcontrolled |
| Message value: | A track: %1, B-track: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The amplitude of track A or B for encoder 3 exceeds the permissible tolerance band. Fault value (r0949, interpret hexadecimal): yyyyxxxx hex: yyyy = Signal level, track B (16 bits with sign). xxxx = Signal level, track A (16 bits with sign). The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %). The response threshold is > 750 mV. This fault also occurs if the A/D converter is overcontrolled. A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec. Note for Sensor Modules for resolvers (e.g. SMC10): The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is > 3582 mV. A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec. Note: The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module. |
| Remedy: | - check that the encoder cables and shielding are routed in compliance with EMC. - replace the encoder or encoder cable. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F33126 (N, A) | Encoder 3: Amplitude AB too high |
| Message value: | Amplitude: %1, Angle: %2 |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2) |
| Acknowledge: | PULSE INHIBIT |
| Cause: | The amplitude ($\sqrt{A^2 + B^2}$ or $ A + B $) for encoder 3 exceeds the permissible tolerance. |

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex:

yyyy = Angle

xxxx = Amplitude, i.e. root from $A^2 + B^2$ (16 bits without sign)

The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).

The response threshold for $(|A| + |B|)$ is > 1120 mV or the root of $(A^2 + B^2) > 955$ mV.

A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.

The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.

Note:

The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy:
- check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33142 (N, A) Encoder 3: Battery voltage fault

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: IMMEDIATELY

Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.

Remedy: Replace battery.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F33152 (N, A) Encoder 3: Maximum input frequency exceeded

Message value: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The maximum input frequency of the encoder evaluation has been exceeded.

Fault value (r0949, interpret decimal):

Actual input frequency in Hz.

See also: p0408 (Rotary encoder pulse number)

Remedy:
- Reduce the speed.
- Use an encoder with a lower pulse number (p0408).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

| | |
|-----------------------|---|
| A33442 (F, N) | Encoder 3: Battery voltage pre-alarm |
| Message value: | - |
| Message class: | Position/speed actual value incorrect or not available (11) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further. |
| Remedy: | Replace battery. |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| <hr/> | |
| A33700 | Encoder 3: Effectivity test does not supply the expected value |
| Message value: | Fault cause: %1 bin |
| Message class: | Safety monitoring channel has identified an error (10) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The DRIVE-CLiQ encoder fault word supplies fault bits that have been set. Fault value (r0949, interpret binary): Bit x = 1: Effectivity test x unsuccessful. |
| Remedy: | Replace encoder. |
| <hr/> | |
| A33840 | Encoder 3 DRIVE-CLiQ: error below the signaling threshold |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A DRIVE-CLiQ error has occurred below the signaling threshold. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the component in the telegram and in the receive list do not match. 7 (= 07 hex): A SYNC telegram is expected - but the received telegram is not a SYNC telegram. 8 (= 08 hex): No SYNC telegram is expected - but the received telegram is one. 9 (= 09 hex): The error bit in the receive telegram is set. 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. |

16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F33875 (N, A) Encoder 3 DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33912 Encoder 3: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The selected device combination is not supported.

Fault value (r0949, interpret decimal):

1003:

The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n .

1005:

The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.

1006:

The maximum duration (31.25 μ s) of the EnDat transfer was exceeded.

2001:

The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.

2002:

The resolution of the linear measuring unit does not match the pole pair width of the linear motor

Remedy:

Re fault value = 1003, 1005, 1006:

- Use a measuring unit that is permissible.

For fault value = 2001:

- Set a permissible cycle combination (if required, use standard settings).

For fault value = 2002:

- Use a measuring unit with a lower resolution (p0422).

A34840

VSM DRIVE-CLiQ: error below the signaling threshold

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction:

NONE

Acknowledge:

NONE

Cause:

A DRIVE-CLiQ error has occurred below the signaling threshold.

Fault cause:

1 (= 01 hex):

Checksum error (CRC error).

2 (= 02 hex):

Telegram is shorter than specified in the length byte or in the receive list.

3 (= 03 hex):

Telegram is longer than specified in the length byte or in the receive list.

4 (= 04 hex):

The length of the receive telegram does not match the receive list.

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the component in the telegram and in the receive list do not match.

7 (= 07 hex):

A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):

No SYNC telegram is expected - but the received telegram is one.

9 (= 09 hex):

The error bit in the receive telegram is set.

10 (= 0A hex):

The sign-of-life bit in the receive telegram is not set.

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

16 (= 10 hex):

The receive telegram is too early.

32 (= 20 hex):

Error in the telegram header.

33 (= 21 hex):
The cyclic telegram has not been received.

34 (= 22 hex):
Timeout in the telegram receive list.

35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.

64 (= 40 hex):
Timeout in the telegram send list.

65 (= 41 hex):
Telegram type does not match send list.

66 (= 42 hex):
Send error: The telegram buffer memory contains an error.

67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F34851 VSM DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

F34860 VSM DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.

4 Faults and alarms

4.2 List of faults and alarms

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the power unit in the telegram and in the receive list do not match.

9 (= 09 hex):

The error bit in the receive telegram is set.

16 (= 10 hex):

The receive telegram is too early.

17 (= 11 hex):

CRC error and the receive telegram is too early.

18 (= 12 hex):

The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.

19 (= 13 hex):

The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.

20 (= 14 hex):

The length of the receive telegram does not match the receive list and the receive telegram is too early.

21 (= 15 hex):

The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the electrical cabinet design and cable routing for EMC compliance

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34875

VSM DRIVE-CLiQ (CU): Supply voltage failed

Message value:

Component number: %1, fault cause: %2

Message class:

Supply voltage fault (undervoltage) (3)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).

- check the dimensioning of the power supply for the DRIVE-CLiQ component.

| | |
|-----------------------|---|
| F34885 | VSM DRIVE-CLiQ (CU): Cyclic data transfer error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE (OFF1, OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master) |

| | |
|-----------------------|---|
| F34886 | VSM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE (OFF1, OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | Carry out a POWER ON. |

| | |
|-----------------------|---|
| F34887 | VSM DRIVE-CLiQ (CU): Component fault |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE (OFF1, OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | Fault detected on the DRIVE-CLiQ component (Voltage Sensing Module) involved. Faulty hardware cannot be excluded. |

Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F34895 **VSM DRIVE-CLiQ (CU): Alternating cyclic data transfer error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON.
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F34896 **VSM DRIVE-CLiQ (CU): Inconsistent component properties**

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Voltage Sensing Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.

Remedy:

- carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

| | |
|-----------------------|--|
| A35200 (F, N) | TM: Calibration data |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An error was detected in the calibration data of the Terminal Module. Alarm value (r2124, interpret decimal): ddcbaa dec: dd = component number, c = AI/AO, b = fault type, aa = number c = 0: analog input (AI, Analog Input) c = 1: analog output (AO, Analog Output) b = 0: No calibration data available. b = 1: Offset too high (> 100 mV). |
| Remedy: | - carry out a POWER ON (power off/on) for all components. - Replace the component if necessary. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| F35207 (N, A) | TM: Temperature fault/alarm threshold channel 0 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled: - alarm threshold has been exceeded longer than that set in the timer (p4102[0], p4103[0]). or - fault threshold exceeded (p4102[1]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0] = 1, 4), the following applies: - if r4101[0] > 1650 ohms, the temperature r4105[0] = 250 °C - if r4101[0] <= 1650 ohms, the temperature r4105[0] = -50 °C The temperature actual value is displayed via connector output r4105[0] and can be interconnected. Notice: This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module. Fault value (r0949, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[1] - hysteresis (5 K, for TM150, can be set using p4118[0]). - if required, set the fault response to NONE (p2100, p2101). See also: p4102 |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F35208 (N, A) | TM: Temperature fault/alarm threshold channel 1 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled: - alarm threshold has been exceeded longer than that set in the timer (p4102[2], p4103[1]). or - fault threshold exceeded (p4102[3]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[1] = 1, 4), the following applies: - if r4101[1] > 1650 ohms, the temperature r4105[1] = 250 °C - if r4101[1] <= 1650 ohms, the temperature r4105[1] = -50 °C The temperature actual value is displayed via connector output r4105[1] and can be interconnected. Notice: This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module. Fault value (r0949, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[3] - hysteresis (5 K, for TM150, can be set using p4118[1]). - if required, set the fault response to NONE (p2100, p2101). See also: p4102 |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F35209 (N, A) | TM: Temperature fault/alarm threshold channel 2 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled: - alarm threshold has been exceeded longer than that set in the timer (p4102[4], p4103[2]). or - fault threshold exceeded (p4102[5]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[2] = 1, 4), the following applies: - if r4101[2] > 1650 ohms, the temperature r4105[2] = 250 °C - if r4101[2] <= 1650 ohms, the temperature r4105[2] = -50 °C The temperature actual value is displayed via connector output r4105[2] and can be interconnected. Notice: This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module. Fault value (r0949, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[5] - hysteresis (5 K, for TM150, can be set using p4118[2]). - if required, set the fault response to NONE (p2100, p2101). See also: p4102 |

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35210 (N, A) TM: Temperature fault/alarm threshold channel 3 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[6], p4103[3]).
or
- fault threshold exceeded (p4102[7]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[3] = 1, 4), the following applies:
- if r4101[3] > 1650 ohms, the temperature r4105[3] = 250 °C
- if r4101[3] <= 1650 ohms, the temperature r4105[3] = -50 °C
The temperature actual value is displayed via connector output r4105[3] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy:
- allow the temperature sensor to cool down to below p4102[7] - hysteresis (5 K, for TM150, can be set using p4118[3]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35211 (F, N) TM: Temperature alarm threshold channel 0 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[0]) has exceeded the threshold value to initiate this alarm (p4102[0]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0] = 1, 4), the following applies:
- if r4101[0] > 1650 ohms, the temperature r4105[0] = 250 °C
- if r4101[0] <= 1650 ohms, the temperature r4105[0] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy:
- allow the temperature sensor to cool down to below p4102[0] - hysteresis (5 K); for TM150, can be set using p4118[0].
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

| | |
|-----------------------|--|
| A35212 (F, N) | TM: Temperature alarm threshold channel 1 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[1]) has exceeded the threshold value to initiate this alarm (p4102[2]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[1] = 1, 4), the following applies: - if r4101[1] > 1650 ohms, the temperature r4105[1] = 250 °C - if r4101[1] <= 1650 ohms, the temperature r4105[1] = -50 °C Alarm value (r2124, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[4] - hysteresis (5 K); for TM150, can be set using p4118[1]. See also: p4102 |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A35213 (F, N) | TM: Temperature alarm threshold channel 2 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[2]) has exceeded the threshold value to initiate this alarm (p4102[4]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[2] = 1, 4), the following applies: - if r4101[2] > 1650 ohms, the temperature r4105[2] = 250 °C - if r4101[2] <= 1650 ohms, the temperature r4105[2] = -50 °C Alarm value (r2124, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[4] - hysteresis (5 K); for TM150, can be set using p4118[2]. See also: p4102 |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A35214 (F, N) | TM: Temperature alarm threshold channel 3 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[3]) has exceeded the threshold value to initiate this alarm (p4102[6]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[3] = 1, 4), the following applies: - if r4101[3] > 1650 ohms, the temperature r4105[3] = 250 °C - if r4101[3] <= 1650 ohms, the temperature r4105[3] = -50 °C |

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[6] - hysteresis (5 K); for TM150, can be set using p4118[3].

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

F35220 (N, A) TM: Frequency limit reached for signal output

Message value: -

Message class: Application / technological function faulted (17)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The signals output from the Terminal Module 41 (TM41) for tracks A/B have reached the limit frequency. The output signals are no longer in synchronism with the specified setpoint.

SIMOTION (p4400 = 0) operating mode:

- If the TM41 has been configured as the technology project, this fault is also output in response to short-circuited A/B signals in X520.

SINAMICS (p4400 = 1) operating mode:

- the fine resolution of TM41 in p0418 does not match that of the connector input that was interconnected at p4420
- the encoder position actual value r0479 interconnected at connector input p4420 has an excessively high actual speed

- the output signals correspond to a speed, which is greater than the maximum speed (r1082 of TM41).

Remedy: SIMOTION (p4400 = 0) operating mode:

- enter a lower speed setpoint (p1155).

- reduce the encoder pulse number (p0408).

- check track A/B for short-circuits.

SINAMICS (p4400 = 1) operating mode:

- enter a lower speed setpoint (p1155).

- reduce the encoder pulse number (p0408).

Notice:

The output signal is no longer monitored after changing the message type to "Alarm" (A).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F35221 (N, A) TM: Setpoint - actual value deviation outside the tolerance range

Message value: -

Message class: Application / technological function faulted (17)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The deviation between the setpoint and the output signals (track A/B) exceeds the tolerance of +/-3 %. The deviation between the internal and external measured value is too high (> 1000 pulses).

Remedy: - reduce the basic clock cycle (p0110, p0111).

- if required, replace the component (e.g. internal short-circuit).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

| | |
|-----------------------|--|
| A35222 (F, N) | TM: Encoder pulse number not permissible |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The encoder pulse number entered does not match the permissible pulse number from a hardware perspective. Fault value (r0949, interpret decimal): 1: Encoder pulse number is too high. 2: Encoder pulse number is too low. 4: Encoder pulse number is less than the zero mark offset (p4426). |
| Remedy: | - enter the encoder pulse number in the permissible range (p0408). - if necessary, replace TM41 SAC with TM41 DAC. Note: TM41 SAC: order no. = 6SL3055-0AA00-3PA0 TM41 DAC: order no. = 6SL3055-0AA00-3PA1 The following applies for TM41 SAC: - minimum/maximum value for p0408: 1000/8192 The following applies for TM41 DAC: - minimum/maximum value for p0408: 1000/16384 See also: p0408 (Rotary encoder pulse number) |
| Reaction upon F: | OFF1 (NONE, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A35223 (F, N) | TM: Zero mark offset not permissible |
| Message value: | %1 |
| Message class: | Application / technological function faulted (17) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The entered zero mark offset is not permissible. Fault value (r0949, interpret decimal): 1: Zero mark offset is too high. |
| Remedy: | Enter the zero mark offset in the permissible range (p4426). |
| Reaction upon F: | OFF1 (NONE, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| F35230 | TM: Hardware fault |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | POWER ON |
| Cause: | The Terminal Module (TM) used has signaled internal errors. Signals from this module may not be evaluated because they are very likely to be incorrect. |
| Remedy: | If required, replace the Terminal Module. |

| | |
|-----------------------|--|
| F35233 | DRIVE-CLiQ component function not supported |
| Message value: | %1 |
| Message class: | Error in the parameterization / configuration / commissioning procedure (18) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM31 |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A function requested by the Control Unit is not supported by a DRIVE-CLiQ component. Fault value (r0949, interpret decimal): 1: Terminal Module 31 does not support the function "Timer for temperature evaluation" (X522.7/8, p4103 > 0.000). 4: The improved actual value resolution is not supported (p4401.4). 5: The improved setpoint resolution is not supported (p4401.5). 6: The residual value handling in the setpoint channel cannot be deactivated (p4401.6). 7: Output frequencies greater than 750 kHz cannot be activated (p4401.7). |
| Remedy: | For fault value = 1: - De-activate timer for temperature evaluation (X522.7/8) (p4103 = 0.000). - Use Terminal Module 31 and the relevant firmware version to enable the "Timer for temperature evaluation" function (Order No. 6SL3055-0AA00-3AA1, firmware version 2.6 and higher). See also: p4103 |
| <hr/> | |
| F35400 (N, A) | TM: Temperature fault/alarm threshold channel 4 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled: - alarm threshold has been exceeded longer than that set in the timer (p4102[8], p4103[4]). or - fault threshold exceeded (p4102[9]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[4] = 1, 4), the following applies: - if r4101[4] > 1650 ohms, the temperature r4105[4] = 250 °C - if r4101[4] <= 1650 ohms, the temperature r4105[4] = -50 °C The temperature actual value is displayed via connector output r4105[4] and can be interconnected. Notice: This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module. Fault value (r0949, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[9] - hysteresis (p4118[4]). - if required, set the fault response to NONE (p2100, p2101). See also: p4102 |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

4 Faults and alarms

4.2 List of faults and alarms

| | |
|-----------------------|--|
| F35401 (N, A) | TM: Temperature fault/alarm threshold channel 5 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled: - alarm threshold has been exceeded longer than that set in the timer (p4102[10], p4103[5]). or - fault threshold exceeded (p4102[11]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[5] = 1, 4), the following applies: - if r4101[5] > 1650 ohms, the temperature r4105[5] = 250 °C - if r4101[5] <= 1650 ohms, the temperature r4105[5] = -50 °C The temperature actual value is displayed via connector output r4105[5] and can be interconnected. Notice: This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module. Fault value (r0949, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[11] - hysteresis (p4118[5]). - if required, set the fault response to NONE (p2100, p2101). See also: p4102 |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F35402 (N, A) | TM: Temperature fault/alarm threshold channel 6 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled: - alarm threshold has been exceeded longer than that set in the timer (p4102[12], p4103[6]). or - fault threshold exceeded (p4102[13]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[6] = 1, 4), the following applies: - if r4101[6] > 1650 ohms, the temperature r4105[6] = 250 °C - if r4101[6] <= 1650 ohms, the temperature r4105[6] = -50 °C The temperature actual value is displayed via connector output r4105[6] and can be interconnected. Notice: This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module. Fault value (r0949, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | - allow the temperature sensor to cool down to below p4102[13] - hysteresis (p4118[6]). - if required, set the fault response to NONE (p2100, p2101). See also: p4102 |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

Reaction upon A: NONE
Acknowl. upon A: NONE

F35403 (N, A) TM: Temperature fault/alarm threshold channel 7 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[14], p4103[7]).
- or
- fault threshold exceeded (p4102[15]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[7] = 1, 4), the following applies:

- if r4101[7] > 1650 ohms, the temperature r4105[7] = 250 °C
- if r4101[7] <= 1650 ohms, the temperature r4105[7] = -50 °C

The temperature actual value is displayed via connector output r4105[7] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[15] - hysteresis (p4118[7]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35404 (N, A) TM: Temperature fault/alarm threshold channel 8 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[16], p4103[8]).
- or
- fault threshold exceeded (p4102[17]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[8] = 1, 4), the following applies:

- if r4101[8] > 1650 ohms, the temperature r4105[8] = 250 °C
- if r4101[8] <= 1650 ohms, the temperature r4105[8] = -50 °C

The temperature actual value is displayed via connector output r4105[8] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[17] - hysteresis (p4118[8]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35405 (N, A) TM: Temperature fault/alarm threshold channel 9 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[18], p4103[9]).
- or
- fault threshold exceeded (p4102[19]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[9] = 1, 4), the following applies:

- if r4101[9] > 1650 ohms, the temperature r4105[9] = 250 °C
- if r4101[9] <= 1650 ohms, the temperature r4105[9] = -50 °C

The temperature actual value is displayed via connector output r4105[9] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy:

- allow the temperature sensor to cool down to below p4102[19] - hysteresis (p4118[9]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35406 (N, A) TM: Temperature fault/alarm threshold channel 10 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[20], p4103[10]).
- or
- fault threshold exceeded (p4102[21]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[10] = 1, 4), the following applies:

- if r4101[10] > 1650 ohms, the temperature r4105[10] = 250 °C
- if r4101[10] <= 1650 ohms, the temperature r4105[10] = -50 °C

The temperature actual value is displayed via connector output r4105[10] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[21] - hysteresis (p4118[10]).
 - if required, set the fault response to NONE (p2100, p2101).
 See also: p4102

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F35407 (N, A) TM: Temperature fault/alarm threshold channel 11 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:

- alarm threshold has been exceeded longer than that set in the timer (p4102[22], p4103[11]).
- or
- fault threshold exceeded (p4102[23]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[11] = 1, 4), the following applies:

- if r4101[11] > 1650 ohms, the temperature r4105[11] = 250 °C
- if r4101[11] <= 1650 ohms, the temperature r4105[11] = -50 °C

The temperature actual value is displayed via connector output r4105[11] and can be interconnected.

Notice:

This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.

Fault value (r0949, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[23] - hysteresis (p4118[11]).
 - if required, set the fault response to NONE (p2100, p2101).
 See also: p4102

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A35410 (F, N) TM: Temperature alarm threshold channel 4 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: NONE

Cause: The temperature (r4105[4]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[8]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[4] = 1, 4), the following applies:

- if r4101[4] > 1650 ohms, the temperature r4105[4] = 250 °C
- if r4101[4] <= 1650 ohms, the temperature r4105[4] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[8] - hysteresis (p4118[4]).
 See also: p4102

Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)

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4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE

A35411 (F, N) TM: Temperature alarm threshold channel 5 exceeded
Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[5]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[10]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[5] = 1, 4), the following applies:
- if r4101[5] > 1650 ohms, the temperature r4105[5] = 250 °C
- if r4101[5] <= 1650 ohms, the temperature r4105[5] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[10] - hysteresis (p4118[5]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35412 (F, N) TM: Temperature alarm threshold channel 6 exceeded
Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[6]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[12]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[6] = 1, 4), the following applies:
- if r4101[6] > 1650 ohms, the temperature r4105[6] = 250 °C
- if r4101[6] <= 1650 ohms, the temperature r4105[6] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[12] - hysteresis (p4118[6]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35413 (F, N) TM: Temperature alarm threshold channel 7 exceeded
Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[7]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[14]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[7] = 1, 4), the following applies:

- if r4101[7] > 1650 ohms, the temperature r4105[7] = 250 °C
- if r4101[7] <= 1650 ohms, the temperature r4105[7] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[14] - hysteresis (p4118[7]).

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35414 (F, N) TM: Temperature alarm threshold channel 8 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: NONE

Cause: The temperature (r4105[8]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[16]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[8] = 1, 4), the following applies:

- if r4101[8] > 1650 ohms, the temperature r4105[8] = 250 °C
- if r4101[8] <= 1650 ohms, the temperature r4105[8] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[16] - hysteresis (p4118[8]).

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

A35415 (F, N) TM: Temperature alarm threshold channel 9 exceeded

Message value: %1

Message class: External measured value / signal state outside the permissible range (16)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150

Reaction: NONE

Acknowledge: NONE

Cause: The temperature (r4105[9]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[18]).

Note:

For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[9] = 1, 4), the following applies:

- if r4101[9] > 1650 ohms, the temperature r4105[9] = 250 °C
- if r4101[9] <= 1650 ohms, the temperature r4105[9] = -50 °C

Alarm value (r2124, interpret decimal):

Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[18] - hysteresis (p4118[9]).

See also: p4102

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

| | |
|-----------------------|--|
| A35416 (F, N) | TM: Temperature alarm threshold channel 10 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The temperature (r4105[10]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[20]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[10] = 1, 4), the following applies: - if r4101[10] > 1650 ohms, the temperature r4105[10] = 250 °C - if r4101[10] <= 1650 ohms, the temperature r4105[10] = -50 °C Alarm value (r2124, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | Allow the temperature sensor to cool down to below p4102[20] - hysteresis (p4118[10]). See also: p4102 |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A35417 (F, N) | TM: Temperature alarm threshold channel 11 exceeded |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The temperature (r4105[11]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[22]). Note: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[11] = 1, 4), the following applies: - if r4101[11] > 1650 ohms, the temperature r4105[11] = 250 °C - if r4101[11] <= 1650 ohms, the temperature r4105[11] = -50 °C Alarm value (r2124, interpret decimal): Temperature actual value at the time of initiation [0.1 °C]. |
| Remedy: | Allow the temperature sensor to cool down to below p4102[22] - hysteresis (p4118[11]). See also: p4102 |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| N35800 (F) | TM: Group signal |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | NONE |
| Cause: | The Terminal Module has detected at least one fault. |
| Remedy: | Evaluates other actual messages. |
| Reaction upon F: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY |

| | |
|-----------------------|--|
| A35801 (F, N) | TM DRIVE-CLiQ: Sign-of-life missing |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - check the DRIVE-CLiQ connection. - replace the component involved. See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave) |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A35802 (F, N) | TM: Time slice overflow |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A time slice overflow has occurred on the Terminal Module. |
| Remedy: | Replace the Terminal Module. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A35803 (F, N) | TM: Memory test |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An error has occurred during the memory test on the Terminal Module. |
| Remedy: | - check whether the permissible ambient temperature for the Terminal Module is being maintained. - replace the Terminal Module. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| F35804 (N, A) | TM: CRC |
| Message value: | %1 |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | A checksum error has occurred when reading-out the program memory on the Terminal Module. |

4 Faults and alarms

4.2 List of faults and alarms

Fault value (r0949, interpret hexadecimal):
Difference between the checksum at POWER ON and the actual checksum.

Remedy:

- check whether the permissible ambient temperature for the component is maintained.
- replace the Terminal Module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35805 (F, N) TM: EEPROM checksum error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: Internal parameter data is corrupted.
Alarm value (r2124, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.

Remedy:

- check whether the permissible ambient temperature for the component is maintained.
- replace the Terminal Module 31 (TM31).

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35807 (F, N) TM: Sequence control time monitoring

Message value: -
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: Error, timeout, sequence control on the Terminal Module.
Remedy: Replace the Terminal Module.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35820 TM DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the Terminal Module involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.

5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35835 **TM DRIVE-CLiQ: Cyclic data transfer error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the Terminal Module involved. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON.
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35836 **TM DRIVE-CLiQ: Send error for DRIVE-CLiQ data**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F35837**PTM DRIVE-CLiQ: Component fault**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

A35840**TM DRIVE-CLiQ: error below the signaling threshold**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Reaction: NONE

Acknowledge: NONE

Cause: A DRIVE-CLiQ error has occurred below the signaling threshold.

Fault cause:

1 (= 01 hex):

Checksum error (CRC error).

2 (= 02 hex):

Telegram is shorter than specified in the length byte or in the receive list.

3 (= 03 hex):

Telegram is longer than specified in the length byte or in the receive list.

4 (= 04 hex):

The length of the receive telegram does not match the receive list.

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the component in the telegram and in the receive list do not match.

7 (= 07 hex):

A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):

No SYNC telegram is expected - but the received telegram is one.

9 (= 09 hex):

The error bit in the receive telegram is set.

10 (= 0A hex):

The sign-of-life bit in the receive telegram is not set.

11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
16 (= 10 hex):
The receive telegram is too early.
32 (= 20 hex):
Error in the telegram header.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
64 (= 40 hex):
Timeout in the telegram send list.
65 (= 41 hex):
Telegram type does not match send list.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35845 **TM DRIVE-CLiQ: Cyclic data transfer error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module (TM) involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F35850 **TM: Internal software error**

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: An internal software error in the Terminal Module (TM) has occurred.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- replace the Terminal Module (TM).
- if required, upgrade the firmware in the Terminal Module.
- contact the Hotline.

F35851 **TM DRIVE-CLiQ (CU): Sign-of-life missing**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

F35860 **TM DRIVE-CLiQ (CU): Telegram error**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35875 TM DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2

Message class: Supply voltage fault (undervoltage) (3)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F35885 TM DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: OFF1 (OFF2)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit. The nodes do not send and receive in synchronism.

Fault cause:

26 (= 1A hex):

Sign-of-life bit in the receive telegram not set and the receive telegram is too early.

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

98 (= 62 hex):

Error at the transition to cyclic operation.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

F35886**TM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F35887**TM DRIVE-CLiQ (CU): Component fault**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component (Terminal Module) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

| | |
|-----------------------|--|
| F35895 | TM DRIVE-CLiQ (CU): Alternating cyclic data transfer error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF1 (OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master) |
| F35896 | TM DRIVE-CLiQ (CU): Inconsistent component properties |
| Message value: | Component number: %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number. |
| Remedy: | - carry out a POWER ON. - when a component is replaced, the same component type and if possible the same firmware version should be used. - when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length). |
| F35899 (N, A) | TM: Unknown fault |
| Message value: | New message: %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowledge: | IMMEDIATELY (POWER ON) |
| Cause: | A fault has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Fault value (r0949, interpret decimal): Fault number. Note: If required, the significance of this new fault can be read about in a more recent description of the Control Unit. |
| Remedy: | - replace the firmware on the Terminal Module by an older firmware version (r0158). - upgrade the firmware on the Control Unit (r0018). |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

4 Faults and alarms

4.2 List of faults and alarms

| | |
|-----------------------|--|
| A35903 (F, N) | TM: I2C bus error occurred |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An error has occurred while accessing the internal I2C bus of the Terminal Module. |
| Remedy: | Replace the Terminal Module. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| A35904 (F, N) | TM: EEPROM |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An error has occurred accessing the non-volatile memory on the Terminal Module. |
| Remedy: | Replace the Terminal Module. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A35905 (F, N) | TM: Parameter access |
| Message value: | - |
| Message class: | Hardware / software error (1) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The Control Unit attempted to write an illegal parameter value to the Terminal Module. |
| Remedy: | - check whether the firmware version of the Terminal Module (r0158) matches the firmware version of Control Unit (r0018). - if required, replace the Terminal Module. |
| | Note: The firmware versions that match each other are in the readme.txt file on the memory card. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|--|
| A35906 (F, N) | TM: 24 V power supply missing |
| Message value: | %1 |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The 24 V power supply for the digital outputs is missing. Alarm value (r2124, interpret hexadecimal): 01: TM17 24 V power supply for DI/DO 0 ... 7 missing. 02: TM17 24 V power supply for DI/DO 8 ... 15 missing. 04: TM15 24 V power supply for DI/DO 0 ... 7 (X520) missing. 08: TM15 24 V power supply for DI/DO 8 ... 15 (X521) missing. |

10: TM15 24 V power supply for DI/DO 16 ... 23 (X522) missing.

20: TM41 24 V power supply for DI/DO 0 ... 3 missing.

Remedy: Check the terminals for the power supply voltage (L1+, L2+, L3+, M or +24 V_1 for TM41).
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A35907 (F, N) TM: Hardware initialization error

Message value: %1
Message class: Hardware / software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: The Terminal Module was not successfully initialized.
 Alarm value (r2124, interpret hexadecimal):
 01: TM17 or TM41 - incorrect configuration request.
 02: TM17 or TM41 - programming not successful.
 04: TM17 or TM41 - invalid time stamp
Remedy: Carry out a POWER ON.
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A35910 (F, N) TM: Module overtemperature

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: The temperature in the module has exceeded the highest permissible limit.
Remedy: - reduce the ambient temperature.
 - replace the Terminal Module.
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A35911 (F, N) TM: Clock synchronous operation sign-of-life missing

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: NONE
Cause: The maximum permissible number of errors in the master sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
 When the alarm is output, the module outputs are reset up to the next synchronization.
Remedy: - check the physical bus configuration (terminating resistor, shielding, etc.).
 - check the interconnection of the master sign-of-life (r4201 via p0915).
 - check whether the master correctly sends the sign-of-life (e.g. set up a trace with r4201.12 ... r4201.15 and trigger signal r4301.9).
 - check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY (POWER ON)

4 Faults and alarms

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Reaction upon N: NONE
Acknowl. upon N: NONE

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|-----------------------|--|
| A35920 (F, N) | TM: Error temperature sensor channel 0 |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm 2: Measured resistance too low. PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm |
| Remedy: | - make sure that the sensor is connected correctly. - replace the sensor. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A35921 (F, N) | TM: Error temperature sensor channel 1 |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm 2: Measured resistance too low. PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm |
| Remedy: | - make sure that the sensor is connected correctly. - replace the sensor. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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|-----------------------|--|
| A35922 (F, N) | TM: Error temperature sensor channel 2 |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm 2: Measured resistance too low. PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm |

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35923 (F, N) TM: Error temperature sensor channel 3

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35924 (F, N) TM: Error temperature sensor channel 4

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35925 (F, N) TM: Error temperature sensor channel 5

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm

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2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:

- make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35926 (F, N) TM: Error temperature sensor channel 6

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:

- make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35927 (F, N) TM: Error temperature sensor channel 7

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:

- make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35928 (F, N) TM: Error temperature sensor channel 8

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.

Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:
- make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35929 (F, N) TM: Error temperature sensor channel 9

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:
- make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35930 (F, N) TM: Error temperature sensor channel 10

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy:
- make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

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| A35931 (F, N) | TM: Error temperature sensor channel 11 |
| Message value: | %1 |
| Message class: | External measured value / signal state outside the permissible range (16) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected. KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm 2: Measured resistance too low. PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm |
| Remedy: | - make sure that the sensor is connected correctly. - replace the sensor. |
| Reaction upon F: | NONE |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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| A35999 (F, N) | TM: Unknown alarm |
| Message value: | New message: %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An alarm has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit. Alarm value (r2124, interpret decimal): Alarm number. Note: If required, the significance of this new alarm can be read about in a more recent description of the Control Unit. |
| Remedy: | - replace the firmware on the Terminal Module by an older firmware version (r0158). - upgrade the firmware on the Control Unit (r0018). |
| Reaction upon F: | NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2) |
| Acknowl. upon F: | IMMEDIATELY (POWER ON) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

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| A36840 | Hub DRIVE-CLiQ: error below the signaling threshold |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | A DRIVE-CLiQ error has occurred below the signaling threshold. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. |

5 (= 05 hex):
The type of the receive telegram does not match the receive list.

6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.

7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.

9 (= 09 hex):
The error bit in the receive telegram is set.

10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.

11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.

16 (= 10 hex):
The receive telegram is too early.

32 (= 20 hex):
Error in the telegram header.

33 (= 21 hex):
The cyclic telegram has not been received.

34 (= 22 hex):
Timeout in the telegram receive list.

35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.

64 (= 40 hex):
Timeout in the telegram send list.

65 (= 41 hex):
Telegram type does not match send list.

66 (= 42 hex):
Send error: The telegram buffer memory contains an error.

67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F36851 **Hub DRIVE-CLiQ (CU): Sign-of-life missing**

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

| | |
|-----------------------|--|
| F36860 | Hub DRIVE-CLiQ (CU): Telegram error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit. Fault cause: 1 (= 01 hex): Checksum error (CRC error). 2 (= 02 hex): Telegram is shorter than specified in the length byte or in the receive list. 3 (= 03 hex): Telegram is longer than specified in the length byte or in the receive list. 4 (= 04 hex): The length of the receive telegram does not match the receive list. 5 (= 05 hex): The type of the receive telegram does not match the receive list. 6 (= 06 hex): The address of the power unit in the telegram and in the receive list do not match. 9 (= 09 hex): The error bit in the receive telegram is set. 16 (= 10 hex): The receive telegram is too early. 17 (= 11 hex): CRC error and the receive telegram is too early. 18 (= 12 hex): The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. 19 (= 13 hex): The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. 20 (= 14 hex): The length of the receive telegram does not match the receive list and the receive telegram is too early. 21 (= 15 hex): The type of the receive telegram does not match the receive list and the receive telegram is too early. 22 (= 16 hex): The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. 25 (= 19 hex): The error bit in the receive telegram is set and the receive telegram is too early. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). |

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|-----------------------|---|
| F36875 | HUB DRIVE-CLiQ (CU): Supply voltage failed |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF1 (OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. |

Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F36885 Hub DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

F36886 Hub DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F36887 Hub DRIVE-CLiQ (CU): Component fault

| | |
|-----------------------|---|
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | Fault detected on the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module) involved. Faulty hardware cannot be excluded. Fault cause: 32 (= 20 hex): Error in the telegram header. 35 (= 23 hex): Receive error: The telegram buffer memory contains an error. 66 (= 42 hex): Send error: The telegram buffer memory contains an error. 67 (= 43 hex): Send error: The telegram buffer memory contains an error. 96 (= 60 hex): Response received too late during runtime measurement. 97 (= 61 hex): Time taken to exchange characteristic data too long. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | <ul style="list-style-type: none">- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).- check the electrical cabinet design and cable routing for EMC compliance- if required, use another DRIVE-CLiQ socket (p9904).- replace the component involved. |

F36895 Hub DRIVE-CLiQ (CU): Alternating cyclic data transfer error

| | |
|-----------------------|--|
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit. Fault cause: 11 (= 0B hex): Synchronization error during alternating cyclic data transfer. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master) |

F36896 Hub DRIVE-CLiQ (CU): Inconsistent component properties

| | |
|-----------------------|---|
| Message value: | Component number: %1 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The properties of the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. |

Fault value (r0949, interpret decimal):
Component number.

Remedy:

- carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F40000 Fault at DRIVE-CLiQ socket X100

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X100.
 Fault value (r0949, interpret decimal):
 First fault that has occurred for this drive object.

Remedy: Evaluate the fault buffer of the specified object.

F40001 Fault at DRIVE-CLiQ socket X101

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X101.
 Fault value (r0949, interpret decimal):
 First fault that has occurred for this drive object.

Remedy: Evaluate the fault buffer of the specified object.

F40002 Fault at DRIVE-CLiQ socket X102

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X102.
 Fault value (r0949, interpret decimal):
 First fault that has occurred for this drive object.

Remedy: Evaluate the fault buffer of the specified object.

F40003 Fault at DRIVE-CLiQ socket X103

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X103.
 Fault value (r0949, interpret decimal):
 First fault that has occurred for this drive object.

Remedy: Evaluate the fault buffer of the specified object.

4 Faults and alarms

4.2 List of faults and alarms

F40004 **Fault at DRIVE-CLiQ socket X104**

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X104.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.

Remedy: Evaluate the fault buffer of the specified object.

F40005 **Fault at DRIVE-CLiQ socket X105**

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X105.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.

Remedy: Evaluate the fault buffer of the specified object.

A40100 **Alarm at DRIVE-CLiQ socket X100**

Message value: %1

Message class: General drive fault (19)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X100.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.

Remedy: Evaluate the alarm buffer of the specified object.

A40101 **Alarm at DRIVE-CLiQ socket X101**

Message value: %1

Message class: General drive fault (19)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X101.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.

Remedy: Evaluate the alarm buffer of the specified object.

A40102 **Alarm at DRIVE-CLiQ socket X102**

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction: NONE

Acknowledge: NONE

Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X102.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.

Remedy: Evaluate the alarm buffer of the specified object.

| | |
|-----------------------|---|
| A40103 | Alarm at DRIVE-CLiQ socket X103 |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An alarm has occurred at the drive object at the DRIVE-CLiQ socket X103. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object. |
| Remedy: | Evaluate the alarm buffer of the specified object. |

| | |
|-----------------------|---|
| A40104 | Alarm at DRIVE-CLiQ socket X104 |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An alarm has occurred at the drive object at the DRIVE-CLiQ socket X104. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object. |
| Remedy: | Evaluate the alarm buffer of the specified object. |

| | |
|-----------------------|---|
| A40105 | Alarm at DRIVE-CLiQ socket X105 |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | An alarm has occurred at the drive object at the DRIVE-CLiQ socket X105. Alarm value (r2124, interpret decimal): First alarm that has occurred for this drive object. |
| Remedy: | Evaluate the alarm buffer of the specified object. |

| | |
|-----------------------|---|
| F40799 | CX32: Configured transfer end time exceeded |
| Message value: | - |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | NONE |
| Acknowledge: | IMMEDIATELY |
| Cause: | The configured transfer end time when transferring the cyclic actual values was exceeded. |
| Remedy: | - carry out a POWER ON (power off/on) for all components. - contact the Hotline. |

| | |
|-----------------------|--|
| F40801 | CX32 DRIVE-CLiQ: Sign-of-life missing |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Fault cause: 10 (= 0A hex): The sign-of-life bit in the receive telegram is not set. |

4 Faults and alarms

4.2 List of faults and alarms

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40820

CX32 DRIVE-CLiQ: Telegram error

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved.

Fault cause:

1 (= 01 hex):

Checksum error (CRC error).

2 (= 02 hex):

Telegram is shorter than specified in the length byte or in the receive list.

3 (= 03 hex):

Telegram is longer than specified in the length byte or in the receive list.

4 (= 04 hex):

The length of the receive telegram does not match the receive list.

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the component in the telegram and in the receive list do not match.

7 (= 07 hex):

A SYNC telegram is expected - but the received telegram is not a SYNC telegram.

8 (= 08 hex):

No SYNC telegram is expected - but the received telegram is one.

9 (= 09 hex):

The error bit in the receive telegram is set.

16 (= 10 hex):

The receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).

- check the electrical cabinet design and cable routing for EMC compliance

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40825

CX32 DRIVE-CLiQ: Supply voltage failed

Message value:

Component number: %1, fault cause: %2

Message class:

Supply voltage fault (undervoltage) (3)

Drive object:

All objects

Reaction:

OFF1 (OFF2)

Acknowledge:

IMMEDIATELY

Cause:

The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

Fault cause:

9 (= 09 hex):

The power supply voltage for the components has failed.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
- check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the DRIVE-CLiQ component power supply.

F40835**CX32 DRIVE-CLiQ: Cyclic data transfer error****Message value:**

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. The nodes do not send and receive in synchronism.

Fault cause:

33 (= 21 hex):

The cyclic telegram has not been received.

34 (= 22 hex):

Timeout in the telegram receive list.

64 (= 40 hex):

Timeout in the telegram send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- carry out a POWER ON (power off/on).
 - replace the component involved.
- See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40836**CX32 DRIVE-CLiQ: Send error for DRIVE-CLiQ data****Message value:**

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Data were not able to be sent.

Fault cause:

65 (= 41 hex):

Telegram type does not match send list.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON (power off/on).

F40837**CX32 DRIVE-CLiQ: Component fault****Message value:**

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.

Fault cause:

32 (= 20 hex):

Error in the telegram header.

4 Faults and alarms

4.2 List of faults and alarms

35 (= 23 hex):

Receive error: The telegram buffer memory contains an error.

66 (= 42 hex):

Send error: The telegram buffer memory contains an error.

67 (= 43 hex):

Send error: The telegram buffer memory contains an error.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F40845

CX32 DRIVE-CLiQ: Cyclic data transfer error

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved.

Fault cause:

11 (= 0B hex):

Synchronization error during alternating cyclic data transfer.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Carry out a POWER ON (power off/on).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

F40851

CX32 DRIVE-CLiQ (CU): Sign-of-life missing

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.

The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.

Fault cause:

10 (= 0A hex):

The sign-of-life bit in the receive telegram is not set.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy:

Upgrade the firmware of the component involved.

F40860

CX32 DRIVE-CLiQ (CU): Telegram error

Message value:

Component number: %1, fault cause: %2

Message class:

Internal (DRIVE-CLiQ) communication error (12)

Drive object:

DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Reaction:

OFF2

Acknowledge:

IMMEDIATELY

Cause:

A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.

| | |
|--|--|
| Fault cause: | |
| 1 (= 01 hex): | Checksum error (CRC error). |
| 2 (= 02 hex): | Telegram is shorter than specified in the length byte or in the receive list. |
| 3 (= 03 hex): | Telegram is longer than specified in the length byte or in the receive list. |
| 4 (= 04 hex): | The length of the receive telegram does not match the receive list. |
| 5 (= 05 hex): | The type of the receive telegram does not match the receive list. |
| 6 (= 06 hex): | The address of the power unit in the telegram and in the receive list do not match. |
| 9 (= 09 hex): | The error bit in the receive telegram is set. |
| 16 (= 10 hex): | The receive telegram is too early. |
| 17 (= 11 hex): | CRC error and the receive telegram is too early. |
| 18 (= 12 hex): | The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. |
| 19 (= 13 hex): | The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. |
| 20 (= 14 hex): | The length of the receive telegram does not match the receive list and the receive telegram is too early. |
| 21 (= 15 hex): | The type of the receive telegram does not match the receive list and the receive telegram is too early. |
| 22 (= 16 hex): | The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. |
| 25 (= 19 hex): | The error bit in the receive telegram is set and the receive telegram is too early. |
| Note regarding the message value: | |
| The individual information is coded as follows in the message value (r0949/r2124): | |
| 0000yyxx hex: yy = component number, xx = error cause | |
| Remedy: | <ul style="list-style-type: none">- carry out a POWER ON (power off/on).- check the electrical cabinet design and cable routing for EMC compliance- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master) |

| | |
|-----------------------|---|
| F40875 | CX32 DRIVE-CLiQ (CU): Supply voltage failed |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Supply voltage fault (undervoltage) (3) |
| Drive object: | All objects |
| Reaction: | OFF1 (OFF2) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed. Fault cause: 9 (= 09 hex): The power supply voltage for the components has failed. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |

4 Faults and alarms

4.2 List of faults and alarms

- Remedy:**
- carry out a POWER ON (power off/on).
 - check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...).
 - check the dimensioning of the DRIVE-CLiQ component power supply.

| | |
|-----------------------|---|
| F40885 | CX32 DRIVE-CLiQ (CU): Cyclic data transfer error |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit. The nodes do not send and receive in synchronism. Fault cause: 26 (= 1A hex): Sign-of-life bit in the receive telegram not set and the receive telegram is too early. 33 (= 21 hex): The cyclic telegram has not been received. 34 (= 22 hex): Timeout in the telegram receive list. 64 (= 40 hex): Timeout in the telegram send list. 98 (= 62 hex): Error at the transition to cyclic operation. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | - check the power supply voltage of the component involved. - carry out a POWER ON (power off/on). - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master) |

| | |
|-----------------------|---|
| F40886 | CX32 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit. Data were not able to be sent. Fault cause: 65 (= 41 hex): Telegram type does not match send list. Note regarding the message value: The individual information is coded as follows in the message value (r0949/r2124): 0000yyxx hex: yy = component number, xx = error cause |
| Remedy: | Carry out a POWER ON (power off/on). |

| | |
|-----------------------|---|
| F40887 | CX32 DRIVE-CLiQ (CU): Component fault |
| Message value: | Component number: %1, fault cause: %2 |
| Message class: | Internal (DRIVE-CLiQ) communication error (12) |
| Drive object: | DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31 |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded. |

Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:

- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F40895 **CX32 DRIVE-CLiQ (CU): Cyclic data transfer error**

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON (power off/on).
See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

A50001 (F) **PN/COMM BOARD: Configuration error**

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20:
A PROFINET controller attempts to establish a connection using an incorrect configuring telegram. The "Shared Device" function has been activated (p8829 = 2).
Alarm value (r2124, interpret decimal):
10: A CPU sends a PROFIsafe telegram.
11: F CPU sends a PZD telegram.
12: F CPU without an A CPU.
13: F CPU with more PROFIsafe subslots than activated with p9601.3.
14: F CPU with fewer PROFIsafe subslots than activated with p9601.3.
15: PROFIsafe telegram of the F-CPU does not match the setting in p60022.
See also: p8829 (CBE2x remote controller number)

4 Faults and alarms

4.2 List of faults and alarms

Remedy: CBE20:
Check the configuration of the PROFINET controllers as well as the p8829 and p9601.3 setting.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A50002 (F) COMM BOARD: Alarm 2

Message value: %1

Message class: Communication error to the higher-level control system (9)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: CBE20 SINAMICS Link:
A specific telegram word (send) is being used twice.
Alarm value (r2124, interpret decimal):
Telegram word used twice
See also: p8871 (SINAMICS Link send telegram word PZD)

Remedy: CBE20 SINAMICS Link:
Correct the parameter assignment.
See also: p8871 (SINAMICS Link send telegram word PZD)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A50003 (F) COMM BOARD: Alarm 3

Message value: Info. 1: %1, info. 2: %2

Message class: Communication error to the higher-level control system (9)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: CBE20 SINAMICS Link:
A specific telegram word (receive) is being used twice.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Address of sender
Info. 2 (decimal) = Receive telegram word
See also: p8870 (SINAMICS Link receive telegram word PZD), p8872 (SINAMICS Link address receive PZD)

Remedy: CBE20 SINAMICS Link:
Correct the parameter assignment.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A50004 (F) COMM BOARD: Alarm 4

Message value: Info. 1: %1, info. 2: %2

Message class: Communication error to the higher-level control system (9)

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: CBE20 SINAMICS Link:
- telegram word (receive) and address of sender inconsistent. Both values have to be either equal to zero or not equal to zero.
- drive object number p8872 > 16 with p8811 = 16.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Drive object number from p8870, p8872
Info. 2 (decimal) = Index from p8870, p8872
See also: p8870 (SINAMICS Link receive telegram word PZD), p8872 (SINAMICS Link address receive PZD)

Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50005 (F) COMM BOARD: Alarm 5
Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
Sender not found on SINAMICS Link.
Alarm value (r2124, interpret decimal):
Address of sender that cannot be located
See also: p8872 (SINAMICS Link address receive PZD)
Remedy: CBE20 SINAMICS Link:
Check the connection to the sender.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50006 (F) COMM BOARD: Alarm 6
Message value: Info. 1: %1, info. 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
The parameter assignment indicates that the sender and the receiver are one and the same. This is not permitted.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Drive object number from p8872
Info. 2 (decimal) = Index from p8872
See also: p8836 (SINAMICS Link address), p8872 (SINAMICS Link address receive PZD)
Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment. All p8872[index] must be set to a value not equal to p8836.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50010 (F) PN/COMM BOARD: Station name invalid
Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CBE20:
PROFINET Name of Station is invalid.
Remedy: CBE20:
Correct the name of the station (p8940) and activate (p8945 = 2).
See also: p8940 (CBE2x Name of Station)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

| | |
|-----------------------|---|
| A50020 (F) | PNCOMM BOARD: Second controller missing |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | All objects |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | CBE20: The PROFINET function "Shared Device" has been activated (p8829 = 2). However, only the connection to a PROFINET controller is present. See also: p8829 (CBE2x remote controller number) |
| Remedy: | CBE20: Check the configuration of the PROFINET controllers as well as the p8829 setting. |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| F60004 (N, A) | Armature circuit phase failure detected |
| Message value: | %1 |
| Message class: | Network fault (2) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | Phase failure in armature infeed. The line voltage rms value calculated from the area of each line half-wave (rectifier average value * harmonic factor) is less than the response value for phase failure monitoring or the distance between two line zero crossings in the same phase is more than 270 degrees or the distance between two line zero crossings in different phases is not between 30 and 90 degrees. - Phase failure threshold set incorrectly (p50353) - Armature phase failed - Line contactor opened in operation - Fuse blown on three-phase side of armature circuit - Fuse blown in power unit Fault value (r0949, interpret decimal): 1: Power failure has occurred in armature infeed (UV, VW, WU) r50047[1] = 0: First power failure in armature phase UV r50047[1] = 1: First power failure in armature phase VW r50047[1] = 2: First power failure in armature phase WU r50047[2]: Incorrect voltage value as a % of p50078[0] 2: Wait time for new zero crossing has expired in one armature phase (UV, VW, WU) r50047[1] = 0: No zero crossing in armature phase UV in excess of 270 ° r50047[1] = 1: No zero crossing in armature phase VW in excess of 270 ° r50047[1] = 2: No zero crossing in armature phase WU in excess of 270 ° r50047[2]: Time without zero crossing (= duration 270 °) of armature phase r50047[1] in ms 3: Line asymmetry in armature infeed (UV, VW, WU) r50047[1]: Phase number of phase of last zero crossing (0 = UV, 1 = VW, 2 = WU) r50047[2]: Phase number of phase of last-but-one zero crossing (0 = UV, 1 = VW, 2 = WU) r50047[3]: Time of last raw zero crossing in ms r50047[4]: Time of last-but-one raw zero crossing in ms r50047[5]: Time of last positive refined zero crossing in phase UV in ms r50047[6]: Time of last negative refined zero crossing in phase UV in ms r50047[7]: Time of last positive refined zero crossing in phase VW in ms r50047[8]: Time of last negative refined zero crossing in phase VW in ms r50047[9]: Time of last positive refined zero crossing in phase WU in ms |

r50047[10]: Time of last negative refined zero crossing in phase WU in ms

r50047[11]: Last good 60 ° period in ms

See also: p50089 (Sequence control voltage at power unit wait time), p50095 (Sequence control DC circuit contactor wait time), p50691 (Sequence control line contactor feedback)

Remedy:

- Check threshold for phase failure (p50353).
- Check the field supply voltage.
- Check the fuses and line contactor.

See also: p50089 (Sequence control voltage at power unit wait time), p50353 (Line monitoring phase failure threshold)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60005 (N, A) Field circuit phase failure detected

Message value: %1

Message class: Network fault (2)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause:

A phase failure has been detected in the field circuit.

The line voltage rms value calculated from the area of each line half-wave (rectifier average value * harmonic factor) is less than the response value for phase failure monitoring or the distance between two line zero crossings of the voltage for the field converter is more than 270 degrees.

- Phase failure threshold set incorrectly (p50353)
- Field phase failed
- Line contactor opened in operation
- Fuse blown in field circuit

Fault value (r0949, interpret decimal):

1: Power failure in field infeed

Note:

r50047[1]: Incorrect voltage value as a % of p50078[1]

2: Wait time for new zero crossing has expired in the field phase.

Note:

r50047[1]: Time without zero crossing (= duration 270 °) of armature phase r50047[1] in ms

See also: p50089 (Sequence control voltage at power unit wait time)

Remedy:

- Check threshold for phase failure (p50353).
- Check the field supply voltage.
- Check the fuses and line contactor.

See also: p50089 (Sequence control voltage at power unit wait time)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60006 (N, A) Line monitoring undervoltage

Message value: %1

Message class: Network fault (2)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause:

The line voltage has undershot the permissible undervoltage limit for longer than the setting in p50361.

Fault value (r0949, interpret decimal):

1: Armature undervoltage occurred

2: Field undervoltage occurred

4 Faults and alarms

4.2 List of faults and alarms

Note:

r50047[1] = 0: Undervoltage in armature phase UV

r50047[1] = 1: Undervoltage in armature phase VW

r50047[1] = 2: Undervoltage in armature phase WU

r50047[1] = 3: Undervoltage in field phase

r50047[2] = Incorrect voltage value as a % of p50078[0] or p50078[1]

Remedy:

- Check monitoring limit for armature (p50078[0] * (1 + p50351/100%)).

- Check monitoring limit for field (p50078[1] * (1 + p50351/100%)).

- Check monitoring time (p50361).

See also: p50078 (Supply voltage rated value), p50351 (Line undervoltage threshold), p50361 (Line monitoring undervoltage delay time)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60007 (N, A) Line monitoring overvoltage

Message value: %1

Message class: Network fault (2)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: The line voltage has overshot the permissible overvoltage limit for longer than the setting in p50362.

Fault value (r0949, interpret decimal):

1: Armature overvoltage occurred

2: Field overvoltage occurred

Note:

r50047[1] = 0: Overvoltage in armature phase UV

r50047[1] = 1: Overvoltage in armature phase VW

r50047[1] = 2: Overvoltage in armature phase WU

r50047[1] = 3: Overvoltage in field phase

r50047[2] = Incorrect voltage value as a % of p50078[0] or p50078[1]

Remedy:

- Check monitoring limit for armature (p50078[0] * (1 + p50352/100%)).

- Check monitoring limit for field (p50078[1] * (1 + p50352/100%)).

- Check monitoring time (p50362).

See also: p50078 (Supply voltage rated value), p50352 (Line overvoltage threshold), p50362 (Line monitoring overvoltage delay time)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60008 (N, A) Line frequency less than minimum line frequency

Message value: %1

Message class: Network fault (2)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: The line frequency has undershot the set threshold for monitoring of the minimum line frequency for more than 40 ms.

Fault value (r0949, interpret decimal):

1: Armature supply frequency less than minimum line frequency

2: Field supply frequency less than minimum line frequency

Note:

r50047[1]: Incorrect frequency value in Hz

Remedy: Check the threshold for monitoring the minimum line frequency (p50363).
See also: p50363 (Line frequency minimum threshold)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60009 (N, A) Line frequency greater than maximum line frequency

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The line frequency has overshoot the set threshold for monitoring of the maximum line frequency for more than 40 ms.
Fault value (r0949, interpret decimal):
1: Armature supply frequency greater than maximum line frequency
2: Field supply frequency greater than maximum line frequency

Note:
r50047[1]: Incorrect frequency value in Hz

Remedy: Check the threshold for monitoring the maximum line frequency (p50364).
See also: p50364 (Line frequency maximum threshold)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60010 (N, A) Armature circuit uneven current distribution

Message value: %1
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: An uneven current distribution through the thyristors has been identified in the armature circuit.
Significantly less current flows in one thyristor than in the others.
Remarks:
- This monitoring is only effective if the average current value across all thyristors is greater than 20 % of r50072[1].
- The current in a thyristor is significantly lower, if, for a period of one second, the average value is less than 35 % of the average value across all thyristors.

Possible causes:
- A fuse has blown.
- A thyristor is not fired (defective thyristor, defective pulse transformer, defective firing electronics).
Fault value (r0949, interpret decimal):
Number of the thyristor that is conducting the significantly lower current.
Note:
r50047[1]: Average current value through all armature thyristors.
r50047[2]: Average current value through the thyristor with the excessively low current, in torque direction I.
r50047[3]: Average current value through the thyristor with the excessively low current, in torque direction II.
The current values as a % are referred to r50072[1].
Note:
Even though the response to this fault message is set to "NO" when using p2100/p2101, or the message type set to "Alarm" or "No message" when using p2118/p2119, in the case of a fault, the drive still exits the OPERATION (RUN) state and goes into state o4.1 (wait for the fuse monitoring OK message.)

Remedy: - Check the fuses in the power unit.
- If required, perform a thyristor diagnostics routine (p50830).
See also: p50830 (Thyristor diagnostics mode)

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

| | |
|-----------------------|---|
| F60012 (N, A) | P2P-IF: Telegram monitoring time expired |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The telegram monitoring time for communication via the peer-to-peer interface (P2P-IF) has expired. No further valid telegrams were received during the monitoring time (p50797). Possible causes: <ul style="list-style-type: none">- Break in connecting cable- Electromagnetic interference on the connecting cable- Telegram monitoring time set too short (p50797) |
| Remedy: | <ul style="list-style-type: none">- Check connecting cable and cable connection.- Check that the connecting cable has been routed in compliance with EMC.- Increase the telegram monitoring time if necessary (p50797). See also: p50089 (Sequence control voltage at power unit wait time), p50790 (P2P IF operating mode), p50797 (P2P IF telegram monitoring time) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F60014 (N, A) | Parallel interface telegram monitoring time expired |
| Message value: | - |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The telegram monitoring time for communication via the parallel interface (Par-IF) has expired. No further valid telegrams were received during the monitoring time (p51807). Possible causes: <ul style="list-style-type: none">- Break in connecting cable- Electromagnetic interference on the connecting cable- Telegram monitoring time set too short (p51807) |
| Remedy: | <ul style="list-style-type: none">- Check connecting cable and cable connection.- Check that the connecting cable has been routed in compliance with EMC.- Increase the telegram monitoring time if necessary (p51807). See also: p51807 (Parallel interface telegram monitoring failure time), p51808 (Parallel interface signal source for F60014) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| A60018 (F, N) | Digital output overloaded |
| Message value: | Fault cause: %1 bin |
| Message class: | Ground fault / inter-phase short-circuit detected (7) |
| Drive object: | DC_CTRL |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | At least one digital output is overloaded or has short-circuited. |

Alarm value (r2124, interpret binary):

Bit 0 = 1: CUD digital output 0 (X177.19) is overloaded

Bit 1 = 1: CUD digital output 1 (X177.20) is overloaded

Bit 2 = 1: CUD digital output 2 (X177.21) is overloaded

Bit 3 = 1: CUD digital output 3 (X177.22) is overloaded

Bit 4 = 1: CUD digital output 4 (X177.15) is overloaded

Bit 5 = 1: CUD digital output 5 (X177.16) is overloaded

Bit 6 = 1: CUD digital output 6 (X177.17) is overloaded

Bit 7 = 1: CUD digital output 7 (X177.18) is overloaded

Note:

The fault value is equal to the inverted value of parameter r53021. Information about short-circuit monitoring for the individual digital outputs for further interconnection is available here.

Remedy: Check the overloaded digital outputs and rectify the overload or short circuit.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F60025 (N, A) Brush length too short

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: A motor brush length which is too short has been reported via a binector input (p50486) for a period exceeding a permanently set delay time.

Note:

This message is also reported via binector output r53120.0.

Remedy: - Check binector input p50486 and trace the generation of the signal back to the sensor.

- Check and if necessary update the motor's brush length.

See also: p50486 (Motor interface signal source for brush length)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60026 (N, A) Poor bearing condition

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: A defective motor bearing has been reported via a binector input (p50487) for a period exceeding a permanently set delay time.

Note:

This message is also reported via binector output r53120.1.

Remedy: - Check binector input p50487 and trace the generation of the signal back to the sensor.

- Check and if necessary restore the motor's bearing condition.

See also: p50487 (Motor interface signal source for bearing condition)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

4 Faults and alarms

4.2 List of faults and alarms

| | |
|-----------------------|---|
| F60027 (N, A) | Motor fan fault |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A defective motor fan has been reported via a binector input (p50488) for a period exceeding a permanently set delay time. Note: This message is also reported via binector output r53120.2. |
| Remedy: | - Check binector input p50488 and trace the generation of the signal back to the sensor. - Check and if necessary replace the motor's fan. See also: p50488 (Motor interface signal source for motor fan) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F60028 (N, A) | Motor temperature too high |
| Message value: | - |
| Message class: | Motor overload (8) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A motor temperature which is too high has been reported via a binector input (p50489) for a period exceeding a permanently set delay time. The motor temperature is too high. Possible causes: - Motor is overloaded - Ambient temperature of the motor is too high - Wire break or sensor not connected Note: This message is also reported via binector output r53120.3. |
| Remedy: | - Check binector input p50489 and trace the generation of the signal back to the sensor. - Reduce the motor load if necessary. - Check the ambient temperature and reduce if necessary. - Check the wiring and the sensor connection. See also: p50489 (Motor interface signal source for motor temperature) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F60029 (N, A) | Motor temperature fault |
| Message value: | - |
| Message class: | Motor overload (8) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The motor temperature is higher than the threshold set in p50491 to trigger this fault. Possible causes: - Motor is overloaded - Ambient temperature is too high |

Note:
r50047[1]: Motor temperature (in °C) for temperature sensor with continuous characteristic.
KTY84 (p50490 = 1) or
PT100 (p50490 = 6) or
NTC thermistor K227 (p50490 = 7) or
PT1000 (p50490 = 8)
Otherwise the value = 0.
See also: p50492 (Motor interface fault threshold for temperature monitoring)

Remedy:

- Check the threshold for triggering the fault (p50492).
- Reduce the motor load if necessary.
- Check the ambient temperature and reduce if necessary.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60031 (N, A) Excessive setpoint/actual value deviation

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The absolute value of the set/act deviation of the speed controller has exceeded the set threshold.
Note:
r50047[1]: n_set (connector input p50590)
r50047[2]: n_act (connector input p50591)
See also: p50388 (Messages for setpoint/actual value deviation 1 threshold), p50590 (Messages for set/act val dev 1 signal source for speed setpoint), p50591 (Messages for set/act val dev 1 signal source for speed act val)

Remedy:

- Optimize the speed controller (p50051).
- Check torque limiting (p50169).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60032 (F, N) Motor temperature alarm

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Reaction: NONE
Acknowledge: NONE
Cause: The motor temperature is higher than the threshold set in p50491 to trigger this alarm.

Possible causes:

- Motor is overloaded
- Ambient temperature is too high

Note:
r50047[1]: Motor temperature (in °C) for temperature sensor with continuous characteristic.
KTY84 (p50490 = 1) or
PT100 (p50490 = 6) or
NTC thermistor K227 (p50490 = 7) or
PT1000 (p50490 = 8)
Otherwise the value = 0.
See also: p50491 (Motor interface alarm threshold for temperature monitoring)

4 Faults and alarms

4.2 List of faults and alarms

Remedy:

- Check the threshold for triggering the alarm (p50491).
- Reduce the motor load if necessary.
- Check the ambient temperature and reduce if necessary.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F60035 (N, A) Motor blocked

Message value: -

Message class: Motor overload (8)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The fault is triggered if the following conditions prevail for longer than the time set in p50355:

- The positive or negative armature current or torque limit has been reached
- Armature current r52109 > 1.0%
- Speed actual value r52166 < p50356

Note:

r50047[1]: Stall protection monitoring time p50355

r50047[2]: Speed threshold p50356

r50047[3]: Armature current r52109

r50047[4]: Speed actual value r52166

r50047[5]: Torque limit r53150

r50047[6]: Armature current limits r53151

See also: p50355 (Stall protection monitoring time)

Remedy:

- Reduce the motor load.
- Increase the current or torque limit.
- Check and if necessary increase the monitoring threshold.

See also: r52109 (Armature current actual value averaged over 6 cycles), r52166 (Speed controller actual value selection absolute value), r53150 (Speed limiting controller/torque limiting state), r53151 (Current limitation state)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60036 (N, A) Armature circuit/field circuit interrupted

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The firing angle is at the rectifier stability limit for more than 500 ms and the current is less than 1% of the rated DC current.

Fault value (r0949, interpret decimal):

1: Armature circuit

2: Field circuit

Remedy:

- Armature circuit or field circuit interrupted.
- Rectifier stability limit Alpha-G incorrectly set (p50150, p50250).
- Drive operates at the Alpha-G limit (e.g. due to a line undervoltage condition).
- EMF too high, because the maximum speed has been set too high.
- EMF too high, because field weakening was not activated.
- EMF too high, because the field current was set too high.

- EMF too high, because the CEMF crossover voltage was set too high (transition between normal and field weakening operation).

- replace the ribbon cable from the Allocation Board to the power interface (connector X108).

See also: r52116 (Armature current actual value internal absolute value), r52266 (Field current actual value internal absolute value), r53190 (Armature auto-reversing stage state), r53191 (Field auto-reversing stage state)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A60037 (F, N) I2t monitoring alarm excessive motor temperature rise

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Reaction: NONE
Acknowledge: NONE
Cause: The I2t calculation shows that the motor's temperature rise is excessive.
 The alarm is triggered if the calculated motor temperature rise in r52309 > 100%.
 Note:
 r50047[1]: Temperature rise r52309
 r50047[2]: Motor rated armature current p50100
 r50047[3]: Continuous current factor r50113
 r50047[4]: Device rated current r50072[1]
 r50047[5]: Current armature current r52109
 r50047[6]: Motor thermal time constant p50114
 See also: p50114 (Motor thermal time constant), r52309 (Calculated motor temperature rise)

Remedy: - Check the ambient temperature and reduce if necessary.
 - Reduce the motor load.
 See also: r52109 (Armature current actual value averaged over 6 cycles)

Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F60038 (N, A) Overspeed threshold overshoot

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The speed actual value has overshoot the threshold for the positive or negative maximum speed.
 Note:
 Possible cause of the fault, if p50083 = 3 (EMF as speed actual value):
 - Interrupted armature circuit (fuse blown, contactor in the DC link has not closed)
 In this particular case, the converter output voltage is not equal to the motor armature voltage, which is the reason why an incorrect speed actual value is determined.
 Note:
 r50047[1]: Maximum speed for positive direction of rotation (p50380)
 r50047[2]: Maximum speed for negative direction of rotation (p50381)
 r50047[3]: n_act (connector input p50595)

Remedy: - Reduce the speed.
 - Check the threshold for positive or negative direction of rotation and adjust if necessary (p50380, p50381).
 See also: p50380 (Messages for overspeed threshold positive direction of rotation), p50381 (Messages for overspeed threshold negative direction of rotation)

Reaction upon N: NONE
 Acknowl. upon N: NONE

4 Faults and alarms

4.2 List of faults and alarms

Reaction upon A: NONE
Acknowl. upon A: NONE

A60039 (F, N) I2t monitoring alarm excessive power unit temperature rise
Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Reaction: NONE
Acknowledge: NONE
Cause: The temperature rise of the thyristors is more than 102 % of the maximum permissible value.
Remedy:
- Check the ambient temperature and reduce if necessary.
- Check the motor load and reduce if necessary.

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60041 (N, A) Ramp-function generator parameter set cannot be selected
Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: Ramp-function generator parameter sets 2 and 3 were selected simultaneously for more than 0.5 s via binector input p50637/p50638.
The ramp-function generator parameter set is not changed over. The most recently selected ramp-function generator parameter set is retained.
Remedy:
- Check the selection of ramp-function generator parameter sets 2 and 3 and bar simultaneous selection.
- Select the required ramp-function generator parameter set (p50637, p50638).
See also: p50637 (RFG parameter set 2 selection signal source), p50638 (RFG parameter set 3 selection signal source)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60042 (N, A) Defective tachometer monitoring error
Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The ratio "Speed actual value/EMF actual value" (r52179/r52287) was less than +10 % for more than approx. 40 ms.
This ratio is then only checked if the EMF actual value is > p50357.
- Cable break affecting tachometer or incremental encoder TTL/HTL
- Tachometer or incremental encoder TTL/HTL cable connected incorrectly
- Incremental encoder TTL/HTL power supply has failed
- Tachometer or incremental encoder TTL/HTL faulty
- Parameters for incremental encoder TTL/HTL set incorrectly (p0400).
- During operation with field reversal, the field polarity is not being reversed by the external hardware
- Polarity for speed actual value set incorrectly (p50743)
- Data for armature circuit set incorrectly (p50110 and p50111)
- If p50083 = 3 (EMF as speed actual value): Interrupted armature circuit (e.g. fuse blown).
- Device operates as slave connected in parallel.

Fault value (r0949, interpret decimal):

1: Cable break affecting tachometer or incremental encoder TTL/HTL

2: Tachometer or incremental encoder TTL/HTL polarity incorrect

Note:

r50047[1]: Speed actual value (r52179)

r50047[2]: EMF actual value (r52287)

See also: p50357 (Tachometer interruption monitoring threshold)

Remedy:

- Check the incremental encoder TTL/HTL's wiring, connections, and function.
- Check the power supply for the incremental encoder TTL/HTL.
- Check the parameters for the incremental encoder TTL/HTL.
- Check the polarity for the speed actual value (p50743).
- Perform an optimization run for the current controller in the armature circuit (p50051 = 25).
- Check the fuses in the armature circuit.
- If the device operates as slave connected in parallel: set p50357 = 100% (tachometer breakage not active).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60043 (N, A) EMF for braking operation too high

Message value: -

Message class: Motor overload (8)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause:

The EMF actual value is too high for braking operation.

This fault is triggered if a firing angle greater than 165 ° would be required in the new torque direction immediately after a torque direction change (precisely because the EMF is so high).

What this actually means is that the fault is triggered if the following 5 conditions are met for a requested torque direction change (MI or MII is to be selected):

- p50272 = 0 (fault parameterized and not alarm + field weakening)
- An additional torque-free interval which might have been parameterized (p50160 > 0) has expired.
- The parallel drive is ready for the new torque direction to be selected.
- The absolute value of the armature current requested in the new torque direction (r52118, filtered with p50190) is > 1% of r50072[1].
- The calculated firing angle (r52101) for the armature current requested in the new torque direction is > 165 ° or > p50151 if p50192 = 1.

Possible fault causes:

- "Speed-dependent field weakening" (p50081 = 0) has not been parameterized, although field weakening operation would be necessary for the required maximum speed.

Note:

With a firing angle $\alpha = 30^\circ$ (rectifier stability limit p50150) and low armature currents, EMF values up to the peak value of the phase-to-phase line voltage can be reached when motoring.

- Setpoint EMF for field weakening operation too high (parameter p50101 set too high)
- Line voltage dip
- EMF controller or field current controller not optimized; this can lead to excessive EMF when the drive accelerates.

Note:

r50047[1]: Calculated firing angle (armature) prior to limiting (r52101)

r50047[2]: EMF actual value currently measured (r52287)

r50047[3]: Armature current controller setpoint (r52118)

Remedy:

- Reduce the speed.
- Activate the "Speed-dependent field weakening" function (p50081 = 1).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

4 Faults and alarms

4.2 List of faults and alarms

| | |
|-----------------------|--|
| F60044 (N, A) | Parallel interface node failure |
| Message value: | %1 |
| Message class: | Communication error to the higher-level control system (9) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A fault involving the parallel connection of power units has occurred. Fault value (r0949, interpret decimal): 1: There is a fault on one of the slaves. 2: One of the slaves is not in the Operation state (e.g. because its enable signal is at "0") 3: There are fewer power units connected in parallel that are active than set using p51802. 4: There are fewer devices that are active than set using p51815. 50: The switchover to power unit topology 2 is not possible, as this SINAMICS DCM is not equipped with option S50. 51: The switchover to power unit topology 2 is not permissible for "n+m" operation. 52: The parallel switching master in power unit topology 2 is not the same as in power unit topology 1. 53: The feedback indicating the active power unit topology does not match the selected power unit topology. |
| Remedy: | - Check the slave with fault. - Check the enable signal of the slaves - Check the setting for the minimum number of devices (p51802, p51815). - Check the parameterization of the switchover of the power unit topology. See also: p51802 (Parallel interface number of power units) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F60045 (N, A) | Standstill field not permitted in operation |
| Message value: | - |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The standstill field was activated while the drive was operational. The binector input p50692 to activate the standstill field must not have a 1 signal in operation. See also: p50692 (CI-loop field curr ctrl sig source for inject of standst field) |
| Remedy: | If required, set binary input p50692 - used to activate the standstill field - to a 0 signal. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F60046 (N, A) | Wire break at "Main setpoint" analog input |
| Message value: | - |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | A wire break has been detected at the CUD's "Main setpoint" analog input (X177.25/26). This fault is triggered if p50700 = 2 (unipolar monitoring of current input (+4 mA to +20 mA)) is set and an input current of less than 2 mA is flowing. Possible fault causes: - Wire break or contact problem on supply line - Parameter p50700 set incorrectly |

Note:

This fault is also indicated via binector input r53030.0.

See also: p50700 (CUD analog input 0 type)

Remedy:

- Check the wiring of the input terminals (X177.25/26) (cable break, contacts, etc).
- Check the parameter assignment for the "Main setpoint" analog input (p50700).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60047 (N, A) Wire break at analog input 1

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: A wire break has been detected at the CUD's analog input 1 (X177.27/28).

This fault is triggered if p50700 = 2 (unipolar monitoring of current input (+4 mA to +20 mA)) is set and an input current of less than 2 mA is flowing.

Possible fault causes:

- Wire break or contact problem on supply line
- Parameter p50710 set incorrectly

Note:

This fault is also indicated via binector output r53030.1.

See also: p50710 (CUD analog input 1 type)

Remedy:

- Check the wiring of the input terminals (X177.27/28) (cable break, contacts, etc).
- Check the parameter assignment for analog input 1 (p50710).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60050 (N, A) Optimization run aborted due to internal cause

Message value: %1

Message class: Hardware/software error (1)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: An optimization run which had been started has been interrupted due to an internal cause.

Fault value (r0949, interpret decimal):

General, not assigned to a specific optimization run:

100: Internal software error

Field current controller optimization run:

101: Alpha G limit reached when determining the Rf

102: Field current oscillation > 20 % when determining the Rf

103: Calculated field circuit resistance too high (> 4000 ohms)

104: Unable to ascertain field circuit inductance

105: Calculated field circuit inductance too high (> 1000 H)

106: Field current > 100% at start of optimization

107: Rf determination failed (Rf <= 0)

108: Internal software error

Armature current controller optimization run:

201: Alpha G limit reached when determining the Ra

202: Armature current oscillation > 20 % when determining the Ra

203: Calculated armature circuit resistance too high (> 4000 ohms)

- 205: Unable to determine armature circuit inductance.
- 206: Calculated armature circuit inductance too high (> 1000 H)
- 207: Armature current increased to > 120 % of r50072[1], although the firing angle was not able to be shifted any further.
- Speed controller optimization run:
- 301: Unable to ascertain moment of inertia due to it being very small
- 302: Measurement of speed increase was not possible.
- 303: No change in speed when armature current is increased.
- 304: Speed remains at zero, although armature current is flowing.
- EMF controller/Field characteristics optimization run:
- 401: Maximum permissible EMF setpoint is too small
- 402: Motor nominal field current is not being reached within 30 seconds
- 403: EMF (80 %) is not reached within set acceleration time (r50315[0]).
- 404: Incorrect direction of rotation
- 405: Negative field current setpoint limiting active
- 406: Field characteristic not falling uniformly
- 407: Torque limiting active
- 408: Armature current limiting active
- 409: Speed during measurement dropped by more than 12.5%
- Field current controller friction compensation:
- 501: Speed not within the required tolerance bandwidth.
- Optimization run for mechanical systems that can oscillate (torsional optimization):
- 601: speed according to p50565 is not reached within a specific time.
- 602: speed actual value is negative, although a positive setpoint is being input.
- Converter Commutation Protector (CCP) optimization run:
- 701: p50790 (P2P/CCP operating mode) not set to communication with SIMOREG CCP.
- 702: Communication not established between SINAMICS DCM and SIMOREG CCP.
- 703: p51570 order number (MLFB) of the SIMOREG CCP is unknown.
- 704: Supply voltage of SINAMICS DCM and SIMOREG CCP do not match (p50078[0] and r51571).
- 705: This SINAMICS DCM is not intended for operation with SIMOREG CCP.
- 706: Armature circuit inductance is zero (p50111 = 0).
- 707: Calculated pre-charging voltage greater than the maximum achievable value for p51578.
- 708: Calculated chopper energy too high.
- Note for fault value = 102:
- r50047[1]: Field current actual value (1 = 100 %)
 - r50047[2]: Field current lower limit (1 = 100 %)
 - r50047[3]: Field current upper limit (1 = 100 %)
- Note for fault value = 103:
- r50047[1]: Calculated field circuit resistance in Ohm
- Note for fault value = 104:
- r50047[1]: Number of valid measuring cycles
 - r50047[2]: Number of required measuring cycles
- Note for fault value = 105:
- r50047[1]: Calculated field circuit inductance in H
- Note for fault value = 106:
- r50047[1]: Field current actual value (1 = 100 %)
- Note for fault value = 107:
- r50047[1]: Calculated field circuit resistance in Ohm
- Note for fault value = 202:
- r50047[1]: Armature current actual value (1 = 100 %)
 - r50047[2]: Armature current lower limit (1 = 100 %)
 - r50047[3]: Armature current upper limit (1 = 100 %)
- Note for fault value = 203:
- r50047[1]: Calculated armature circuit resistance in Ohm

Note for fault value = 205:

- r50047[1]: Number of required measuring cycles
- r50047[2]: Number of valid measuring cycles
- r50047[3]: Measurement run

Note for fault value = 206:

- r50047[1]: Calculate armature circuit inductance in H

Note for fault value = 301:

- r50047[1]: Number of measuring points (0 to 4 are possible, at least 2 are required)

Note for fault value = 401:

- r50047[1]: Nominal EMF (max. permissible EMF setpoint) (1 = 100 %)
- r50047[1]: Ideal nominal rectifier no-load output voltage (1 = 100 %)

Note for fault value = 402:

- r50047[1]: 1 = Timeout determining nominal speed, 2 = Timeout recording field characteristic

Note for fault value = 403:

- r50047[1]: EMF setpoint (1 = 100 %)
- r50047[2]: EMF actual value (1 = 100 %)
- r50047[3]: Ramp-up monitoring time in s

Note for fault value = 404:

- r50047[1]: Speed actual value (1 = 100 %)

Note for fault value = 405:

- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)

Note for fault value = 406:

- r50047[1]: Field current setpoint (1 = 100 %)
- r50047[2]: Flux previous measuring point (1 = 100 %)
- r50047[3]: Flux actual measuring point (1 = 100 %)

Note for fault value = 407:

- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)

Note for fault value = 408:

- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)

Note for fault value = 409:

- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)

Note for fault value = 501:

- r50047[1]: Speed setpoint (1 = 100 %)
- r50047[2]: Speed actual value (1 = 100 %)
- r50047[3]: Speed, lower limit (1 = 100 %)
- r50047[4]: Speed, upper limit (1 = 100 %)
- r50047[5]: 0 = No limit active, 1 = Current limit active, 2 = Torque limit active

Note for fault value = 601:

- r50047[1]: speed setpoint (1 = 100 %) according to p50565
- r50047[2]: Speed actual value (1 = 100 %)
- r50047[3]: permissible time in s, until the speed setpoint is reached

Note for fault value = 602:

- r50047[1]: Speed actual value (1 = 100 %)

Note for fault value = 701:

- r50047[1]: P2P/CCP operating mode

Note for fault value = 703:

- r50047[1]: determined index for order number (MLFB)

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Note for fault value = 704:

- r50047[1]: Rated supply voltage [V]
- r50047[2]: CCP rated supply voltage [V]
- r50047[3]: Line voltage tolerance DCM (1 = 100 %)
- r50047[4]: Line voltage tolerance CCP (1 = 100 %)

Note for fault value = 707:

- r50047[1]: Calculated pre-charging voltage [V]
- r50047[2]: Possible maximum value of the pre-charging voltage [V]

Note for fault value = 708:

- r50047[1]: Calculated chopper energy in the armature circuit [J]
- r50047[2]: CCP chopper energy [J]

Remedy:

For fault value = 101:

Check field circuit for interruption (e.g. due to blown fuse).

For fault value = 201:

Check armature circuit for interruption (e.g. due to blown fuse).

For fault value = 207:

Temporarily reduce the rated motor current (p50100) so that the rated motor current is significantly less than the device rated current (e.g. p50100 = 50 % of r50072[1]).

For fault value = 401:

Check the setting of p50078[0], p50100, p50101 and p50110.

For fault value = 402:

Check the optimization of the field circuit.

For fault value = 403:

Check the optimization of the speed controller.

Check the setting of the acceleration times.

Check the setting of the current and torque limits.

For fault value = 404:

Check the polarity of speed actual value sensing (incremental encoder TTL/HTL, analog tachometer).

For fault value = 405:

Check the minimum motor excitation current (p50103).

For fault value = 407:

Check the torque limiting settings.

For fault value = 408:

Check the armature current limiting settings.

For fault value = 409:

Reduce the mechanical load.

For fault value = 701:

Check the setting of p50790 (value = 6).

For fault value = 704:

Check the setting of p50078[0].

For fault value = 706:

Check the optimization of the armature circuit.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60051 (N, A) Optimization run limit value violated

Message value: %1

Message class: Hardware/software error (1)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: During the optimization run, an attempt was made to set a parameter to a value outside its valid range of values. The parameter value was set to the appropriate limit value.

The optimization run was completed in full.
 Recommendation:
 Check the parameter values set!
 Fault value (r0949, interpret decimal):
 Parameter number of the parameter causing the error.

Note:
 r50047[1]: Incorrect value
 r50047[2]: Limited value
 r50047[3]: Lower limit value
 r50047[4]: Upper limit value

Remedy: You might have to set the parameter value manually.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F60052 (N, A) Optimization run aborted due to external cause

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: An optimization run which had been started has been interrupted due to an external cause.
 Fault value (r0949, interpret decimal):
 101: ON command not set within 30 seconds
 102: Following the ON command, operating state o0.x or o1.5 was not achieved within 1 minute.
 103: Impermissible parameter setting for this optimization run
 104: Internal software error
 105: Internal software error
 106: Internal software error
 108: Operating state o0.x or o1.5 exited during the optimization run
 109: The operating system does not allow the optimization run to access a parameter.
 110: Internal software error
 111: Internal software error
 112: Data set changeover (DDS) during an optimization run
 113: Data set changeover (CDS) during an optimization run
 114: Enable for the positive direction of rotation missing.
 Note for fault value = 103:
 - r50047[1]: 1 = Sequence control optimization run, 2 = Field optimization run, 3 = EMF optimization run
 - If r50047[1] = 1, r50047[2 to 3] are not relevant
 - r50047[2]: Parameter number
 - r50047[3]: Parameter value
 Note for fault value = 104:
 - r50047[1]: Parameter number (parameter number = 0 indicates a general fault is pending)
 Note for fault value = 105:
 - r50047[1]: 1 = General fault, 2 = Read parameter, 3 = Write parameter
 - If r50047[1] = 1, r50047[2 to 3] are not relevant
 - If r50047[1] = 2, r50047[2]: Parameter number
 - If r50047[1] = 3, r50047[2]: Parameter number, r50047[3]: Parameter value
 Note for fault value = 106:
 - r50047[1]: 1 = Sequence control optimization run, 2 = Optimization run
 - r50047[2]: OA return status word
 Note for fault value = 107:
 - r50047[1]: Parameter number
 - r50047[2]: OA return status word

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Note for fault value = 108:

- r50047[1]: New operating state

Note regarding fault value = 109: - r50047[1]: 1 = General fault, 2 = Read parameter, 3 = Write parameter, 4 = Set optimization parameter

- If r50047[1] = 1, r50047[2 to 3] are not relevant

- If r50047[1] = 2, r50047[2] is: Parameter number, r50047[2]: OA return status word, r50047[3]: List index

- If r50047[1] = 3, r50047[2]: Parameter number, r50047[3]: Parameter value, r50047[4]: OA return status word

- If r50047[1] = 4, r50047[2]: Parameter number, r50047[3]: OA return status word

Note for fault value = 110:

- r50047[1]: Parameter number

- r50047[2]: OA return status word

Note for fault value = 111:

- r50047[1]: Parameter number

- r50047[2]: OA return status word

Note for fault value = 112:

- r50047[1]: Parameter number

- r50047[2]: Old DDS (0 to 3)

- r50047[3]: New DDS (0 to 3)

Note for fault value = 113:

- r50047[1]: Parameter number

- r50047[2]: Old CDS (0 to 1)

- r50047[3]: New CDS (0 to 1)

Note for fault value = 114:

- r50047[1]: Operating state

- r50047[2]: Value of the signal selected with p50672

Remedy:

Interpret the fault value and rectify the fault correspondingly.

For fault value = 103:

Check the parameter entered in r50047[2].

For fault value = 109:

Possible causes for this:

- Write protection and/or know-how protection are active, see r7760

- A PROFIDRIVE telegram p922 = 3, 4 or 220 is set

Remedy:

- Temporarily withdraw write protection and/or know-how protection

- Temporarily set p922 to 999

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60055

Field characteristic not valid

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Field weakening in conjunction with the optimization run for field weakening has not yet been performed.

Fault value (r0949, interpret decimal):

1: Closed-loop torque control selected (p50170 = 1) but valid field characteristic not yet recorded

2: Speed-dependent field weakening selected (p50081 = 1) but valid field characteristic not yet recorded (p50117 = 0)

Remedy:

Record field characteristic.

See also: p50081 (Field weakening activation), p50117 (Field characteristic status), p50170 (Selection of control type for closed-loop current/torque control)

| | |
|-----------------------|---|
| F60056 | Important parameter not set |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | Settings required for operation have not yet been made or connected components have not yet been commissioned. Fault value (r0949, interpret decimal): 1: Actual value channel for speed controller not selected (p50083) 2: Rated armature current of the motor not set (p50100). 3: Rated field current of the motor not set (p50102). Note: Only necessary if p50082 > 0. 4: Rated DC current for the external field device not set (p51838). Note: Only necessary if p50082 >= 21. 5: Device commissioning not performed/completed (p0009 not equal to 0). 6: Drive commissioning not performed/completed (p0010 not equal to 0). 7: An internal field (p50082 = 1 to 4) has been selected for a device without a field power unit (option L10) 8: Field characteristic (p50120 ... p50139) not rising uniformly. 9: Reference speed (p2000) not set (factory setting value must be modified)! 10: Control Module: Connection of measurement cables for line voltage not set (p51821) 11: Control Module: Rated armature DC current not set (p51822). |
| Remedy: | Make the setting as appropriate for the fault value displayed. |
| <hr/> | |
| F60057 (N, A) | Armature current sensing fault |
| Message value: | - |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The message is triggered if there are opposing current and torque directions. Monitoring is active as soon as the current values overshoot the device rated current by 20%. Note: r50047[1]: Torque direction r50047[2]: Current scan value r50047[3]: Selected current sensing r50047[3] = 1: Current transformer phase UV r50047[3] = 2: Current transformer phase UW r50047[3] = 3: Current transformer phase VW r50047[3] = 4: External V-circuit r50047[3] = 5: External current sensing (shunt) r50047[3] = 6: Current sensing via analog input See also: p51824 (Current transformer configuration), p51852 (Current actual value sensing analog input configuration) |
| Remedy: | Check current transformer/shunt. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F60058 | Parameter settings not consistent |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | Inconsistent values have been set in parameters depending on each other. Fault value (r0949, interpret decimal): 0: Field weakening active (p50081 = 1) is not permissible when the EMF is used as speed setpoint (p50083 = 3). 1: Thyristor blocking voltage calculation active (p50166 = 1) for line frequencies > 65 Hz (p50364) is not permissible. 2: Setting of p51799 does not match the setting of p51800, p51802 and p51803. 3: For a line frequency > 65 Hz, p51800 must be < 10. 4: Setting of p50075 does not match the setting of p51799 (dynamic overload capability not permissible for single-phase operation). 5: Single-phase operation (p51799 = 1) not permissible for this device type. 6: Thyristor blocking voltage calculation (p50166 = 1) not possible for this device. 7: If p50083[D] = 2, p0400[0] = 0 is not permissible and if p50083[D] = 5, p0400[1] = 0 is not permissible. 8: For p50830 > 0, p51800 > 1 is not permissible, except 11 and 21 (thyristor diagnostics is only permissible for a single drive and for a parallel master). 9: For p50075 = 0, p50067 > 1 is not permissible. 10: Line frequency > 120 Hz is not permissible for this power unit (p50364). 11: For a 12-pulse parallel connection, p50153 = 2 is not permissible. |
| Remedy: | Make the setting as appropriate for the fault value displayed. |

| | |
|-----------------------|--|
| F60061 | Thyristor test unsuccessful |
| Message value: | %1 |
| Message class: | Power electronics faulted (5) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 |
| Acknowledge: | IMMEDIATELY |
| Cause: | With the thyristor test activated (p50830), a fault was detected for at least one thyristor. Fault value (r0949, interpret decimal): 1: Thyristor defective (V11 and/or V24) 2: Thyristor defective (V12 and/or V25) 3: Thyristor defective (V13 and/or V26) 4: Thyristor defective (V14 and/or V21) 5: Thyristor defective (V15 and/or V22) 6: Thyristor defective (V16 and/or V23) 8: Ground fault in the armature circuit 11: Thyristor cannot be fired (V11) 12: Thyristor cannot be fired (V12) 13: Thyristor cannot be fired (V13) 14: Thyristor cannot be fired (V14) 15: Thyristor cannot be fired (V15) 16: Thyristor cannot be fired (V16) 17: Two or more thyristors from V11 ... V16 cannot be fired 21: Thyristor cannot be fired (V21) 22: Thyristor cannot be fired (V22) 23: Thyristor cannot be fired (V23) 24: Thyristor cannot be fired (V24) 25: Thyristor cannot be fired (V25) 26: Thyristor cannot be fired (V26) 27: Two or more thyristors from V21 ... V26 cannot be fired 31: Thyristor cannot block (V11 or V21) 32: Thyristor cannot block (V12 or V22) |

- 33: Thyristor cannot block (V13 or V23)
- 34: Thyristor cannot block (V14 or V24)
- 35: Thyristor cannot block (V15 or V25)
- 36: Thyristor cannot block (V16 or V26)
- 41: Thyristor cannot be fired (V11 or V16)
- 42: Thyristor cannot be fired (V13 or V14)
- 45: Thyristor cannot be fired (V21 or V26)
- 46: Thyristor cannot be fired (V23 or V24)
- 99: Defective thyristor cannot be identified

Note 1:

If "Thyristor defective" or "Thyristor cannot block" is signaled, then the corresponding thyristor module should be replaced.

Possible reasons why thyristors could be destroyed:

- Interrupted snubber circuit.
- Current controller and precontrol not optimized (excessively high current peaks).
- Cooling not guaranteed (e.g. a fan is not running, ambient temperature too high, incorrect fan direction of rotation (incorrect rotating field), air flow too low, very dirty heat sink).
- Excessively high voltage peaks in the line supply.
- External short-circuit or ground fault present (check the armature circuit).

Note 2:

If "Thyristor cannot be fired" is signaled, then this is generally caused by a fault in the firing circuit and not by a defective thyristor.

Possible causes:

- Firing pulse cable to the thyristor involved interrupted.
- Connector X11 or X21 incorrectly inserted.
- Flat cable X108 either not correctly inserted or interrupted.
- Defective electronics module or gating module.
- Gate cable in the thyristor module internally interrupted.

Note 3:

For a Control Module, this fault can also be initiated by other fault causes.

- Incorrect assignment of the firing pulses to the thyristors.
- Incorrect current actual value sensing connection.
- Incorrect parameterization of the current actual value sensing (p51822, p51823, p51824).
- Incorrect parameterization of the power unit type (p51825).

Remedy:

Interpret the fault value and information and replace the appropriate thyristor.

F60062 (N, A) Communication error to the voltage sensing

- Message value:** %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: Communication to one of the two voltage sensing devices is faulted or interrupted.

Fault value (r0949, interpret decimal):

- 1: Armature voltage sensing
- 2: Field voltage sensing

Note:

- r50047[1]: Counter CRC error, armature
- r50047[2]: Counter, communication error, armature
- r50047[3]: Counter, CRC error, field
- r50047[4]: Counter, communication error, field

Remedy:

Carry out a POWER ON (power off/on) for all components.

- Reaction upon N: NONE
- Acknowl. upon N: NONE
- Reaction upon A: NONE
- Acknowl. upon A: NONE

| | |
|-----------------------|--|
| F60063 (N, A) | Incorrect calibration values for analog inputs/outputs |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The factory-set calibration values on the electronics module for the analog inputs/outputs are implausible. Fault value (r0949, interpret decimal): 1: Analog input 0 (X177.25/26), voltage input, offset incorrect value 2: Analog input 0 (X177.25/26), voltage input, +10 V incorrect value 3: Analog input 0 (X177.25/26), voltage input, -10 V incorrect value 4: Analog input 0 (X177.25/26), voltage input, reference value incorrect 5: Analog input 0 (X177.25/26), current input, offset incorrect value 6: Analog input 0 (X177.25/26), current input, +20 mA incorrect value 7: Analog input 0 (X177.25/26), current input, -20 mA incorrect value 8: Analog input 0 (X177.25/26), current input, reference value incorrect 9: Analog input 1 (X177.27/28), voltage input, offset incorrect value 10: Analog input 1 (X177.27/28), voltage input, +10 V incorrect value 11: Analog input 1 (X177.27/28), voltage input, -10 V incorrect value 12: Analog input 1 (X177.27/28), voltage input, reference value incorrect 13: Analog input 1 (X177.27/28), current input, offset incorrect value 14: Analog input 1 (X177.27/28), current input, +20 mA incorrect value 15: Analog input 1 (X177.27/28), current input, -20 mA incorrect value 16: Analog input 1 (X177.27/28), current input, reference value incorrect 17: Analog input 2 (X177.29/30), voltage input, offset incorrect value 18: Analog input 2 (X177.29/30), voltage input, +10 V incorrect value 19: Analog input 2 (X177.29/30), voltage input, -10 V incorrect value 20: Analog input 2 (X177.29/30), voltage input, reference value incorrect 21: Analog input 3 (X177.1/2), voltage input, offset incorrect value 22: Analog input 3 (X177.1/2), voltage input, +10 V incorrect value 23: Analog input 3 (X177.1/2), voltage input, -10 V incorrect value 24: Analog input 3 (X177.1/2), voltage input, reference value incorrect 25: Analog input 4 (X177.3/4), voltage input, offset incorrect value 26: Analog input 4 (X177.3/4), voltage input, +10 V incorrect value 27: Analog input 4 (X177.3/4), voltage input, -10 V incorrect value 28: Analog input 4 (X177.3/4), voltage input, reference value incorrect 29: Analog input 5 (X177.5/6), voltage input, offset incorrect value 30: Analog input 5 (X177.5/6), voltage input, +10 V incorrect value 31: Analog input 5 (X177.5/6), voltage input, -10 V incorrect value 32: Analog input 5 (X177.5/6), voltage input, reference value incorrect 33: Analog input 6 (X177.7/8), voltage input, offset incorrect value 34: Analog input 6 (X177.7/8), voltage input, +10 V incorrect value 35: Analog input 6 (X177.7/8), voltage input, -10 V incorrect value 36: Analog input 6 (X177.7/8), voltage input, reference value incorrect 37: Analog input XT1.103/104, voltage input, offset incorrect value 38: Analog input XT1.103/104, voltage input, +25 V incorrect value 39: Analog input XT1.103/104, voltage input, -25 V incorrect value 40: Analog input XT1.103/104, voltage input, reference value incorrect 41: Analog input XT1.103/104, voltage input, offset incorrect value 42: Analog input XT1.103/104, voltage input, +80 V incorrect value 43: Analog input XT1.103/104, voltage input, -80 V incorrect value 44: Analog input XT1.103/104, voltage input, reference value incorrect 45: Analog input XT1.103/104, voltage input, offset incorrect value 46: Analog input XT1.103/104, voltage input, +270 V incorrect value |

- 47: Analog input XT1.103/104, voltage input, -270 V incorrect value
- 48: Analog input XT1.103/104, voltage input, reference value incorrect
- 49: Analog output 0 (X177.49/50), offset incorrect value
- 50: Analog output 0 (X177.49/50), -10 V incorrect value
- 51: Analog output 0 (X177.49/50), +10 V incorrect value
- 52: Analog output 0 (X177.49/50), reference value incorrect
- 53: Analog output 1 (X177.51/52), offset incorrect value
- 54: Analog output 1 (X177.51/52), -10 V incorrect value
- 55: Analog output 1 (X177.51/52), +10 V incorrect value
- 56: Analog output 1 (X177.51/52), reference value incorrect

Note:

r50047[1]: Incorrect calibration value

Remedy: Replace the electronics module with the incorrect calibration values.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60064 (N, A) Error communicating with second processor TMS320

Message value: -

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: Communication with the second processor (TMS320) has failed.

Note:

r50047[1]: Communication counter in send direction

r50047[2]: Communication counter in receive direction

Remedy: Carry out a POWER ON (power off/on) for all components.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60065 (N, A) Software update on second processor (TMS320) failed

Message value: %1

Message class: Hardware/software error (1)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: The updating of the software for the second processor (TMS320) has failed.

Fault value (r0949, interpret decimal):

This value indicates the state in which the fault occurred.

2: Wait for the TMS320 bootloader to be ready.

3: Check the version of the TMS320 bootloader.

4: Check the version of the TMS320 application software.

5: Wait for the TMS320 to exit the bootloader.

6: Wait for the TMS320 to load its Flash API.

7: Wait for the TMS320 to delete its Flash EPROM.

8: Send a section of code 8 KB in size to the TMS320.

9: Wait for the TMS320 to request a new 8 KB section of code.

10: Wait until the TMS320 application software has been started.

11: Wait until the TMS320 is ready for a new command.

4 Faults and alarms

4.2 List of faults and alarms

100: Bootloader version not compatible.

101: TMS version not compatible.

Note:

r50047[1]: Error bits. Indicate in which of the following states errors occurred.

Bit 0 = 1: Initialization

Bit 1 = 1: TMS320 status

Bit 2 = 1: Bootloader version

Bit 3 = 1: TMS320 version

Bit 4 = 1: TMS320 start

Bit 5 = 1: Load Flash interface

Bit 6 = 1: Delete Flash

Bit 7 = 1: Write Flash

Bit 8 = 1: Request code

Bit 9 = 1: TMS320 start

Bit 10 = 1: Read message

Remedy: Carry out a POWER ON (power off/on) for all components.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60066 (N, A) Error communicating with sensors

Message value: %1

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: An error occurred when polling the fan speeds and temperature sensors.

Fault value (r0949, interpret decimal):

1: Data not received

2: Fan monitoring or temperature sensors not switched over

Remedy: Carry out a POWER ON (power off/on) for all components.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60067 (N, A) Fault temperature too high

Message value: %1

Message class: Overtemperature of the electronic components (6)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The temperature at one of the temperature sensors has exceeded the highest permissible temperature to initiate this fault.

Fault value (r0949, interpret decimal):

1: Overtemperature at sensor 1 (sensor an XT5).

2: Overtemperature at sensor 2 (sensor an XT6).

3: Overtemperature at sensor 3 (sensor an XT7).

4: Overtemperature at the sensor control module (A7105, A7106, A7107, A7108, A7109).

Note:

r50047[1]: Temperature sensor 1

r50047[2]: Temperature sensor 2

r50047[3]: Temperature sensor 3

r50047[4]: Gating module temperature
r50047[5]: CUD module temperature
Remedy:
- Check the ambient temperature and reduce if necessary.
- Reduce the load.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60068 (N, A) Incorrect calibration values for power unit

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The calibration values for the power unit are missing or incorrect.
Fault value (r0949, interpret decimal):
1x: Power unit for armature
2x: Power unit for field
x = 1: Unable to read compensation data
x = 2: Unknown compensation data format
x = 3: Incorrect compensation data CRC
x = 4: The measuring points contained in the compensation data do not rise uniformly.
x = 5: No compensation values can be calculated from the compensation data.
x = 6: The signal offset calculated from the compensation data is impermissibly high.
Remedy: Carry out a POWER ON (power off/on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60069 (N, A) Invalid order number (MLFB)

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The data read from the power unit (serial number, MLFB, accessory options) is invalid.
Fault value (r0949, interpret decimal):
1: The serial number is invalid or missing.
2: The order number (MLFB) is invalid or missing.
3: The accessory options are invalid.
4: Incorrect serial number CRC
5: Incorrect MLFB CRC
6: Incorrect accessory options CRC
7: The MLFB read out is not known to the software.
8: Unable to read data.
9: MLFB cannot be changed in current operating state.
Note for fault value = 1, 4:
r50047[1]: 1st digit of serial number
r50047[2]: 2nd digit of serial number
...
r50047[30]: 30th digit of serial number

4 Faults and alarms

4.2 List of faults and alarms

Note for fault value = 2, 5, 7:

r50047[1]: 1st digit of MLFB

r50047[2]: 2nd digit of MLFB

...

r50047[30]: 30th digit of MLFB

Note for fault value = 3, 6:

r50047[1]: 1st digit of accessory options

r50047[2]: 2nd digit of accessory options

...

r50047[30]: 30th digit of accessory options

Note for fault value = 9:

r50047[1]: Operating state

Remedy: Send your SINAMICS DC MASTER to the manufacturer's plant or an authorized repair center.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A60080 (F, N) Alarm temperature too high

Message value: %1

Message class: Overtemperature of the electronic components (6)

Drive object: DC_CTRL

Reaction: NONE

Acknowledge: NONE

Cause: The temperature at one of the temperature sensors has exceeded the highest permissible temperature to initiate this alarm.

Alarm value (r2124, interpret decimal):

1: Overtemperature at sensor 1 (sensor an XT5).

2: Overtemperature at sensor 2 (sensor an XT6).

3: Overtemperature at sensor 3 (sensor an XT7).

4: Overtemperature at the sensor control module (A7105, A7106, A7107, A7108, A7109).

Note:

r50047[1]: Temperature sensor 1

r50047[2]: Temperature sensor 2

r50047[3]: Temperature sensor 3

r50047[4]: Gating module temperature

r50047[5]: CUD module temperature

Remedy: - Check the ambient temperature and reduce if necessary.

- Reduce the load.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A60081 (F, N) Alarm module temperature exceeded

Message value: -

Message class: Overtemperature of the electronic components (6)

Drive object: DC_CTRL

Reaction: NONE

Acknowledge: NONE

Cause: The temperature on the Control Unit DC MASTER (CUD) has exceeded the alarm value (temperature above 90 °C).

Note:

r50047[1]: Module temperature (in °C)

r50047[2]: Reference voltage -10 V (in volts)

r50047[3]: Reference voltage +10 V (in volts)
 r50047[4]: Temperature sensor 1 (in °C)
Remedy: Check the ambient temperature and reduce if necessary.
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A60082 (F, N) Alarm derating factor K1 limit value fallen below

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Reaction: NONE
Acknowledge: NONE
Cause: For a drive device equipped with option L99, derating (reduced power) is calculated depending on the air intake temperature.
 The calculated derating factor K1 has fallen below the set limit value (p50066).
 Note:
 r50047[1]: air intake temperature in °C (sensor at XT6)
 r50047[2]: derating factor K1
 See also: p50066 (Power unit I2t monitoring derating factor K1 limit value)
Remedy: Check the air intake temperature and reduce if necessary.
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F60090 (N, A) Fault module temperature exceeded

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The temperature on the Control Unit DC MASTER (CUD) has exceeded the fault value (temperature above 95 °C).
 Note:
 r50047[1]: Module temperature (in °C)
 r50047[2]: Supply voltage -10 V (in volts)
 r50047[3]: Supply voltage +10 V (in volts)
 r50047[4]: Temperature sensor 1 (in °C)
Remedy: Check the ambient temperature and reduce if necessary.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F60091 (N, A) Reference voltage P10 outside tolerance

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The reference voltage P10 (+10 V) at terminal X177.31 lies outside the tolerance (deviation greater than +/-5%).
 Note:
 r50047[1]: Reference voltage +10 V (in volts)
 r50047[2]: Reference voltage -10 V (in volts)
 r50047[3]: Module temperature (in °C)

4 Faults and alarms

4.2 List of faults and alarms

Remedy: Check the power supply.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60092 (N, A) Reference voltage N10 outside tolerance

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: The reference voltage N10 (-10 V) at terminal X177.32 lies outside the tolerance (deviation greater than +/-5%).

Note:

r50047[1]: Reference voltage -10 V (in volts)

r50047[2]: Reference voltage +10 V (in volts)

r50047[3]: Module temperature (in °C)

Remedy: Check the power supply.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60093 (N, A) Power supply P5 overloaded

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: Power supply P5 (+5 V) at connector X179.1 is overloaded.

Note:

r50047[1]: Reference voltage +10 V (in volts)

r50047[2]: Reference voltage -10 V (in volts)

r50047[3]: Module temperature (in °C)

Remedy: Identify the reason for the overload and rectify the situation.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60094 (N, A) Power supply P15 overloaded

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: Power supply P15 (+15 V) at terminal X177.41 is overloaded.

Note:

r50047[1]: Reference voltage +10 V (in volts)

r50047[2]: Reference voltage -10 V (in volts)

r50047[3]: Module temperature (in °C)

Remedy: Identify the reason for the overload and rectify the situation.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F60095 (N, A) Power supply P24 overloaded

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Power supply P24 (+24 V) at terminal X177.9 or X177.10 is overloaded.

Note:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in °C)

Remedy: Identify the reason for the overload (e.g. digital outputs) and rectify the situation.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60096 (N, A) Temperature sensor faulty

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A cable break or a short circuit has been detected on at least one temperature sensor.

Fault value (r0949, interpret decimal):
1: A cable break has occurred.
2: A short circuit has occurred.
Note:
r50047[1] = 1: Temperature sensor 1
r50047[1] = 2: Temperature sensor 2
r50047[1] = 3: Temperature sensor 3
r50047[1] = 4: Temperature sensor gating module
r50047[1] = 5: Temperature sensor CUD module
r50047[1] = 6: Motor temperature sensor
r50047[2]: Value of the analog-to-digital converter

Remedy: Evaluate the fault and, if the temperature sensor is faulty, run a wiring and performance check.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60097 (N, A) Power supply faulty

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The power supply is not working correctly.

Note 1:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in °C)

4 Faults and alarms

4.2 List of faults and alarms

Note 2:

For SINAMICS DCM with 2 CUD, the following applies:

After carrying out a reset (p0972 > 0 or p0976 = 200) at a CUD, then this fault is output at the other. In this case, the fault has no significance and can be acknowledged.

Remedy: Check the power supply.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A60098 (F, N) System utilization high

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: NONE

Acknowledge: NONE

Cause: The average computing time utilization (r9976[1]) for the system is greater than 95 %.

Remedy: Reduce computing time utilization by.

The following options are available to do this:

- check the number of cyclically calculated blocks (DCC), and if required reduce.
- assign DCC blocks to runtime groups with a longer sampling time.
- check the number of cyclically calculated function blocks (FBLOCKS), and if required reduce.
- assign function blocks to runtime groups with a longer sampling time.
- remove DRIVE-CLiQ components that are not required.
- deactivate control blocks that are not required (p50899). This must be especially taken into account for a CUD right.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F60099 (N, A) System utilization too high

Message value: -

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: The average computing time utilization (r9976[1]) for the system is greater than 100 %.

Note:

r50047[1]: Averaged computing time utilization (in %)

r50047[2]: Maximum computing time utilization (in %)

Remedy: Reduce computing time utilization by.

The following options are available to do this:

- check the number of cyclically calculated blocks (DCC), and if required reduce.
- assign DCC blocks to runtime groups with a longer sampling time.
- check the number of cyclically calculated function blocks (FBLOCKS), and if required reduce.
- assign function blocks to runtime groups with a longer sampling time.
- remove DRIVE-CLiQ components that are not required.
- deactivate control blocks that are not required (p50899). This must be especially taken into account for a CUD right.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

| | |
|-----------------------|--|
| F60104 (N, A) | Armature circuit line voltage not OK |
| Message value: | %1 |
| Message class: | Network fault (2) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | <p>On power-up, the time set in p50089 represents the maximum wait time for voltage at the power connections and for field current in operating states o5 and o4 combined.</p> <p>On power-up, the time set in p50095 represents the maximum wait time for "Line contactor feedback" in operating state o3.3 (if activated, see p50691).</p> <p>This fault is triggered if the above times elapse in one of these operating states.</p> <ul style="list-style-type: none">- Thresholds for the line monitoring incorrectly set (p50078, p50351, p50352, p50353, p50363, p50364).- Armature voltage not OK (phase failure, undervoltage/overvoltage, underfrequency/overfrequency).- Line contactor not picking up- Fuse blown on three-phase side of armature circuit- Fuse blown in power unit- Interruption affecting thyristor firing pulse cable (auxiliary cathodes at connections X12, X14, X16 are used for voltage transmission). <p>Fault value (r0949, interpret decimal):</p> <p>2: Wait time set in p50089 has expired in operating state o4.0.</p> <p>3: Fuse blown on three-phase side of armature circuit</p> <p>6: Wait time set in p50095 has expired in operating state o3.3.</p> <p>Note for fault value = 2:</p> <ul style="list-style-type: none">- r50047[1]: line state (r53145) <p>Bit 0 = 1: Armature supply line, overvoltage</p> <p>Bit 1 = 1: Armature supply line, undervoltage</p> <p>Bit 2 = 1: Armature supply line, overfrequency</p> <p>Bit 3 = 1: Armature supply line, underfrequency</p> <p>Bit 4 = 1: Armature supply line, phase failure</p> <p>Bit 5 = 1: Field supply line, overvoltage</p> <p>Bit 6 = 1: Field supply line, undervoltage</p> <p>Bit 7 = 1: Field supply line, overfrequency</p> <p>Bit 8 = 1: Field supply line, underfrequency</p> <p>Bit 9 = 1: Field supply line, phase failure</p> <p>Bit 10 = 1: Armature supply line OK</p> <p>Bit 11 = 1: Field supply line OK</p> <p>Bit 12 = 1: clockwise phase sequence</p> <p>Bit 13 = 1: Line symmetrical</p> <p>See also: p50089 (Sequence control voltage at power unit wait time), p50095 (Sequence control DC circuit contactor wait time), p50691 (Sequence control line contactor feedback)</p> |
| Remedy: | <ul style="list-style-type: none">- Check the thresholds for the line monitoring (p50078, p50351, p50352, p50353, p50363, p50364).- Check line voltage and line contactor.- Check fuses for armature circuit.- Check thyristor firing pulse cable (X12, X14, X16). <p>See also: p50089 (Sequence control voltage at power unit wait time), p50353 (Line monitoring phase failure threshold)</p> |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|---|
| F60105 (N, A) | Field current monitoring fault in field circuit |
| Message value: | %1 |
| Message class: | Network fault (2) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE) |
| Acknowledge: | IMMEDIATELY |
| Cause: | Field current monitoring has detected erroneous behavior. <ul style="list-style-type: none">- Field phase failed- Line contactor not picking up- Fuse blown in field circuit- Field current controller and/or field current controller pre-control not optimized or optimization is very poor. Fault value (r0949, interpret decimal): <ol style="list-style-type: none">1: The field current actual value was smaller than the percentage of the field current setpoint set in p50396.2: The field line voltage was not available within the time set in p50089.3: The field current was not available within the time set in p50089.4: The external field current monitoring has responded (BI: p50265 = 1/0 signal). Note for fault value = 1: <ul style="list-style-type: none">r50047[1]: Setpoint at field current controller input (r52268)r50047[2]: Actual value at field current controller input (r52265)r50047[3]: External monitoring (p50265)r50047[4]: Operating mode (p50082)r50047[5]: Threshold for monitoring (p50396) Note for fault value = 2: <ul style="list-style-type: none">- r50047[1]: line state (r53145). See also: r50073 (Device rated direct current field), p50082 (Field power unit operating mode), p50396 (Field current monitoring setpoint factor), p50397 (Field current monitoring fault delay time), r52265 (CI-loop field curr ctrl current controller actual value), r52268 (Closed-loop field current control current controller setpoint) |
| Remedy: | <ul style="list-style-type: none">- Check field phases.- Check line contactor.- Check fuses in field current circuit.- Perform an optimization run for the field current controller (p50051 = 24).- Check the threshold and time for field current monitoring (p50396, p50397). See also: p50051 (Optimization run selection) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

| | |
|-----------------------|--|
| F60106 (N, A) | Short-circuit voltage Uk too high |
| Message value: | %1 |
| Message class: | General drive fault (19) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | The per unit short-circuit voltage of the line supply is greater than 10 %. Permissible values are between 2 and 10 %. See also: r50073 (Device rated direct current field), p50082 (Field power unit operating mode), p50396 (Field current monitoring setpoint factor), p50397 (Field current monitoring fault delay time), r52265 (CI-loop field curr ctrl current controller actual value), r52268 (Closed-loop field current control current controller setpoint) |
| Remedy: | Check the dimensioning of the commutating reactors or the line transformer. See also: p50051 (Optimization run selection) |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

F60137 (N, A) I2t monitoring fault excessive motor temperature rise

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The I2t calculation shows that the motor's temperature rise is excessive.
The fault is triggered if the calculated motor temperature rise in r52309 > 110%.
Note:
r50047[1]: Temperature rise r52309
r50047[2]: Motor rated armature current p50100
r50047[3]: Continuous current factor r50113
r50047[4]: Device rated current r50072[1]
r50047[5]: Current armature current r52109
r50047[6]: Motor thermal time constant p50114
See also: p50114 (Motor thermal time constant), r52309 (Calculated motor temperature rise)
Remedy: - Check the ambient temperature and reduce if necessary.
- Reduce the motor load.
See also: r52109 (Armature current actual value averaged over 6 cycles)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60139 (N, A) I2t monitoring fault excessive power unit temperature rise

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The temperature rise of the thyristors is more than 102 % of the maximum permissible value.
Remedy: - Check the ambient temperature and reduce if necessary.
- Check the motor load and reduce if necessary.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60143 (F, N) Reduction of the field current setpoint for an excessively high EMF during braking active

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Reaction: NONE
Acknowledge: NONE
Cause: Reduction of the field current setpoint for an excessively high EMF during braking is active.
See also: p50272 (Field current reduction activation)
Remedy: Not necessary.
The alarm automatically disappears after braking has expired.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

| | |
|-----------------------|---|
| A60165 (F, N) | Fan end of service life has been reached or exceeded |
| Message value: | - |
| Message class: | Overtemperature of the electronic components (6) |
| Drive object: | DC_CTRL |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | At least one device fan has reached the end of its service life - or has exceeded it. |
| Remedy: | Replace the device fan and reset the operating hours. See also: r50960 (Device fan operating hours display), p50961 (Device fan service life), p50962 (Device fan reset operating hours) |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|--|
| A60166 (F, N) | Alarm fan speed too slow |
| Message value: | - |
| Message class: | Overtemperature of the electronic components (6) |
| Drive object: | DC_CTRL |
| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The fan speed is too slow. The fan is probably blocked or faulty. Note: r50047[1]: Speed fan 1 (in revolutions/s) r50047[2]: Speed fan 2 (in revolutions/s) r50047[3]: Speed fan 3 (in revolutions/s) r50047[4]: Speed fan 4 (in revolutions/s) |
| Remedy: | Check the fan and replace if necessary. |
| Reaction upon F: | NONE (OFF1, OFF2, OFF3) |
| Acknowl. upon F: | IMMEDIATELY |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |

| | |
|-----------------------|---|
| F60167 (N, A) | Fault fan speed too slow |
| Message value: | - |
| Message class: | Overtemperature of the electronic components (6) |
| Drive object: | DC_CTRL |
| Reaction: | OFF2 (NONE, OFF1, OFF3) |
| Acknowledge: | IMMEDIATELY |
| Cause: | a) The fan speed is too slow. The fan is probably blocked or faulty. b) The AC fan was switched off in operation or before the fan run on time p50096 expired by an external fan control. Note 1: r50047[1]: Speed fan 1 (in revolutions/s) r50047[2]: Speed fan 2 (in revolutions/s) r50047[3]: Speed fan 3 (in revolutions/s) r50047[4]: Speed fan 4 (in revolutions/s) Note 2: Fault message F60167 can only be acknowledged after the fan run on time p50096 has expired! |
| Remedy: | a) Check the fan and replace if necessary. b) Use the fan control inside the device ! See function block diagram 8047 or 8049. |
| Reaction upon N: | NONE |
| Acknowl. upon N: | NONE |
| Reaction upon A: | NONE |
| Acknowl. upon A: | NONE |

A60168 (F, N) Memory card not plugged in

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: NONE
Acknowledge: NONE
Cause: The data recorded with the recorder function could not be saved on the memory card.
Possible causes:
- Memory card not plugged in
- Memory card defective
Note:
If the save function is performed without errors, the data is saved on the memory card under "`\\USER\SINAMICS\DATA\LOG\Tack.csv`".
Fault value (r0949, interpret decimal):
1: Unable to create or open the file
2: Unable to write to the file
3: Unable to write all data to the file
See also: p51700 (Signal source for connector recorder function), p51701 (Signal source for binector recorder function), p51702 (Recorder function channel selection), p51703 (Recorder function recording interval), p51704 (Recorder function save interval), p51705 (Start/stop recorder function)
Remedy: Plug in a functional memory card (SecureDigital card, SD card).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60203 (N, A) External fault triggered

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: An external fault has been triggered via terminal 124/125 on the Control Module.
Fault value (r0949, interpret decimal):
Input signal which triggered the fault.
Note:
r50047[1]: External fault mode (p51833)
See also: p51833 (External fault mode)
Remedy: Eliminate the causes of this fault.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60204 (N, A) Fuse monitoring has responded

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Fuse monitoring on the Control Module has detected at least one blown fuse.
Fault value (r0949, interpret decimal):
1: Monitoring of slot X23B (p51831[0]) has responded.
2: Monitoring of slot X23C (p51831[1]) has responded.
3: Monitoring of slot X23D (p51831[2]) has responded.

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4: Monitoring of slot X23E (p51831[3]) has responded.

5: Monitoring of slot X23F (p51831[4]) has responded.

Note:

r50047[1]: Fuse number (XS1, XS2 to XS6)

See also: p51831 (Fuse monitoring activation)

Remedy:

- Analyze the blown fuse.

- Replace or close fuses as necessary.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A60266 (F, N)

Alarm fan not OK

Message value: %1

Message class: Overtemperature of the electronic components (6)

Drive object: DC_CTRL

Reaction: NONE

Acknowledge: NONE

Cause:

For a control module without option Z01... Z15, the following applies:

The signal at terminal 122/123 signals "Fan not OK".

The fan might be blocked or faulty.

Alarm value (r2124, interpret decimal):

Alarm value 1: Signal at terminal 122/123 signals "Fan not OK".

r50047[1]: Fan monitoring mode (p51832)

For a control module with option Z01... Z15, the following applies:

The alarm threshold for the differential pressure was fallen below.

Alarm value 2: differential pressure at LT1 fallen below

Alarm value 3: differential pressure at LT2 fallen below

r50047[1]: Fan monitoring mode (p51832)

Remedy:

- Check wiring of "Fan OK" message via input terminal 122/123.

- Check the setting of the mode for fan monitoring (p51832).

- Check the fan and replace if necessary.

See also: p51832 (Fan monitoring configuration), p51835 (Delay times for device fan monitoring)

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F60267 (N, A)

CM: Fan not OK

Message value: %1

Message class: Overtemperature of the electronic components (6)

Drive object: DC_CTRL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause:

For a control module without option Z01... Z15, the following applies:

The signal at terminal 122/123 signals "Fan not OK".

The fan might be blocked or faulty.

Alarm value (r2124, interpret decimal):

Alarm value 1: Signal at terminal 122/123 signals "Fan not OK".

r50047[1]: Fan monitoring mode (p51832)

For a control module with option Z01... Z15, the following applies:

The fault threshold for the differential pressure was fallen below.

Alarm value 2: differential pressure at LT1 fallen below

Alarm value 3: differential pressure at LT2 fallen below

r50047[1]: Fan monitoring mode (p51832)

Remedy:

- Check wiring of "Fan OK" message via input terminal 122/123.

- Check the setting of the mode for fan monitoring (p51832).

- Check the fan and replace if necessary.

See also: p51832 (Fan monitoring configuration), p51835 (Delay times for device fan monitoring)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60300 Commutation failure

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Commutation failure or overcurrent has occurred or a test command was entered via p51583.

Possible causes of the commutation failure:

- Line voltage dip during regenerative operation.

- Armature current control loop not optimized.

Fault value (r0949, interpret decimal):

1:

Commutation was not successful because the thyristor being turned off did not accept the blocking voltage (only for p50166 = 1).

r50047[0]: Decision criterion (= 1)

r50047[1]: Thyristor state (= r53146)

r50047[2]: Fired thyristor pairs

Bit 0 = 1: Thyristor 1 in MI was fired

...

Bit 5 = 1: Thyristor 6 in MI was fired

Bit 8 = 1: Thyristor 1 in MII was fired

...

Bit 13 = 1: Thyristor 6 in MII was fired

r50047[3]: Actual armature firing angle [in degrees]

r50047[4]: Actual EMF in [in %]

2:

The current did not flow through the correct thyristor or the current cusp made a kink upwards.

r50047[0]: Decision criterion (= 2)

r50047[1]: Subcriterion

For subcriterion = 1, the following applies:

The current did not flow through the correct thyristors.

r50047[2]: Actual I_a sample value [in A]

r50047[3]: Actual I_a sample value CT 1 [in A]

r50047[4]: Actual I_a sample value CT 2 [in A]

r50047[5]: Actual I_a sample value + 20% of I_n [in A]

r50047[6]: Number of I_a sample values since the last firing pulse

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For subcriterion = 2 , the following applies:

The current cusp has an upwards kink

r50047[2]: Actual Delta Ia [in A]

r50047[3]: Lowest Delta-Ia up until now since the last firing pulse [in A]

r50047[4]: Actual Ia sample value [in A]

r50047[5]: First Delta-Ia after the last firing pulse [in A]

r50047[6]: Actual armature firing angle [in degrees]

r50047[7]: Number of Ia sample values since the last firing pulse

3:

The magnitude of the current cusp was greater than 290% of the actual rated device armature DC current (r50072[1]).

r50047[0]: Decision criterion (= 3)

r50047[1]: Number of Delta-Ua, that Ua may still be away from the EMF

r50047[2]: Previous voltage CD [in V]

r50047[3]: Actual voltage CD [in V]

r50047[4]: Actual Delta Ua [in V]

r50047[5]: Actual armature firing angle [in degrees]

r50047[6]: Actual EMF in [in V]

r50047[7]: Actual Ia sample value [in A]

4:

A SINAMICS DCM connected in parallel has detected a commutation failure or overcurrent.

r50047[0]: Decision criterion (= 4)

5:

Test command was entered via p51583.

r50047[0]: Decision criterion (= 5)

r50047[1]: Actual voltage CD [in V]

r50047[2]: Actual armature firing angle [in degrees]

r50047[3]: Actual EMF in [in V]

r50047[4]: Actual Ia sample value [in A]

r50047[5]: Actual torque direction (0, 1 or 2)

Remedy: Acknowledge the fault and switch off /switch on the drive

F60320 (N, A)

CCP not functional

Message value:

%1

Message class:

General drive fault (19)

Drive object:

DC_CTRL

Reaction:

OFF2 (NONE, OFF1, OFF3)

Acknowledge:

IMMEDIATELY

Cause:

The SIMOREG CCP is not functional.

Possible fault causes:

- Hardware defect in the charge circuit of the turn-off capacitors.
- Fuse failure in the armature circuit, line side or motor side.
- Fuse failure in the pre-charging circuit for the chopper capacitors.
- Chopper resistors still cooling down (this is necessary)

Fault value (r0949, interpret decimal):

1: No voltage at the U, V, W connections of the SIMOREG CCP.

2: The voltage at C-D at the SIMOREG CCP does not match the voltage C-D at the SINAMICS DCM.

3: The turn-off capacitors of the SIMOREG CCP have not reached the setpoint voltage.

4: No connection between SINAMICS DCM (X165_2, fast pulse inhibit interface) and SIMOREG CCP (X165).

5: No connection between SINAMICS DCM (X177) and SIMOREG CCP (X172) via the serial interface.

6: No connection between several SIMOREG CCPs (X29_PAR or X30_PAR, turn-off pulse interface).

7: SIMOREG CCP data invalid or not available (r51570, r51571, r51572).

11: The I2t value (r51575) of the voltage limiting chopper 1 is too high (> 100 %).

12: The I2t value (r51576) of the voltage limiting chopper 2 is too high (> 100 %).

20: The chopper capacitors were not able to be pre-charged within the time set in p50089.

Note:
r50047[0]: Fault value
r50047[1]: CCP state (extended status word + r51574)
r50047[2]: Armature voltage
Remedy: Interpret the fault value and rectify the fault correspondingly.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60321 (F, N) CCP not functional

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL

Reaction: NONE

Acknowledge: NONE

Cause: The SIMOREG CCP is not functional.

Possible fault causes:

- Hardware defect in the charge circuit of the turn-off capacitors.
- Fuse failure in the armature circuit, line side or motor side.
- Fuse failure in the pre-charging circuit for the chopper capacitors.
- Chopper resistors still cooling down (this is necessary)

Alarm value (r2124, interpret decimal):

- 1: No voltage at the U, V, W connections of the SIMOREG CCP.
- 2: The voltage at C-D at the SIMOREG CCP does not match the voltage C-D at the SINAMICS DCM.
- 3: The turn-off capacitors of the SIMOREG CCP have not reached the setpoint voltage.
- 4: No connection between SINAMICS DCM (X165_2, fast pulse inhibit interface) and SIMOREG CCP (X165).
- 5: No connection between SINAMICS DCM (X177) and SIMOREG CCP (X172) via the serial interface.
- 6: No connection between several SIMOREG CCPs (X29_PAR or X30_PAR, turn-off pulse interface).
- 7: SIMOREG CCP data invalid or not available (r51570, r51571, r51572).
- 11: The I2t value (r51575) of the voltage limiting chopper 1 is too high (> 100 %).
- 12: The I2t value (r51576) of the voltage limiting chopper 2 is too high (> 100 %).
- 20: The chopper capacitors were not able to be pre-charged within the time set in p50089.

Note:

r50047[0]: Alarm value
r50047[1]: CCP state (extended status word + r51574)
r50047[2]: Armature voltage

Remedy: Interpret the fault value and rectify the fault correspondingly.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

Appendix

A

Content

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A.1 ASCII table (characters that can be displayed)

The following table includes the decimal and hexadecimal notation of ASCII characters that can be displayed (printable).

Table A-1 ASCII table (characters that can be displayed)

| Character | Decimal | Hexadecimal | Meaning |
|-----------|---------|-------------|---|
| | 32 | 20 | Space |
| ! | 33 | 21 | Exclamation mark |
| " | 34 | 22 | Quotation mark |
| # | 35 | 23 | Number sign |
| \$ | 36 | 24 | Dollar |
| % | 37 | 25 | Percent |
| & | 38 | 26 | Ampersand |
| ' | 39 | 27 | Apostrophe, closing single quotation mark |
| (| 40 | 28 | Opening parenthesis |
|) | 41 | 29 | Closing parenthesis |
| * | 42 | 2A | Asterisk |
| + | 43 | 2B | Plus |
| , | 44 | 2C | Comma |
| - | 45 | 2D | Hyphen, minus |
| . | 46 | 2E | Period, decimal point |
| / | 47 | 2F | Slash, slant |
| 0 | 48 | 30 | Digit 0 |
| 1 | 49 | 31 | Digit 1 |
| 2 | 50 | 32 | Digit 2 |
| 3 | 51 | 33 | Digit 3 |
| 4 | 52 | 34 | Digit 4 |
| 5 | 53 | 35 | Digit 5 |
| 6 | 54 | 36 | Digit 6 |
| 7 | 55 | 37 | Digit 7 |
| 8 | 56 | 38 | Digit 8 |
| 9 | 57 | 39 | Digit 9 |
| : | 58 | 3A | Colon |
| ; | 59 | 3B | Semicolon |
| < | 60 | 3C | Less than |
| = | 61 | 3D | Equals |
| > | 62 | 3E | Greater than |
| ? | 63 | 3F | Question mark |
| @ | 64 | 40 | Commercial At |

Table A-1 ASCII table (characters that can be displayed), continued

| Character | Decimal | Hexadecimal | Meaning |
|-----------|---------|-------------|-------------------------------|
| A | 65 | 41 | Capital letter A |
| B | 66 | 42 | Capital letter B |
| C | 67 | 43 | Capital letter C |
| D | 68 | 44 | Capital letter D |
| E | 69 | 45 | Capital letter E |
| F | 70 | 46 | Capital letter F |
| G | 71 | 47 | Capital letter G |
| H | 72 | 48 | Capital letter H |
| I | 73 | 49 | Capital letter I |
| J | 74 | 4A | Capital letter J |
| K | 75 | 4B | Capital letter K |
| L | 76 | 4C | Capital letter L |
| M | 77 | 4D | Capital letter M |
| N | 78 | 4E | Capital letter N |
| O | 79 | 4F | Capital letter O |
| P | 80 | 50 | Capital letter P |
| Q | 81 | 51 | Capital letter Q |
| R | 82 | 52 | Capital letter R |
| S | 83 | 53 | Capital letter S |
| T | 84 | 54 | Capital letter T |
| U | 85 | 55 | Capital letter U |
| V | 86 | 56 | Capital letter V |
| W | 87 | 57 | Capital letter W |
| X | 88 | 58 | Capital letter X |
| Y | 89 | 59 | Capital letter Y |
| Z | 90 | 5A | Capital letter Z |
| [| 91 | 5B | Opening bracket |
| \ | 92 | 5C | Backslash |
|] | 93 | 5D | Closing bracket |
| ^ | 94 | 5E | Circumflex |
| _ | 95 | 5F | Underline |
| ' | 96 | 60 | Opening single quotation mark |
| a | 97 | 61 | Small letter a |
| b | 98 | 62 | Small letter b |
| c | 99 | 63 | Small letter c |
| d | 100 | 64 | Small letter d |

Table A-1 ASCII table (characters that can be displayed), continued

| Character | Decimal | Hexadecimal | Meaning |
|-----------|---------|-------------|----------------|
| e | 101 | 65 | Small letter e |
| f | 102 | 66 | Small letter f |
| g | 103 | 67 | Small letter g |
| h | 104 | 68 | Small letter h |
| i | 105 | 69 | Small letter i |
| j | 106 | 6A | Small letter j |
| k | 107 | 6B | Small letter k |
| l | 108 | 6C | Small letter l |
| m | 109 | 6D | Small letter m |
| n | 110 | 6E | Small letter n |
| o | 111 | 6F | Small letter o |
| p | 112 | 70 | Small letter p |
| q | 113 | 71 | Small letter q |
| r | 114 | 72 | Small letter r |
| s | 115 | 73 | Small letter s |
| t | 116 | 74 | Small letter t |
| u | 117 | 75 | Small letter u |
| v | 118 | 76 | Small letter v |
| w | 119 | 77 | Small letter w |
| x | 120 | 78 | Small letter x |
| y | 121 | 79 | Small letter y |
| z | 122 | 7A | Small letter z |
| { | 123 | 7B | Opening brace |
| | 124 | 7C | Vertical line |
| } | 125 | 7D | Closing brace |
| ~ | 126 | 7E | Tilde |

A.2 List of abbreviations

Note

The following list of abbreviations includes all abbreviations and their meanings used in the entire SINAMICS family of drives.

| Abbreviation | Source of abbreviation | Significance |
|--------------|---|--|
| A | | |
| A... | Alarm | Warning |
| AC | Alternating Current | Alternating current |
| ADC | Analog Digital Converter | Analog-Digital converter |
| AI | Analog Input | Analog input |
| AIM | Active Interface Module | Active Interface Module |
| ALM | Active Line Module | Active Line Module |
| AO | Analog Output | Analog output |
| AOP | Advanced Operator Panel | Advanced Operator Panel |
| APC | Advanced Positioning Control | Advanced Positioning Control |
| AR | Automatic Restart | Automatic restart |
| ASC | Armature Short Circuit | Armature short-circuit |
| ASCII | American Standard Code for Information Interchange | American coding standard for the exchange of information |
| AS-i | AS-Interface (Actuator Sensor Interface) | AS interface (open bus system in automation technology) |
| ASM | Asynchronmotor | Induction motor |
| B | | |
| BB | Betriebsbedingung | Operation condition |
| BERO | - | Contactless proximity switch |
| BI | Binector Input | Binector input |
| BIA | Berufsgenossenschaftliches Institut für Arbeitssicherheit | BG-Institute for Occupational Safety and Health |
| BICO | Binector Connector Technology | Binector connector technology |
| BLM | Basic Line Module | Basic Line Module |
| BO | Binector Output | Binector output |
| BOP | Basic Operator Panel | Basic operator panel |
| C | | |
| C | Capacitance | Capacitance |
| C... | - | Safety message |
| CAN | Controller Area Network | Serial bus system |
| CBC | Communication Board CAN | Communication Board CAN |
| CBE | Communication Board Ethernet | PROFINET communication module (Ethernet) |
| CD | Compact Disc | Compact disk |
| CDS | Command Data Set | Command data set |
| CF Card | CompactFlash Card | CompactFlash card |
| CI | Connector Input | Connector input |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|---|---|
| CLC | Clearance Control | Clearance control |
| CNC | Computer Numerical Control | Computer-supported numerical control |
| CO | Connector Output | Connector output |
| CO/BO | Connector Output / Binector Output | Connector Output / Binector Output |
| COB ID | CAN Object-Identification | CAN Object-Identification |
| CoL | Certificate of License | Certificate of License |
| COM | Common contact of a changeover relay | Center contact of a changeover contact |
| COMM | Commissioning | Startup |
| CP | Communication Processor | Communications processor |
| CPU | Central Processing Unit | Central processing unit |
| CRC | Cyclic Redundancy Check | Cyclic redundancy check |
| CSM | Control Supply Module | Control Supply Module |
| CU | Control Unit | Control Unit |
| CUA | Control Unit Adapter | Control Unit Adapter |
| CUD | Control Unit DC | Control Unit DC |
| D | | |
| DAC | Digital Analog Converter | Digital analog converter |
| DC | Direct Current | DC current |
| DCB | Drive Control Block | Drive Control Block |
| DCBRK | DC Brake | DC braking |
| DCC | Drive Control Chart | Drive Control Chart |
| DCN | Direct Current Negative | Direct current negative |
| DCP | Direct Current Positive | Direct current positive |
| DDS | Drive Data Set | Drive Data Set |
| DI | Digital Input | Digital input |
| DI/DO | Digital Input / Digital Output | Digital input/output, bidirectional |
| DMC | DRIVE-CLiQ Hub Module Cabinet | DRIVE-CLiQ Hub Module Cabinet |
| DME | DRIVE-CLiQ Hub Module External | DRIVE-CLiQ Hub Module External |
| DMM | Double Motor Module | Double Motor Module |
| DO | Digital Output | Digital output |
| DO | Drive Object | Drive object |
| DP | Decentralized Peripherals | Distributed I/O |
| DPRAM | Dual-Port Random Access Memory | Dual-Port Random Access Memory |
| DQ | DRIVE-CLiQ | DRIVE-CLiQ |
| DRAM | Dynamic Random Access Memory | Dynamic Random Access Memory |
| DRIVE-CLiQ | Drive Component Link with IQ | Drive Component Link with IQ |
| DSC | Dynamic Servo Control | Dynamic Servo Control |
| DTC | Digital Time Clock | Timer |
| E | | |
| EASC | External Armature Short-Circuit | External armature short-circuit |
| EDS | Encoder Data Set | Encoder data set |
| EEPROM | Electrically Erasable Programmable Read-Only Memory | Electrically Erasable Programmable Read-Only-Memory |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|---------------------------------------|---|
| EGB | Elektrostatisch gefährdete Baugruppen | Electrostatic sensitive devices |
| ELCB | Earth Leakage Circuit-Breaker | Residual current operated circuit breaker |
| ELP | Earth Leakage Protection | Ground-fault monitoring |
| EMC | Electromagnetic Compatibility | Electromagnetic compatibility |
| EMF | Electromotive Force | Electromotive force |
| EMK | Elektromotorische Kraft | Electromotive force |
| EMV | Elektromagnetische Verträglichkeit | Electromagnetic compatibility |
| EN | Europäische Norm | European Standard |
| EnDat | Encoder-Data-Interface | Encoder interface |
| EP | Enable Pulses | Pulse enable |
| EPOS | Einfachpositionierer | Basic positioner |
| ES | Engineering System | Engineering system |
| ESB | Ersatzschaltbild | Equivalent circuit diagram |
| ESD | Electrostatic Sensitive Devices | Electrostatic sensitive devices |
| ESM | Essential Service Mode | Essential service mode |
| ESR | Extended Stop and Retract | Extended stop and retract |
| F | | |
| F... | Fault | Fault |
| FAQ | Frequently Asked Questions | Frequently Asked Questions |
| FBLOCKS | Free Blocks | Free function blocks |
| FCC | Function Control Chart | Function control chart |
| FCC | Flux Current Control | Flux current control |
| FD | Function Diagram | Function diagram |
| F-DI | Failsafe Digital Input | Failsafe digital input |
| F-DO | Failsafe Digital Output | Fail-safe digital output |
| FEEPROM | Flash-EPROM | Non-volatile write and read memory |
| FG | Function Generator | Function Generator |
| FI | - | Fault current |
| FOC | Fiber-Optic Cable | Fiber-optic cable |
| FP | Funktionsplan | Function diagram |
| FPGA | Field Programmable Gate Array | Field Programmable Gate Array |
| FW | Firmware | Firmware |
| G | | |
| GB | Gigabyte | Gigabyte |
| GC | Global Control | Global control telegram (broadcast telegram) |
| GND | Ground | Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as M) |
| GSD | Gerätstammdatei | Generic Station Description: Describes the features of a PROFIBUS slave |
| GSV | Gate Supply Voltage | Gate supply voltage |
| GUID | Globally Unique Identifier | Globally Unique Identifier |

| Abbreviation | Source of abbreviation | Significance |
|--------------|---|--|
| H | | |
| HF | High frequency | High frequency |
| HFD | Hochfrequenzdrossel | Radio frequency reactor |
| HLA | Hydraulic Linear Actuator | Hydraulic linear actuator |
| HLG | Hochlaufgeber | Ramp-function Generator |
| HM | Hydraulic Module | Hydraulic Module |
| HMI | Human Machine Interface | Human Machine Interface |
| HTL | High-Threshold Logic | Logic with high interference threshold |
| HW | Hardware | Hardware |
| I | | |
| i. V. | In Vorbereitung | Under development: This property is currently not available |
| I/O | Input/Output | Input/output |
| I2C | Inter-Integrated Circuit | Internal serial data bus |
| IASC | Internal Armature Short-Circuit | Internal armature short-circuit |
| IBN | Inbetriebnahme | Startup |
| ID | Identifier | Identification |
| IE | Industrial Ethernet | Industrial Ethernet |
| IEC | International Electrotechnical Commission | International Electrotechnical Commission |
| IF | Interface | Interface |
| IGBT | Insulated Gate Bipolar Transistor | Insulated gate bipolar transistor |
| IGCT | Integrated Gate-Controlled Thyristor | Semiconductor power switch with integrated control electrode |
| IL | Impulslöschung | Pulse suppression |
| IP | Internet Protocol | Internet protocol |
| IPO | Interpolator | Interpolator |
| IT | Isolé Terre | Non-grounded three-phase line supply |
| IVP | Internal Voltage Protection | Internal voltage protection |
| J | | |
| JOG | Jogging | Jogging |
| K | | |
| KDV | Kreuzweiser Datenvergleich | Data cross-check |
| KHP | Know-how protection | Know-how protection |
| KIP | Kinetische Pufferung | Kinetic buffering |
| Kp | - | Proportional gain |
| KTY | - | Special temperature sensor |
| L | | |
| L | - | Symbol for inductance |
| LED | Light Emitting Diode | Light emitting diode |
| LIN | Linearmotor | Linear motor |
| LR | Lageregler | Position controller |
| LSB | Least Significant Bit | Least Significant Bit |
| LSC | Line-Side Converter | Line-side converter |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|--|---|
| LSS | Line-Side Switch | Line-side switch |
| LU | Length Unit | Length unit |
| LWL | Lichtwellenleiter | Fiber-optic cable |
| M | | |
| M | - | Symbol for torque |
| M | Masse | Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as GND) |
| MB | Megabyte | Megabyte |
| MCC | Motion Control Chart | Motion Control Chart |
| MDI | Manual Data Input | Manual data input |
| MDS | Motor Data Set | Motor data set |
| MLFB | Maschinenlesbare Fabrikatebezeichnung | Machine-readable product code |
| MM | Motor Module | Motor Module |
| MMC | Man-Machine Communication | Man-machine communication |
| MMC | Micro Memory Card | Micro memory card |
| MSB | Most Significant Bit | Most significant bit |
| MSC | Motor-Side Converter | Motor-side converter |
| MSCY_C1 | Master Slave Cycle Class 1 | Cyclic communication between master (class 1) and slave |
| MSR | Motorstromrichter | Motor-side converter |
| MT | Messtaster | Probe |
| N | | |
| N. C. | Not Connected | Not connected |
| N... | No Report | No report or internal message |
| NAMUR | Normenarbeitsgemeinschaft für Mess- und Regeltechnik in der chemischen Industrie | Standardization association for measurement and control in chemical industries |
| NC | Normally Closed (contact) | NC contacts |
| NC | Numerical Control | Numerical control |
| NEMA | National Electrical Manufacturers Association | Standardization association in USA (United States of America) |
| NM | Nullmarke | Zero mark |
| NO | Normally Open (contact) | NO contacts |
| NSR | Netzstromrichter | Line-side converter |
| NVRAM | Non-Volatile Random Access Memory | Non-volatile read/write memory |
| O | | |
| OA | Open Architecture | Software component (technology package) which provides additional functions for the SINAMICS drive system |
| OAIF | Open Architecture Interface | Version of the SINAMICS firmware as of which the OA-application can be used |
| OASP | Open Architecture Support Package | Expands the STARTER commissioning tool by the corresponding OA-application |
| OC | Operating Condition | Operation condition |
| OEM | Original Equipment Manufacturer | Original equipment manufacturer |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|---|---|
| OLP | Optical Link Plug | Bus connector for fiber-optic cable |
| OMI | Option Module Interface | Option Module Interface |
| P | | |
| p... | - | Adjustable parameters |
| P1 | Processor 1 | CPU 1 |
| P2 | Processor 2 | CPU 2 |
| PB | PROFIBUS | PROFIBUS |
| PcCtrl | PC Control | Master control |
| PD | PROFIdrive | PROFIdrive |
| PDS | Power unit Data Set | Power unit data set |
| PE | Protective Earth | Protective ground |
| PELV | Protective Extra Low Voltage | Safety extra-low voltage |
| PFH | Probability of dangerous failure per hour | Probability of dangerous failure per hour |
| PG | Programmiergerät | Programming device |
| PI | Proportional Integral | Proportional integral |
| PID | Proportional Integral Differential | Proportional integral differential |
| PLC | Programmable Logical Controller | Programmable logic controller |
| PLL | Phase-Locked Loop | Phase-locked loop |
| PM | Power Module | Power Module |
| PMSM | Permanent-magnet synchronous motor | Permanent-magnet synchronous motor |
| PN | PROFINET | PROFINET |
| PNO | PROFIBUS Nutzerorganisation | PROFIBUS user organization |
| PPI | Point to Point Interface | Point-to-point interface |
| PRBS | Pseudo Random Binary Signal | White noise |
| PROFIBUS | Process Field Bus | Serial data bus |
| PS | Power Supply | Power supply |
| PSA | Power Stack Adapter | Power Stack Adapter |
| PTC | Positive Temperature Coefficient | Positive temperature coefficient |
| PTP | Point To Point | Point-to-point |
| PWM | Pulse Width Modulation | Pulse width modulation |
| PZD | Prozessdaten | Process data |
| Q | | |
| R | | |
| r... | - | Display parameters (read only) |
| RAM | Random Access Memory | Speicher zum Lesen und Schreiben |
| RCCB | Residual Current Circuit Breaker | Residual current operated circuit breaker |
| RCD | Residual Current Device | Residual current operated circuit breaker |
| RCM | Residual Current Monitor | Residual current monitor |
| REL | Reluctance motor textile | Reluctance motor textile |
| RESM | Reluctance synchronous motor | Synchronous reluctance motor |
| RFG | Ramp-Function Generator | Ramp-function Generator |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|--------------------------------------|---|
| RJ45 | Registered Jack 45 | Term for an 8-pin socket system for data transmission with shielded or non-shielded multi-wire copper cables |
| RKA | Rückkühlanlage | Cooling unit |
| RLM | Renewable Line Module | Renewable Line Module |
| RO | Read Only | Read only |
| ROM | Read-Only Memory | Read-only memory |
| RPDO | Receive Process Data Object | Receive Process Data Object |
| RS232 | Recommended Standard 232 | Interface standard for a cable-connected serial data transmission between a sender and receiver (also known as EIA232) |
| RS485 | Recommended Standard 485 | Interface standard for a cable-connected differential, parallel, and/or serial bus system (data transmission between a number of senders and receivers, also known as EIA485) |
| RTC | Real Time Clock | Real-time clock |
| RZA | Raumzeigerapproximation | Space-vector approximation |
| S | | |
| S1 | - | Continuous operation |
| S3 | - | Intermittent duty |
| SAM | Safe Acceleration Monitor | Safe acceleration monitoring |
| SBC | Safe Brake Control | Safe brake control |
| SBH | Sicherer Betriebshalt | Safe operating stop |
| SBR | Safe Brake Ramp | Safe brake ramp monitoring |
| SBT | Safe Brake Test | Safe brake test |
| SCA | Safe Cam | Safe cam |
| SD Card | SecureDigital Card | Secure digital memory card |
| SDI | Safe Direction | Safe motion direction |
| SE | Sicherer Software-Endschalter | Safe software limit switch |
| SESM | Separately-excited synchronous motor | Separately excited synchronous motor |
| SG | Sicher reduzierte Geschwindigkeit | Safely-limited speed |
| SGA | Sicherheitsgerichteter Ausgang | Safety-related output |
| SGE | Sicherheitsgerichteter Eingang | Safety-related input |
| SH | Sicherer Halt | Safe stop |
| SI | Safety Integrated | Safety Integrated |
| SIL | Safety Integrity Level | Safety Integrity Level |
| SLM | Smart Line Module | Smart Line Module |
| SLP | Safely-Limited Position | Safely Limited Position |
| SLS | Safely-Limited Speed | Safely-limited speed |
| SLVC | Sensorless Vector Control | Sensorless vector control |
| SM | Sensor Module | Sensor Module |
| SMC | Sensor Module Cabinet | Sensor Module Cabinet |
| SME | Sensor Module External | Sensor Module External |
| SMI | SINAMICS Sensor Module Integrated | SINAMICS Sensor Module Integrated |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|-------------------------------------|---|
| SMM | Single Motor Module | Single Motor Module |
| SN | Sicherer Software-Nocken | Safe software cam |
| SOS | Safe Operating Stop | Safe operating stop |
| SP | Service Pack | Service pack |
| SP | Safe Position | Safe position |
| SPC | Setpoint Channel | Setpoint channel |
| SPI | Serial Peripheral Interface | Serial peripheral interface |
| SPS | Speicherprogrammierbare Steuerung | Programmable logic controller |
| SS1 | Safe Stop 1 | Safe Stop 1 (monitored for time and ramp) |
| SS2 | Safe Stop 2 | Safe Stop 2 |
| SSI | Synchronous Serial Interface | Synchronous serial interface |
| SSM | Safe Speed Monitor | Safe feedback from speed monitor |
| SSP | SINAMICS Support Package | SINAMICS support package |
| STO | Safe Torque Off | Safe torque off |
| STW | Steuerwort | Control word |
| T | | |
| TB | Terminal Board | Terminal Board |
| TIA | Totally Integrated Automation | Totally Integrated Automation |
| TM | Terminal Module | Terminal module |
| TN | Terre Neutre | Grounded three-phase line supply |
| Tn | - | Integral time |
| TPDO | Transmit Process Data Object | Transmit Process Data Object |
| TT | Terre Terre | Grounded three-phase line supply |
| TTL | Transistor-Transistor-Logik | Transistor-Transistor-Logik |
| Tv | - | Rate time |
| U | | |
| UL | Underwriters Laboratories Inc. | Underwriters Laboratories Inc. |
| UPS | Uninterruptible Power Supply | Uninterruptible power supply |
| USV | Unterbrechungsfreie Stromversorgung | Uninterruptible power supply |
| UTC | Universal Time Coordinated | Universal time coordinated |
| V | | |
| VC | Vector Control | Vector control |
| Vdc | - | DC-link voltage |
| VdcN | - | Partial DC-link voltage negative |
| VdcP | - | Partial DC-link voltage positive |
| VDE | Verband Deutscher Elektrotechniker | Verband Deutscher Elektrotechniker [Association of German Electrical Engineers] |
| VDI | Verein Deutscher Ingenieure | Verein Deutscher Ingenieure [Association of German Engineers] |
| VPM | Voltage Protection Module | Voltage Protection Module |
| Vpp | Volt peak to peak | Volt peak to peak |
| VSM | Voltage Sensing Module | Voltage Sensing Module |

| Abbreviation | Source of abbreviation | Significance |
|---------------------|-------------------------------|---|
| W | | |
| WEA | Wiedereinschaltautomatik | Automatic restart |
| WZM | Werkzeugmaschine | Machine tool |
| X | | |
| XML | Extensible Markup Language | Extensible markup language (standard language for Web publishing and document management) |
| Y | | |
| Z | | |
| ZK | Zwischenkreis | DC link |
| ZM | Zero Mark | Zero mark |
| ZSW | Zustandswort | Status Word |

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