Safety notices

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 warning triangle; notices that relate to material damage only have no warning triangle. The notices shown below are graded according to the level of danger (from most to least hazardous):

**Danger**
Indicates that death or serious injury will result if proper precautions are not taken.

**Alarm**
Indicates that death or serious injury may result if proper precautions are not taken.

**Caution**
With a warning triangle, indicates that minor injury may result if proper precautions are not taken.

**Caution**
Without a warning triangle, indicates that material damage may result if proper precautions are not taken.

**Notice**
Indicates that an undesirable result or state may occur if the corresponding instructions are not observed.

If more than one level of danger is simultaneously applicable, the warning notice for the highest level is used. A warning on a warning triangle indicating possible personal injury may also include a warning relating to material damage.

Qualified personnel

The associated device/system may only be installed and operated in conjunction with this documentation. The equipment/system may only be commissioned and operated by **qualified personnel**. For the purpose of the safety information in this documentation, a "qualified person" is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

Proper Use of Siemens Products

Note the following:

**Alarm**
Siemens products are only permitted to be used for the applications specified in the catalog and in the associated technical documentation. If third-party products and components are to be used, they must be recommended or approved by Siemens. To ensure proper and safe operation of these products, they must be correctly transported, stored, set up, mounted, installed, commissioned, operated, and maintained. The permissible environmental conditions must be maintained. Information in the associated documentation must be observed.

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GERMANY

Liability Disclaimer
We have checked that the contents of this document correspond to the hardware and software described. Nevertheless, we cannot assume responsibility for any deviations that may arise. The data in this document is regularly checked and any necessary corrections included in subsequent editions.

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Siemens Aktiengesellschaft
SINAMICS G120C List Manual (LH13)
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<tr>
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# Parameters

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<td>1.2</td>
<td>List of parameters</td>
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</table>
1.1 Overview of parameters

1.1.1 Explanation of the parameter list

Basic structure of parameter descriptions

The data in the following example has been chosen at random. The table below contains all the information that can be included in a parameter description. Some of the information is optional.

The parameter list (See Section 1.2) is structured as follows:

<table>
<thead>
<tr>
<th>pxxxx[0...n]</th>
<th>BICO: Long parameter name / short parameter name</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C variants</td>
<td>Access level: 3</td>
</tr>
<tr>
<td></td>
<td>Changeable: C(x), U, T</td>
</tr>
<tr>
<td></td>
<td>Unit group: 6_2</td>
</tr>
<tr>
<td></td>
<td>Min: 0.00 [Nm]</td>
</tr>
</tbody>
</table>

Description: Text

Values: 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 array: Bit Signal name 1 signal 0 signal FP

00 Name and meaning of bit 0 Yes No 8060

01 Name and meaning of bit 1 Yes No -

02 Name and meaning of bit 2 Yes No 8052

etc.

Dependency: Text

See also: pxxxx, rxxxx

See also: Fxxxxx, Axxxxx

Danger: Warning: Caution: Safety notices with a warning triangle

Caution: Notice: Safety notices without a warning triangle

Note: Information which might be useful.

The individual pieces of information are described in detail below.
Parameter number

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

Examples of representation in the parameter list:
- p... Adjustable parameter (read and write)
- r... Display parameter (read-only)
- p0918 Adjustable parameter 918
- p2051[0...13] Adjustable parameter 2051, indices 0 to 13
- p1001[0...n] Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944 Display parameter 944
- r2129.0...15 Display parameter 2129 with bit array from bit 0 (smallest bit) to bit 15 (largest bit)

Other examples of the notation in the documentation:
- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098, index 1 bit 3
- p0795.4 Adjustable parameter 795, bit 4

The following applies to adjustable parameters:

The parameter value as delivered is specified under "Factory setting" with the relevant unit in square brackets. 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:
- Setting PROFIBUS telegram (BICO interconnections)
  p0922
- Setting component lists
  p0230, p0300, p0301, p0400
- Automatic calculation and pre-assignment
  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 brackets.
\textbf{BICO technology: Long parameter name / short parameter name}

The following abbreviations can appear in front of the BICO 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.

\textbf{Note:}

A BICO input (BI/CI) cannot be interconnected with just any BICO output (BO/CO, signal source). When interconnecting a BICO input using the commissioning software, only the corresponding possible signal sources are listed.

Function diagrams 1020 ... 1030 explain the symbols for BICO parameters and how to deal with BICO technology.
G120C variants

Specifies for which G120C variants (communication) the parameter is valid is. If no G120C variant is listed, then the parameter is valid for all variants.

The following information relating to "G120C variants" can be displayed under the parameter number:

<table>
<thead>
<tr>
<th>CU/PM variants</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>All G120C variants have this parameter.</td>
<td></td>
</tr>
<tr>
<td>G120C_CAN</td>
<td>G120C with CAN interface</td>
</tr>
<tr>
<td>G120C_DP</td>
<td>G120C with PROFIBUS interface</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>G120C with PROFINET interface</td>
</tr>
<tr>
<td>G120C_USS</td>
<td>G120C with USS interface</td>
</tr>
</tbody>
</table>

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 (not adjustable, included in p0003 = 3)
- 2: Extended (not adjustable, included in p0003 = 3)
- 3: Expert
- 4: Service

Parameters with this access level are password protected.

Note:

Parameter p0003 is CU-specific (available on the Control Unit).

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

Calculated

Specifies whether the parameter is influenced by automatic calculations.

p0340 determines which calculations are to be performed:

- p0340 = 1 includes the calculations from p0340 = 2, 3, 4, 5.
- p0340 = 2 calculates the motor parameters (p0350 ... p0360, p0625).
- p0340 = 3 includes the calculations from p0340 = 4, 5.
- p0340 = 4 only calculates the controller parameters.
- p0340 = 5 only calculates the controller limits.
Parameters

Overview of parameters

Note:
For p3900 > 0, p0340 = 1 is also called automatically.
After p1900 = 1, 2, p0340 = 3 is also called automatically.

Parameters with a reference to p0340 after "Calculated", depend on the Power Module being used and the motor. In this case, the values at "Factory setting" do not correspond to the actual values because these values are calculated during the commissioning. This also applies to the motor parameters.

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
- Integer16 I16 16-bit integer
- Integer32 I32 32-bit integer
- 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:
Overview of parameters

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

The information "C(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. One or more states are possible.

The following states may be specified:

- **C(x)** Commissioning  
  Drive commissioning is in progress (p0010 > 0).  
  Pulses cannot be enabled.
  
  The parameter can only be changed in the following drive commissioning settings (p0010 > 0):
  
  **C**: Changeable for all settings p0010 > 0.
  
  **C(x)**: Only changeable when p0010 = x.
  
  A modified parameter value does not take effect until the device commissioning mode is exited with p0010 = 0.

- **U** Operation  
  Pulses are enabled.

### Table 1-2  Possible combinations of BICO interconnections

<table>
<thead>
<tr>
<th>BICO output parameter</th>
<th>CI parameter</th>
<th>BI parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unsimg32 / Integer16</td>
<td>Unsimg32 / Integer32</td>
</tr>
<tr>
<td>CO: Unsigned8</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CO: Unsigned16</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CO: Unsigned32</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CO: Integer16</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CO: Integer32</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CO: FloatingPoint32</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>BO: Unsigned8</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BO: Unsigned16</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BO: Unsigned32</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BO: Integer16</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BO: Integer32</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BO: FloatingPoint32</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

**Legend:**  
x: BICO interconnection permitted  
–: BICO interconnection not permitted
Parameters
Overview of parameters

- T Ready
  T: Ready to run
  The pulses are not enabled and the status "C(x)" is not active.

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 ... p2006: Reference speed, reference voltage, etc.
- PERCENT: 1.0 = 100 %
- 4000H: 4000 hex = 100 %

Dyn. index (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).

The following information can be contained in this field:
- "CDS, p0170" (Command Data Set, CDS count)
  Example:
  p1070[0] \rightarrow \text{main setpoint [command data set 0]}
  p1070[1] \rightarrow \text{main setpoint [command data set 1], etc.}
- "DDS, p0180" (Drive Data Set, DDS count)
- "EDS, p0140" (Encoder Data Set, EDS count)
- "MDS, p0130" (Motor Data Set, MDS count)
- "PDS, p0120" (Power unit Data Set, PDS count)

Data sets can only be created and deleted when p0010 = 15.

Note:

Information on the data sets can be taken from the following references:
Operating Instructions SINAMICS G120 Frequency Converter G120C.
Unit group and unit selection

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

For parameters where the unit can be switched over, the specifications for "Unit group" and "Unit selection" determine the group to which this parameter belongs and with which parameter the unit can be changed over.

Example:

Unit group: 7_1, unit selection: p0505

The parameter belongs to unit group 7_1 and the unit can be switched over using p0505.

All the potential unit groups and possible unit selections are listed below.

Table 1-3 Unit group (p0100)

<table>
<thead>
<tr>
<th>Unit group</th>
<th>Unit selection for p0100</th>
<th>Reference value for %</th>
</tr>
</thead>
<tbody>
<tr>
<td>7_4</td>
<td>Nm</td>
<td>lbf ft</td>
</tr>
<tr>
<td>14_6</td>
<td>kW</td>
<td>hp</td>
</tr>
<tr>
<td>25_1</td>
<td>kg m²</td>
<td>lb ft²</td>
</tr>
<tr>
<td>27_1</td>
<td>kg</td>
<td>lb</td>
</tr>
<tr>
<td>28_1</td>
<td>Nm/A</td>
<td>lbf ft/A</td>
</tr>
</tbody>
</table>

Table 1-4 Unit group (p0505)

<table>
<thead>
<tr>
<th>Unit group</th>
<th>Unit selection for p0505</th>
<th>Reference value for %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2_1</td>
<td>Hz</td>
<td>%</td>
</tr>
<tr>
<td>3_1</td>
<td>rpm</td>
<td>%</td>
</tr>
<tr>
<td>5_1</td>
<td>Vrms</td>
<td>%</td>
</tr>
<tr>
<td>5_2</td>
<td>V</td>
<td>%</td>
</tr>
<tr>
<td>5_3</td>
<td>V</td>
<td>%</td>
</tr>
<tr>
<td>6_2</td>
<td>Arms</td>
<td>%</td>
</tr>
<tr>
<td>6_5</td>
<td>A</td>
<td>%</td>
</tr>
<tr>
<td>7_1</td>
<td>Nm</td>
<td>%</td>
</tr>
<tr>
<td>7_2</td>
<td>Nm</td>
<td>Nm</td>
</tr>
<tr>
<td>14_5</td>
<td>kW</td>
<td>%</td>
</tr>
<tr>
<td>14_10</td>
<td>kW</td>
<td>kW</td>
</tr>
<tr>
<td>21_1</td>
<td>° C</td>
<td>° C</td>
</tr>
</tbody>
</table>
Parameters

Overview of parameters

Table 1-4  Unit group (p0505), continued

<table>
<thead>
<tr>
<th>Unit group</th>
<th>Unit selection for p0505 =</th>
<th>Reference value for %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>21_2</td>
<td>K</td>
<td>K</td>
</tr>
<tr>
<td>39_1</td>
<td>1/s²</td>
<td>%</td>
</tr>
</tbody>
</table>

Table 1-5  Unit group (p0595)

<table>
<thead>
<tr>
<th>Unit group</th>
<th>Unit selection for p0595 = Value</th>
<th>Unit</th>
<th>Reference value for %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9_1</td>
<td>The values that can be set and the technological units are shown in p0595 (See Section 1.2).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

Parameter values

- **Min**: Minimum value of the parameter [unit]
- **Max**: Maximum value of the parameter [unit]
- **Factory setting**: Value when shipped [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].

  A different value may be displayed for certain parameters (e.g. p1800) during first commissioning.

Reason:

The setting for these parameters is determined by the operating environment of the Control Unit (e.g. by the device type, or power unit).

Description

Explanation of the function of a parameter

Values

Lists the possible values of a parameter.

Recommendation

Information about recommended settings.
Overview of parameters

Index

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

The following applies to the values (Min, Max, Factory setting) for 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 array

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

- **Bit number and signal name**
- **Meaning for signal states 1 and 0**
- **Function diagram (FP) (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.

Where necessary, "See also:" indicates the following information:

- **List of other relevant parameters to be considered.**
- **List of faults and alarms to be considered.**
Safety notices

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 Safety notices).

**Warning**

The description of this safety notice can be found at the beginning of this manual (see Safety notices).

**Caution**

The description of this safety notice can be found at the beginning of this manual (see Safety notices).

**Caution**

The description of this safety notice can be found at the beginning of this manual (see Safety notices).

**Notice**

The description of this safety notice can be found at the beginning of this manual (see Safety notices).

**Note**

Information that the user may find useful.
1.1.2 Number ranges of parameters

Note:
The following number ranges represent an overview for all of the parameters available for the SINAMICS drive family.
The parameters for the product described in this List Manual are described in detail in Section 1.2.

Parameters are grouped into the following number ranges:

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

#### Overview of parameters

Table 1-6  Number ranges for SINAMICS, continued

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>To</td>
</tr>
<tr>
<td>2500</td>
<td>2699</td>
</tr>
<tr>
<td>2700</td>
<td>2719</td>
</tr>
<tr>
<td>2720</td>
<td>2729</td>
</tr>
<tr>
<td>2800</td>
<td>2819</td>
</tr>
<tr>
<td>2900</td>
<td>2930</td>
</tr>
<tr>
<td>3000</td>
<td>3099</td>
</tr>
<tr>
<td>3100</td>
<td>3199</td>
</tr>
<tr>
<td>3110</td>
<td>3199</td>
</tr>
<tr>
<td>3200</td>
<td>3299</td>
</tr>
<tr>
<td>3400</td>
<td>3659</td>
</tr>
<tr>
<td>3660</td>
<td>3699</td>
</tr>
<tr>
<td>3700</td>
<td>3779</td>
</tr>
<tr>
<td>3800</td>
<td>3849</td>
</tr>
<tr>
<td>3850</td>
<td>3899</td>
</tr>
<tr>
<td>3900</td>
<td>3999</td>
</tr>
<tr>
<td>4000</td>
<td>4599</td>
</tr>
<tr>
<td>4600</td>
<td>4699</td>
</tr>
<tr>
<td>4700</td>
<td>4799</td>
</tr>
<tr>
<td>4800</td>
<td>4849</td>
</tr>
<tr>
<td>4950</td>
<td>4999</td>
</tr>
<tr>
<td>5000</td>
<td>5169</td>
</tr>
<tr>
<td>5400</td>
<td>5499</td>
</tr>
<tr>
<td>5500</td>
<td>5599</td>
</tr>
<tr>
<td>5600</td>
<td>5613</td>
</tr>
<tr>
<td>5900</td>
<td>6999</td>
</tr>
<tr>
<td>7000</td>
<td>7499</td>
</tr>
<tr>
<td>7500</td>
<td>7599</td>
</tr>
<tr>
<td>7700</td>
<td>7729</td>
</tr>
<tr>
<td>7770</td>
<td>7789</td>
</tr>
<tr>
<td>7800</td>
<td>7839</td>
</tr>
<tr>
<td>7840</td>
<td>8399</td>
</tr>
<tr>
<td>8400</td>
<td>8449</td>
</tr>
<tr>
<td>8500</td>
<td>8599</td>
</tr>
</tbody>
</table>
### Overview of parameters

#### Table 1-6  Number ranges for SINAMICS, continued

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8600</td>
<td>CAN bus</td>
</tr>
<tr>
<td>8800</td>
<td>Communication Board Ethernet (CBE), PROFIdrive</td>
</tr>
<tr>
<td>8900</td>
<td>Industrial Ethernet, PROFINET, CBE20</td>
</tr>
<tr>
<td>9000</td>
<td>Topology</td>
</tr>
<tr>
<td>9300</td>
<td>Safety Integrated</td>
</tr>
<tr>
<td>9400</td>
<td>Parameter consistency and storage</td>
</tr>
<tr>
<td>9500</td>
<td>Safety Integrated</td>
</tr>
<tr>
<td>9900</td>
<td>Topology</td>
</tr>
<tr>
<td>9950</td>
<td>Diagnostics, internal</td>
</tr>
<tr>
<td>10000</td>
<td>Safety Integrated</td>
</tr>
<tr>
<td>11000</td>
<td>Free technology controller 0, 1, 2</td>
</tr>
<tr>
<td>20000</td>
<td>Free function blocks (FBLOCKS)</td>
</tr>
<tr>
<td>21000</td>
<td>Drive Control Chart (DCC)</td>
</tr>
<tr>
<td>50000</td>
<td>SINAMICS DC MASTER (DC control)</td>
</tr>
<tr>
<td>61000</td>
<td>PROFINET</td>
</tr>
</tbody>
</table>
1.2 List of parameters

Objects: G120C_CAN, G120C_DP, G120C_PN, G120C_USS

r0002 Drive operating display / Drv op_display

<table>
<thead>
<tr>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Calculated</th>
<th>Data type</th>
<th>Units group</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Unit selection</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating display for the drive.</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>Integer16</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>200</td>
<td>-</td>
</tr>
</tbody>
</table>

Value:
0: Operation - everything enabled
10: Operation - set "enable setpoint" = "1"
12: Operation - RFG frozen, set "RFG start" = "1"
13: Operation - set "enable RFG" = "1"
14: Operation - MotID, excit. running
15: Operation - open brake (p1215)
16: Operation - withdraw braking with OFF1 using "ON/OFF1" = "1"
17: Operation - braking with OFF3 can only be interrupted with OFF2
18: Operation - brake on fault, remove fault, acknowledge
19: Operation - DC braking active (p1230, p1231)
21: Ready for operation - set "Operation enable" = "1" (p0852)
22: Ready for operation - de-magnetizing running (p0347)
31: Ready for switching on - set "ON/OFF1" = "0/1" (p0840)
35: Switching on inhibited - carry out first commissioning (p0010)
41: Switching on inhibited - set "ON/OFF1" = "0" (p0840)
42: Switching on inhibited - set "OC/OFF2" = "1" (p0844, p0845)
43: Switching on inhibited - set "OC/OFF3" = "1" (p0848, p0849)
45: Switching on inhibited - rectify fault, acknowledge fault, STO
46: Switching on inhibited - exit comm mode (p0010)
70: Initialization
200: Wait for booting/partial booting

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
MotID: Motor data identification

p0003 Access level / Acc_level

<table>
<thead>
<tr>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Calculated</th>
<th>Data type</th>
<th>Units group</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Unit selection</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the access level to read and write parameters.</td>
<td>1</td>
<td>C, U, T</td>
<td>-</td>
<td>Integer16</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Value:
3: Expert
4: Service

Note:
A higher set access level also includes the lower one.
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).
### p0010 Drive commissioning parameter filter / Drv comm. par_filt

**Access level:** 1  
**Calculated:** -  
**Data type:** Integer16  
**Can be changed:** C(1), T  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** 2800, 2818

**Min:** 0  
**Max:** 95  
**Factory setting:** 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  
2: Power unit commissioning  
3: Motor commissioning  
5: Technological application/units  
15: Data sets  
29: Only Siemens int  
30: Parameter reset  
39: Only Siemens int  
49: Only Siemens int  
95: Safety Integrated commissioning

**Dependency:**
Refer to: r3996

**Notice:**
When the parameter is reset to a value of 0, short-term communication interruptions may occur.

**Note:**
The drive can only be powered up outside the drive commissioning (inverter 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.

Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

Once the Control Unit has been boot up for the first time, the motor parameters suitable for the power unit have been defined, and the control parameters have been calculated accordingly, p0010 is automatically reset to 0.

p0010 = 3 is used for the subsequent commissioning of additional drive data sets (creating data sets: see p0010 = 15).

p0010 = 29, 39, 49: Only for internal Siemens use!

### p0015 Macro drive unit / Macro drv unit

**G120C_CAN**

**Access level:** 1  
**Calculated:** -  
**Data type:** Unsigned32  
**Can be changed:** C, C(1)  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** -

**Min:** 0  
**Max:** 999999  
**Factory setting:** 12

**Description:**
Runs the corresponding macro files.

**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:**
Macros available as standard are described in the technical documentation of the particular product. The parameter is not influenced by setting the factory setting.

### p0015 Macro drive unit / Macro drv unit

**G120C_DP**

**Access level:** 1  
**Calculated:** -  
**Data type:** Unsigned32  
**Can be changed:** C, C(1)  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** -

**Min:** 0  
**Max:** 999999  
**Factory setting:** 7

**Description:**
Runs the corresponding macro files.
**Parameters**

**List of parameters**

| **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:** | Macros available as standard are described in the technical documentation of the particular product. The parameter is not influenced by setting the factory setting. |

**r0018 Control Unit firmware version / CU FW version**

| **Access level:** | 3 |
| **Can be changed:** | - |
| **Units group:** | - |
| **Min:** | 0 |
| **Max:** | 4294967295 |
| **Description:** | Displays the firmware version of the Control Unit. |
| **Dependency:** | Refer to: r0197, r0198 |
| **Note:** | Example: The value 1010100 should be interpreted as V01.01.01.00. |

**r0020 Speed setpoint smoothed / n_set smth**

| **Access level:** | 2 |
| **Can be changed:** | - |
| **Units group:** | 3_1 |
| **Min:** | - [rpm] |
| **Max:** | - [rpm] |
| **Description:** | Displays the currently smoothed speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator). |
| **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**

| **Access level:** | 2 |
| **Can be changed:** | - |
| **Units group:** | 3_1 |
| **Min:** | - [rpm] |
| **Max:** | - [rpm] |
| **Description:** | Displays the smoothed actual value of the motor speed. For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0021. |
| **Dependency:** | Refer to: r0022, 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) and unsmoothed (r0063). For U/f control, the mechanical speed calculated from the output frequency and the slip is shown in r0063[2] even if slip compensation is deactivated. |
### List of parameters

#### r0022
**Speed actual value rpm smoothed / n_act rpm smooth**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: p2000</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 6799</td>
</tr>
</tbody>
</table>

**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.
For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0022.

**Dependency:**
Refer to: r0021, 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) and unsmoothed (r0063).
- For U/f control, the mechanical speed calculated from the output frequency and the slip is shown in r0063[2] even if slip compensation is deactivated.

#### r0024
**Output frequency smoothed / f_outp smooth**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: p2000</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 1690, 5300, 5730, 6799</td>
</tr>
</tbody>
</table>

**Description:**
Displays the smoothed converter frequency.

**Dependency:**
Refer to: r0066

**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 output frequency is available smoothed (r0024) and unsmoothed (r0066).

#### r0025
**CO: Output voltage smoothed / U_outp smooth**

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: p2001</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 1690, 5730, 6799</td>
</tr>
</tbody>
</table>

**Description:**
Displays the smoothed output voltage of the power unit.

**Dependency:**
Refer to: r0072

**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 output voltage is available smoothed (r0025) and unsmoothed (r0072).

#### r0026
**CO: DC link voltage smoothed / Vdc smooth**

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: p2001</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 6799</td>
</tr>
</tbody>
</table>

**Description:**
Displays the smoothed actual value of the DC link voltage.

**Dependency:**
Refer to: r0070
List of parameters

Notice:
When measuring a DC link voltage < 200 V, for the Power Module a valid measured value is not supplied. In this case, when an external 24 V power supply is connected, a value of approx. 24 V is displayed in the display parameter.

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 DC link voltage is available smoothed (r0026) and unsmoothed (r0070).
- r0026 sets itself to the lower value of the pulsating DC link voltage.

**r0027**: CO: Absolute actual current smoothed / i_act abs val smth
- **Access level**: 2
- **Can be changed**: -
- **Units group**: -
- **Min**: - [Arms]
- **Max**: - [Arms]
- **Dependency**: Refer to: 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 = 300 ms
- The signal is not suitable as a process quantity and may only be used as a display quantity.
- The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

**r0028**: Modulation depth smoothed / Mod_depth smth
- **Access level**: 4
- **Can be changed**: -
- **Units group**: -
- **Min**: - [%]
- **Max**: - [%]
- **Dependency**: Refer to: r0074
- **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 modulation depth is available smoothed (r0028) and unsmoothed (r0074).

**r0029**: Current actual value field-generating smoothed / Id_act smooth
- **Access level**: 4
- **Can be changed**: -
- **Units group**: -
- **Min**: - [Arms]
- **Max**: - [Arms]
- **Dependency**: Refer to: r0076
- **Note**: Smoothing time constant = 300 ms
- The signal is not suitable as a process quantity and may only be used as a display quantity.
- The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>r0030</td>
<td>Displays the smoothed torque-generating actual current.</td>
<td>Refer to: r0078</td>
<td>Smoothing time constant = 300 ms. The signal is not suitable as a process quantity and may only be used as a display quantity. The torque-generating current actual value is available smoothed (r0030) and unsmoothed (r0078).</td>
</tr>
<tr>
<td>r0031</td>
<td>Displays the smoothed torque actual value.</td>
<td>Refer to: r0080</td>
<td>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) and unsmoothed (r0080).</td>
</tr>
<tr>
<td>r0032</td>
<td>Displays the smoothed actual value of the active power.</td>
<td>Refer to: r0082</td>
<td>This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used. Power delivered at the motor shaft. The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).</td>
</tr>
<tr>
<td>r0033</td>
<td>Displays the smoothed torque utilization as a percentage.</td>
<td>This parameter is only available for vector control. For U/f control r0033 = 0 %. 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 utilization is available smoothed (r0033) and unsmoothed (r0081).</td>
<td></td>
</tr>
</tbody>
</table>
For M_set total (r0079) > 0, the following applies:
- Required torque = M_set total
- Actual torque limit = M_max upper effective (r1538)

For M_set total (r0079) <= 0, the following applies:
- Required torque = - M_set total
- Actual torque limit = - M_max lower effective (r1539)

For the actual torque limit = 0, the following applies: r0033 = 100 %
For the actual torque limit < 0, the following applies: r0033 = 0 %

r0034  CO: Motor utilization / Motor utilization
Access level: 2  Calculated: -  Data type: FloatingPoint32
Can be changed: -  Scaling: PERCENT  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: 8017
Min [%]  Max [%]  Factory setting

Description: Displays the motor utilization from motor temperature model 1 (I2t).
Dependency: The motor utilization is only determined for permanent-magnet synchronous motors when the motor temperature model 1 (I2t) is activated.

For motor temperature model 1 (I2t) (p0612.0 = 1), the following applies:
- r0034 = (motor model temperature - 40 K) / (p0605 - 40 K) * 100 %

Refer to: p0611, p0612, p0615

Notice: After the drive is switched on, the system starts to determine the motor temperature with an assumed model value. This means that the value for the motor utilization is only valid after a stabilization time.

Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
For r0034 = -200.0 %, the following applies:
The value is invalid (e.g. the motor temperature model is not activated or has been incorrectly parameterized).

r0035  CO: Motor temperature / Mot temp
Access level: 2  Calculated: -  Data type: FloatingPoint32
Can be changed: -  Scaling: p0206  Dyn. index: -
Units group: 21_1  Unit selection: p0505  Func. diagram: 7008, 8016, 8017
Min [°C]  Max [°C]  Factory setting

Description: Displays 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 induction motors, the thermal motor model is activated (p0601 = 0).
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.
- for synchronous motors, the thermal motor model is activated (p0601 = 0).

r0036  CO: Power unit overload I2t / PU overload I2t
Access level: 3  Calculated: -  Data type: FloatingPoint32
Can be changed: -  Scaling: PERCENT  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: 8014
Min [%]  Max [%]  Factory setting

Description: Displays the power unit overload determined using the I2t calculation.
A current reference value is defined for the I2t monitoring of the power unit. It represents the current that can be conducted by the power unit without any influence of the switching losses (e.g., the continuously permissible current of the capacitors, inductances, busbars, etc.).

If the I2t reference current of the power unit is not exceeded, then an overload (0 %) is not displayed. In the other case, the degree of thermal overload is calculated, whereby 100% results in a trip.

Dependency:
Refer to: p0290
Refer to: F30005

### r0037[0...19]

**CO: Power unit temperatures / PU temperatures**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>-</td>
<td>FloatingPoint32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Unit selection</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>p2006</td>
<td>-</td>
<td>p0505</td>
<td>8014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [°C]</td>
<td>- [°C]</td>
</tr>
</tbody>
</table>

**Description:**
Displays the temperatures in the power unit.

**Index:**
- [0] = Inverter maximum value
- [1] = Depletion layer maximum value
- [2] = Rectifier maximum value
- [3] = Air intake
- [4] = Interior of power unit
- [5] = Inverter 1
- [6] = Inverter 2
- [7...10] = Reserved
- [11] = Rectifier 1
- [12] = Reserved
- [13] = Depletion layer 1
- [14] = Depletion layer 2
- [15] = Depletion layer 3
- [16] = Depletion layer 4
- [17] = Depletion layer 5
- [18] = Depletion layer 6
- [19] = Reserved

**Notice:**
Only for internal Siemens troubleshooting.

**Note:**
The value of -200 indicates that there is no measuring signal.

- r0037[0]: Maximum value of the inverter temperatures (r0037[5...10]).
- r0037[1]: Maximum value of the depletion layer temperatures (r0037[13...18]).
- r0037[2]: Maximum value of the rectifier temperatures (r0037[11...12]).

The maximum value is the temperature of the hottest inverter, depletion layer, or rectifier. r0037[2, 3, 6, 11, 14...18] is only relevant for chassis power units.

### r0038

**Power factor smoothed / Cos phi smooth**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>-</td>
<td>FloatingPoint32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Unit selection</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6799, 8850, 8950</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
Displays the smoothed actual power factor. This refers to the electrical power of the basic fundamental signals at the converter output terminals.

**Notice:**
For infeed units, the following applies:

For active powers < 25 % of the rated power, this does not provide any useful information.

**Note:**
Smoothing time constant = 300 ms

The signal is not suitable as a process quantity and may only be used as a display quantity.
### List of parameters

#### r0039[0...2] Energy display / Energy display

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>- [kWh]</td>
<td>Max</td>
<td>- [kWh]</td>
<td>Factory setting</td>
<td>- [kWh]</td>
</tr>
</tbody>
</table>

**Description:**
Displays the energy values at the output terminals of the power unit.

**Index:**
- [0] = Energy balance (sum)
- [1] = Energy drawn
- [2] = Energy fed back

**Dependency:**
Refer to: p0040

**Note:**
Re index 0:
Sum of the energy drawn and energy that is fed back.

#### p0040 Reset energy consumption display / Energy cons reset

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>1</td>
<td>Factory setting</td>
<td>0</td>
</tr>
</tbody>
</table>

**Description:**
Setting to reset the display in r0039 and r0041.

**Procedure:**
Set p0040 = 0 --> 1
The displays are reset and the parameter is automatically set to zero.

**Dependency:**
Refer to: r0039

#### r0041 Energy consumption saved / Energy cons saved

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>- [kWh]</td>
<td>Max</td>
<td>- [kWh]</td>
<td>Factory setting</td>
<td>- [kWh]</td>
</tr>
</tbody>
</table>

**Description:**
Displays the saved energy referred to 100 operating hours.

**Dependency:**
Refer to: p0040

**Note:**
This display is used for a fluid-flow machine.
The flow characteristic is entered into p3320 … p3329.
For an operating time of below 100 hours, the display is interpolated up to 100 hours.

#### p0045 Display values smoothing time constant / Disp_val T_smooth

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>6714, 8012</td>
</tr>
<tr>
<td>Min</td>
<td>0.00 [ms]</td>
<td>Max</td>
<td>10000.00 [ms]</td>
<td>Factory setting</td>
<td>4.00 [ms]</td>
</tr>
</tbody>
</table>

**Description:**
Sets the smoothing time constant for the following display values:
r0063[1], r0066[1], r0080[1], r0082[1].
List of parameters

**r0046.0...31 CO/BO: Missing enable sig / Missing enable sig**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
</tr>
<tr>
<td>Units group:</td>
<td>Unit selection:</td>
<td>Func. diagram: 2634</td>
</tr>
</tbody>
</table>

**Description:** Displays missing enable signals that are preventing the closed-loop drive control from being commissioned.

**Bit field:**

<table>
<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>OFF1 enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>OFF2 enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>OFF3 enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Operation enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>DC braking enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Ramp-function generator enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Ramp-function generator start missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Setpoint enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>OFF1 enable internal missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>17</td>
<td>OFF2 enable internal missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>OFF3 enable internal missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>Pulse enable internal missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>20</td>
<td>DC braking internal enable missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>PU enab missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>26</td>
<td>Drive inactive or not operational</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>27</td>
<td>De-magnetizing not completed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>28</td>
<td>Brake open missing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
<td>Speed controller inhibited</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>31</td>
<td>Jog setpoint active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: r0002

**Note:** The value r0046 = 0 indicates that all enable signals for this drive are present.

- Bit 00 = 1 (enable signal missing), if:
  - the signal source in p0840 is a 0 signal.
  - there is a "switching on inhibited".
- Bit 01 = 1 (enable signal missing), if:
  - the signal source in p0844 or p0845 is a 0 signal.
- Bit 02 = 1 (enable signal missing), if:
  - the signal source in p0848 or p0849 is a 0 signal.
- Bit 03 = 1 (enable signal missing), if:
  - the signal source in p0852 is a 0 signal.
- Bit 04 =1 (DC brake active) when:
  - the signal source in p1230 has a 1 signal
- Bit 10 = 1 (enable signal missing), if:
  - the signal source in p1140 is a 0 signal.
- Bit 11 = 1 (enable signal missing) if the speed setpoint is frozen, because:
  - the signal source in p1141 is a 0 signal.
  - the speed setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.
- Bit 12 = 1 (enable signal missing), if:
  - the signal source in p1142 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:
  - commissioning mode is selected (p0010 > 0).
  - there is an OFF2 fault response.
  - the drive is not operational.
Bit 18 = 1 (enable signal missing), if:
- OFF3 has still not been completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:
- sequence control does not have a finished message.

Bit 20 = 1 (internal DC brake active), if:
- the drive is not in the state "Operation" or in "OFF1/3".
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:
- the power unit does not issue an enable signal (e.g. because DC link voltage is too low).
- the holding brake opening time (p1216) has still not expired.
- hibernation is active.

Bit 26 = 1 (enable signal missing), if:
- the drive is not operational.

Bit 27 = 1 (enable signal missing), if:
- de-magnetization not completed.

Bit 28 = 1 (enable signal missing), if:
- the holding brake is closed or has still not been opened.

Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:
- the pole position identification is active.
- motor data identification is active (only certain steps).

Bit 31 = 1 (enable signal missing), if:
- the speed setpoint from jog 1 or 2 is entered.

**r0047**

**Motor data identification and speed controller optimization / MotID and n_opt**

<table>
<thead>
<tr>
<th>Access level: 1</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**Min**

<table>
<thead>
<tr>
<th>Value</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>300</td>
</tr>
</tbody>
</table>

**Description:**
Displays the actual status for the motor data identification (stationary measurement) and the speed/velocity controller optimization (rotating measurement).

**Value:**
- 0: No measurement
- 115: Measurement q leakage inductance (part 2)
- 120: Speed controller optimization (vibration test)
- 140: Calculate speed controller setting
- 150: Measurement moment of inertia
- 170: Measurement magnetizing current and saturation characteristic
- 195: Measurement q leakage inductance (part 1)
- 200: Rotating measurement selected
- 220: Identification leakage inductance
- 230: Identification rotor time constant
- 240: Identification stator inductance
- 250: Identification stator inductance LQLD
- 270: Identification stator resistance
- 290: Identification valve lockout time
- 300: Stationary measurement selected

**r0050.0...1**

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

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 8560</td>
</tr>
</tbody>
</table>

**Min**

<table>
<thead>
<tr>
<th>Value</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
Displays the effective Command Data Set (CDS).
### List of parameters

**Dependency:** Refer to: p0810, r0836

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

<table>
<thead>
<tr>
<th>Dependency:</th>
<th>Refer to: p0810, r0836</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note:</td>
<td>The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.</td>
</tr>
</tbody>
</table>

#### r0051.0 CO/BO: Drive Data Set DDS effective / DDS effective

| Access level: | 3 |
| Calculated:   | - |
| Data type:    | Unsigned8 |
| Can be changed: | - |
| Scaling:      | - |
| Dyn. index:   | - |
| Units group:  | - |
| Unit selection: | - |
| Func. diagram: | - |

**Description:** Displays the effective Drive Data Set (DDS).

#### r0052.0...15 CO/BO: Status word 1 / ZSW 1

| Access level: | 2 |
| Calculated:   | - |
| Data type:    | Unsigned16 |
| Can be changed: | - |
| Scaling:      | - |
| Dyn. index:   | - |
| Units group:  | - |
| Unit selection: | - |
| Func. diagram: | - |

**Description:** Display and connector output for status word 1.

#### Bit field

<table>
<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>DDS eff. bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>DDS eff. bit 1</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: p0820, r0837

**Note:** When selecting the motor data identification routine and the rotating measurement, the drive data set changeover is suppressed.

#### r0052.0...15 CO/BO: Status word 1 / ZSW 1

| Access level: | 2 |
| Calculated:   | - |
| Data type:    | Unsigned16 |
| Can be changed: | - |
| Scaling:      | - |
| Dyn. index:   | - |
| Units group:  | - |
| Unit selection: | - |
| Func. diagram: | - |

**Description:** Display and connector output for status word 1.

#### Bit field

<table>
<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>Rdy for switch on</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Ready</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Operation enabled</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Fault present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Coast down active (OFF2)</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Quick Stop active (OFF3)</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Switching on inhibited active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Alarm present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Deviation setpoint/actual speed</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Control request</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Maximum speed reached</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>I, M, P limit reached</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Motor holding brake open</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Alarm motor overtemperature</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Motor rotates forwards</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Alarm drive converter overload</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**
- Re bit 03: This signal is inverted if it is interconnected to a digital output.
- Re r0052: The status bits have the following sources:
  - Bit 00: r0899 Bit 0
  - Bit 01: r0899 Bit 1
  - Bit 02: r0899 Bit 2
  - Bit 03: r2139 Bit 3 (or r1214.10 for p1210 > 0)
  - Bit 04: r0899 Bit 4
  - Bit 05: r0899 Bit 5
  - Bit 06: r0899 Bit 6
  - Bit 07: r2139 Bit 7
Parameters

List of parameters

Bit 08: r2197 Bit 7
Bit 09: r0899 Bit 7
Bit 10: r2197 Bit 6
Bit 11: r0056 Bit 13 (negated)
Bit 12: r0899 Bit 12
Bit 13: r2135 Bit 12 (negated)
Bit 14: r2197 Bit 3
Bit 15: r2135 Bit 15 (negated)

<table>
<thead>
<tr>
<th>r0053.0...11</th>
<th>CO/BO: Status word 2 / ZSW 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>2</td>
</tr>
<tr>
<td>Calculated:</td>
<td>-</td>
</tr>
<tr>
<td>Data type:</td>
<td>Unsigned16</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>-</td>
</tr>
<tr>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Func. diagram:</td>
<td>-</td>
</tr>
</tbody>
</table>

Description: Display and BICO output for status word 2.

Caution: p2081 is used to define the signal sources of the PROFIdrive status word interconnection.

Note: The following status bits are displayed in r0053:

- Bit 00: r1239 Bit 8
- Bit 02: r2197 Bit 0 (negated)
- Bit 06: r2197 Bit 4
- Bit 10: r2349 Bit 10
- Bit 11: r2349 Bit 11

<table>
<thead>
<tr>
<th>r0054.0...15</th>
<th>CO/BO: Control word 1 / STW 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>2</td>
</tr>
<tr>
<td>Calculated:</td>
<td>-</td>
</tr>
<tr>
<td>Data type:</td>
<td>Unsigned16</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>-</td>
</tr>
<tr>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Func. diagram:</td>
<td>-</td>
</tr>
</tbody>
</table>

Description: Displays control word 1.

<table>
<thead>
<tr>
<th>Bit field:</th>
<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 braking active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>[n_act] &gt; p1080 (n_min)</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>[n_act] &gt;= r1119 (n_set)</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Ramp-up/ramp-down completed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Technology controller output at the lower limit</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Technology controller output at the upper limit</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note: The following control bits are displayed in r0054:

- Bit 00: ON/OFF1
- Bit 01: OC / OFF2
- Bit 02: OC / OFF3
- Bit 03: Operation enable
- Bit 04: Ramp-function generator enable
- Bit 05: Continue ramp-function generator
- Bit 06: Speed setpoint enable
- Bit 07: Acknowledge fault
- Bit 08: Jog bit 0
List of parameters

Note:
The following control bits are displayed in r0054:

Bit 00: r0898 Bit 0
Bit 01: r0898 Bit 1
Bit 02: r0898 Bit 2
Bit 03: r0898 Bit 3
Bit 04: r0898 Bit 4
Bit 05: r0898 Bit 5
Bit 06: r0898 Bit 6
Bit 07: r2138 Bit 7
Bit 08: r0898 Bit 8
Bit 09: r0898 Bit 9
Bit 10: r0898 Bit 10
Bit 11: r1198 Bit 11
Bit 13: r1198 Bit 13
Bit 14: r1198 Bit 14
Bit 15: r0836 Bit 0

09 Jog bit 1 Yes No 3030
10 Master ctrl by PLC Yes No -
11 Direction reversal (setpoint) Yes No -
13 Motorized potentiometer raise Yes No -
14 Motorized potentiometer lower Yes No -
15 CDS bit 0 Yes No -

Note:
The following control bits are displayed in r0055:

Bit 00: r1198 Bit 0
Bit 01: r1198 Bit 1
Bit 02: r1198 Bit 2
Bit 03: r1198 Bit 3
Bit 08: r2349 Bit 0 (negated)
Bit 09: r1239 Bit 11
Bit 13: r2138 Bit 13 (negated)
Bit 15: r0836 Bit 0

r0055.0...15 CO/BO: Supplementary control word / Suppl STW

Access level: 3
Can be changed: -
Units group: -
Description: Displays supplementary control word.

Bit field: Bit Signal name 1 signal 0 signal FP
00 Fixed setpoint bit 0 Yes No -
01 Fixed setpoint bit 1 Yes No -
02 Fixed setpoint bit 2 Yes No -
03 Fixed setpoint bit 3 Yes No -
04 Reserved Yes No -
05 Reserved Yes No -
08 Technology controller enable Yes No -
09 DC braking enable Yes No -
11 Reserved Yes No -
12 Reserved Yes No -
13 External fault 1 (F07860) No Yes -
15 CDS bit 1 Yes No -

Note:
The following control bits are displayed in r0055:

Bit 00: r1198 Bit 0
Bit 01: r1198 Bit 1
Bit 02: r1198 Bit 2
Bit 03: r1198 Bit 3
Bit 08: r2349 Bit 0 (negated)
Bit 09: r1239 Bit 11
Bit 13: r2138 Bit 13 (negated)
Bit 15: r0836 Bit 0
### r0056.0...15 CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl

**Access level:** 3  
**Calculated:** -  
**Data type:** Unsigned16

**Description:** Displays the status word of the closed-loop control.

**Bit field:**

<table>
<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>Initialization completed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>De-magnetizing completed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Pulse enable present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Soft starting present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Magnetizing completed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Voltage boost when starting</td>
<td>Active</td>
<td>Inactive</td>
<td>6300</td>
</tr>
<tr>
<td>06</td>
<td>Acceleration voltage</td>
<td>Active</td>
<td>Inactive</td>
<td>6300</td>
</tr>
<tr>
<td>07</td>
<td>Frequency negative</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Field weakening active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Voltage limit active</td>
<td>Yes</td>
<td>No</td>
<td>6714</td>
</tr>
<tr>
<td>10</td>
<td>Slip limit active</td>
<td>Yes</td>
<td>No</td>
<td>6310</td>
</tr>
<tr>
<td>11</td>
<td>Frequency limit active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Current limiting controller voltage output active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Current/torque limiting</td>
<td>Active</td>
<td>Inactive</td>
<td>6060</td>
</tr>
<tr>
<td>14</td>
<td>Vdc_max controller active</td>
<td>Yes</td>
<td>No</td>
<td>6220, 6320</td>
</tr>
<tr>
<td>15</td>
<td>Vdc_min controller active</td>
<td>Yes</td>
<td>No</td>
<td>6220, 6320</td>
</tr>
</tbody>
</table>

### r0060 CO: Speed setpoint before the setpoint filter / n_set before filt.

**Access level:** 3  
**Calculated:** -  
**Data type:** FloatingPoint32

**Description:** Displays the actual speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator).

**Dependency:** Refer to: r0020

**Note:** The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

### r0062 CO: Speed setpoint after the filter / n_set after filter

**Access level:** 3  
**Calculated:** -  
**Data type:** FloatingPoint32

**Description:** Display and connector output for the speed setpoint after the setpoint filters.
### r0063[0...2] CO: Speed actual value / n_act

| Access level: | 3 | Calculated: | - |
| Can be changed: | - | Scaling: | p2000 |
| Units group: | 3_1 | Unit selection: | p0505 |

**Min**
- [rpm]

**Max**
- [rpm]

**Factory setting**
- [rpm]

**Description:**
Displays the actual speed of the closed-loop speed control and the U/f control.

For U/f control and when slip compensation is deactivated (see p1335), the synchronous speed to the output frequency is shown in r0063[0].

**Index:**
- [0] = Unsmoothed
- [1] = Smoothed with p0045
- [2] = Calculated from f_set - f_slip

**Dependency:**
Refer to: r0021, r0022

**Note:**
The speed actual value r0063[0] is additionally displayed - smoothed with p0045 - in r0063[1].
The speed (r0063[2]) calculated from the output frequency and slip can only be compared with the speed actual value (r0063[0]) in the steady-state.

### r0064 CO: Speed controller system deviation / n_ctrl system dev

| Access level: | 3 | Calculated: | - |
| Can be changed: | - | Scaling: | p2000 |
| Units group: | 3_1 | Unit selection: | p0505 |

**Min**
- [rpm]

**Max**
- [rpm]

**Factory setting**
- [rpm]

**Description:**
Displays the actual system deviation of the speed controller.

### r0065 Slip frequency / f_Slip

| Access level: | 3 | Calculated: | - |
| Can be changed: | - | Scaling: | p2000 |
| Units group: | 2_1 | Unit selection: | p0505 |

**Min**
- [Hz]

**Max**
- [Hz]

**Factory setting**
- [Hz]

**Description:**
Displays the slip frequency for induction motors (ASM).

### r0066 CO: Output frequency / f_outp

| Access level: | 3 | Calculated: | - |
| Can be changed: | - | Scaling: | p2000 |
| Units group: | 2_1 | Unit selection: | p0505 |

**Min**
- [Hz]

**Max**
- [Hz]

**Factory setting**
- [Hz]

**Description:**
Display and connector output for the output frequency of the power unit.

**Dependency:**
Refer to: r0024

**Note:**
The output frequency is available smoothed (r0024) and unsmoothed (r0066).
For vector control and operation with encoder (p0400 > 0), the following applies:
The parameter value corresponds to the actual encoder speed.
**Parameters**

**List of parameters**

**r0067**

**CO: Output current maximum / I_outp max**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>6_2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>- [Arms]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>- [Arms]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays the maximum output current of the power unit.

**Dependency:** The maximum output current is determined by the parameterized current limit and the motor and converter thermal protection.

Refer to: p0290, p0640

**r0068[0...1]**

**CO: Absolute current actual value / I_act abs val**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>6_2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>- [Arms]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>- [Arms]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays actual absolute current.

**Index:**
- [0] = Unsmoothed
- [1] = Smoothed with p0045

**Dependency:** Refer to: r0027

**Notice:** The value is updated with the current controller sampling time.

**Note:** Absolute current value = \( \sqrt{I_q^2 + I_d^2} \)

The absolute value of the current actual value is available smoothed (r0027 with 300 ms, r0068[1] with p0045) and unsmoothed (r0068[0]).

**r0069[0...6]**

**CO: Phase current actual value / I_phase act value**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>6_5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>- [A]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>- [A]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays the measured actual phase currents as peak value.

**Index:**
- [0] = Phase U
- [1] = Phase V
- [2] = Phase W
- [3] = Phase U offset
- [4] = Phase V offset
- [5] = Phase W offset

**Note:** In indices 3 ... 5, the offset currents of the 3 phases, which are added to correct the phase currents, are displayed.

The sum of the 3 corrected phase currents is displayed in index 6.
### Parameters

**List of parameters**

#### r0070

**CO: Actual DC link voltage / Vdc act val**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** 5_2

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculated</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the measured actual value of the DC link voltage.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refer to: r0026</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When measuring a DC link voltage &lt; 200 V, for the Power Module a valid measured value is not supplied. In this case, when an external 24 V power supply is connected, a value of approx. 24 V is displayed in the display parameter.</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [V]</td>
<td>- [V]</td>
<td>- [V]</td>
</tr>
</tbody>
</table>

#### r0071

**Maximum output voltage / U_output max**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** 5_1

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculated</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the maximum output voltage.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The maximum output voltage depends on the actual DC link voltage (r0070) and the maximum modulation depth (p1803).</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As the (driven) motor load increases, the maximum output voltage drops as a result of the reduction in DC link voltage.</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [Vrms]</td>
<td>- [Vrms]</td>
<td>- [Vrms]</td>
</tr>
</tbody>
</table>

#### r0072

**CO: Output voltage / U_output**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** 5_1

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculated</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the actual output voltage of the power unit.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refer to: r0025</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The output voltage is available smoothed (r0025) and unsmoothed (r0072).</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [Vrms]</td>
<td>- [Vrms]</td>
<td>- [Vrms]</td>
</tr>
</tbody>
</table>

#### r0073

**Maximum modulation depth / Modulat_depth max**

- **Access level:** 4
- **Can be changed:** -
- **Units group:** -

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculated</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the maximum modulation depth.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refer to: p1803</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [%]</td>
<td>- [%]</td>
<td>- [%]</td>
</tr>
</tbody>
</table>
### Description:
Displays the actual modulation depth.

**Dependency:**
Refer to: r0028

**Note:**
For space vector modulation, 100% corresponds to the maximum output voltage without overcontrol. Values above 100% indicate an overcontrol condition - values below 100% have no overcontrol. The phase voltage (phase-to-phase, rms) is calculated as follows: $(r0074 \times r0070) / (\sqrt{2} \times 100 \%)$. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>r0074 CO: Modulat_depth / Modulat_depth</td>
<td>Displays the actual modulation depth.</td>
<td>4</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>5730, 6730, 6731, 6799, 8940, 8950</td>
</tr>
<tr>
<td>r0075 CO: Current setpoint field-generating / Id_set</td>
<td>Displays the field-generating current setpoint (Id_set). This value is irrelevant for the U/f control mode.</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>1630, 5714, 5722, 6714</td>
</tr>
<tr>
<td>r0076 CO: Current actual value field-generating / Id_act</td>
<td>Displays the field-generating current actual value (Id_act). This value is irrelevant for the U/f control mode. The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>1630, 1710, 5714, 5730, 6714, 6799</td>
</tr>
<tr>
<td>r0077 CO: Current setpoint torque-generating / Iq_set</td>
<td>Displays the torque/force generating current setpoint. This value is irrelevant for the U/f control mode.</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>1630, 1774, 5714, 6710, 6714, 6719</td>
</tr>
</tbody>
</table>

### Description:
Displays the field-generating current setpoint (Id_set).

### Note:
This value is irrelevant for the U/f control mode.

### Description:
Displays the field-generating current actual value (Id_act).

### Note:
This value is irrelevant for the U/f control mode. The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).
### r0078 CO: Current actual value torque-generating / Iq_act

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling: p2002</td>
</tr>
<tr>
<td>Units group: 6_2</td>
<td>Unit selection: p0505</td>
<td></td>
</tr>
</tbody>
</table>

**Min** - [Arms]  
**Max** - [Arms]  
**Factory setting** - [Arms]

**Description:** Displays the torque-generating current actual value (Iq_act).

**Dependency:** Refer to: r0030

**Note:** This value is irrelevant for the U/f control mode. The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

### r0079 CO: Torque setpoint / M_set

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling: p2003</td>
</tr>
<tr>
<td>Units group: 7_1</td>
<td>Unit selection: p0505</td>
<td></td>
</tr>
</tbody>
</table>

**Min** - [Nm]  
**Max** - [Nm]  
**Factory setting** - [Nm]

**Description:** Display and connector output for the torque setpoint at the output of the speed controller.

### r0080[0...1] CO: Torque actual value / M_act

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling: p2003</td>
</tr>
<tr>
<td>Units group: 7_1</td>
<td>Unit selection: p0505</td>
<td></td>
</tr>
</tbody>
</table>

**Min** - [Nm]  
**Max** - [Nm]  
**Factory setting** - [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]).

### r0081 CO: Torque utilization / M_Utilization

<table>
<thead>
<tr>
<th>Access level: 4</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling: PERCENT</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
</tr>
</tbody>
</table>

**Min** - [%]  
**Max** - [%]  
**Factory setting** - [%]

**Description:** Displays the torque utilization as a percentage.

The torque utilization is obtained from the required smoothed torque referred to the torque limit.

**Dependency:** This parameter is only available for vector control. For U/f control r0081 = 0 %.

Refer to: r0033

**Note:** The torque utilization is available smoothed (r0033) and unsmoothed (r0081).

The torque utilization is obtained from the required torque referred to the torque limit as follows:

- Positive torque: r0081 = (r0079 / r1538) * 100 %
- Negative torque: r0081 = (-r0079 / -r1539) * 100 %
### Parameters
#### List of parameters

**r0082[0...2]**  
**CO: Active power actual value / P_act**  
Access level: 3  
Can be changed: -  
Units group: 14_5  
Min [- kW]  
Max [- kW]  
Data type: FloatingPoint32  
Dependency: Refer to: r0032  
Note: The mechanical active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

**r0083**  
**CO: Flux setpoint / Flex setp**  
Access level: 4  
Can be changed: -  
Units group: -  
Min - [%]  
Max - [%]  
Data type: FloatingPoint32  
Dependency: Refer to: -

**r0084[0...1]**  
**CO: Flux actual value / Flux act val**  
Access level: 4  
Can be changed: -  
Units group: -  
Min - [%]  
Max - [%]  
Data type: FloatingPoint32  
Dependency: Refer to: -

**r0087**  
**CO: Actual power factor / Cos phi act**  
Access level: 4  
Can be changed: -  
Units group: -  
Min - -  
Max - -  
Data type: FloatingPoint32  
Dependency: Refer to: -

**r0089[0...2]**  
**Actual phase voltage / U_phase act val**  
Access level: 4  
Can be changed: -  
Units group: 5_3  
Min [- V]  
Max [- V]  
Data type: FloatingPoint32  
Dependency: Refer to: -

---

**Description:**  
Displays the instantaneous active power.

**Index:**  
[0] = Unsmoothed  
[1] = Smoothed with p0045  
[2] = Electric power

**Note:**  
The mechanical active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

**Description:**  
Displays the flux setpoint.

**Index:**  
[0] = Unsmoothed  
[1] = Smoothed

**Description:**  
Displays the flux actual value.

**Index:**  
[0] = Unsmoothed  
[1] = Smoothed

**Description:**  
Displays the actual active power factor.  
This value refers to the electrical power of the basic fundamental signals at the output terminals of the converter.

**Index:**  
[0] = Phase U  
[1] = Phase V  
[2] = Phase W
Note: The values are determined from the transistor power-on duration.

**p0100**

**IEC/NEMA mot stds / IEC/NEMA mot stds**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>1</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(1)</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>2</td>
<td>Factory setting</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Defines whether the motor and drive converter power settings (e.g. rated motor power, p0307) are expressed in [kW] or [hp]. Depending on the selection, the rated motor frequency (p0310) is either set to 50 Hz or 60 Hz.

**Value:**

0: IEC-Motor (50 Hz, SI units)
1: NEMA motor (60 Hz, US units)
2: NEMA motor (60 Hz, SI units)

**Dependency:**

If p0100 is changed, all of the rated motor parameters are reset. Only then are possible unit changeovers made. The units of all motor parameters are changed that are involved with the selection IEC or NEMA.

Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0309, p0310, p0311, p0320, p0322, p0323, p0335, p1800

Note: The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).

**p0124[0...n]**

**CU detection via LED / CU detection LED**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: PDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>1</td>
<td>Factory setting</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Identification of the Control Unit using an LED.

**Note:** While p0124 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Control Unit.

**p0133[0...n]**

**Motor configuration / Motor config**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(1, 3)</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
</tr>
<tr>
<td>Min</td>
<td>0000</td>
<td>Max</td>
<td>bin</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Configuration of the motor when commissioning the motor.

**Bit field:**

<table>
<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 connection type</td>
<td>Delta</td>
<td>Star</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Motor 87 Hz operation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:**

For standard induction motors (p0301 > 10000), bit 0 is automatically preassigned the connection type of the selected data set.

For p0100 > 0 (60 Hz rated motor frequency), it is not possible to select bit 1.

Refer to: p0304, p0305, p1082

**Note:**

Re bit 0:

When changing the bits, the rated motor voltage p0304 and the rated motor current p0305 are automatically converted to the selected connection type (star or delta connection).

Re bit 1:

Operation with 87 Hz is only possible in the delta connection type. When selected, the maximum speed p1082 is automatically preassigned for a maximum output frequency of 87 Hz.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0170</strong></td>
<td><strong>Number of Command Data Sets (CDS) / CDS count</strong></td>
<td></td>
<td>When the data sets are created, short-term communication interruptions may occur.</td>
</tr>
<tr>
<td></td>
<td>Access level: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: C(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Sets the number of Command Data Sets (CDS).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong> Refer to: p0010, r3996</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>p0180</strong></td>
<td><strong>Number of Drive Data Sets (DDS) / DDS count</strong></td>
<td></td>
<td>When the data sets are created, short-term communication interruptions may occur.</td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: C(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Sets the number of Drive Data Sets (DDS).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong> Refer to: p0010, r3996</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>r0197[0...1]</strong></td>
<td><strong>Bootloader version / Bootloader vers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Displays the bootloader version.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index 0: Displays the bootloader version.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index 1: Displays the bootloader version 3 (for CU320-2 and CU310-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value 0 means that boot loader 3 is not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong> Refer to: r0018, r0198</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>r0198[0...1]</strong></td>
<td><strong>BIOS/EEPROM data version / BIOS/EEPROM vers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Displays the BIOS and EEPROM data version.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong> r0198[0]: BIOS version</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>r0198[1]: EEPROM data version</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Example: The value 1010100 should be interpreted as V01.01.01.00.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### List of parameters

#### Drive object name / DO name

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Type</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0199[0...24]</td>
<td>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.</td>
<td>Unsigned16</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>65535</td>
<td>0</td>
</tr>
<tr>
<td>p0201[0...n]</td>
<td>Sets the actual code number from r0200 to acknowledge the power unit being used. When commissioned for the first time, the code number is automatically transferred from r0200 into p0201. The parameter is used to identify when the drive is being commissioned for the first time. The power unit commissioning can only be exited (p0201 = r0200), if the actual and acknowledged code numbers are identical (p0010 = 2). When the code number is changed, the connection voltage (p0210) is checked and, if necessary, adjusted.</td>
<td>Unsigned16</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>C(2)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>65535</td>
<td>0</td>
</tr>
<tr>
<td>r0204[0...n]</td>
<td>Displays the properties supported by the power unit hardware.</td>
<td>Unsigned32</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bit field</td>
<td><strong>Bit</strong></td>
<td><strong>Signal name</strong></td>
<td><strong>1 signal</strong></td>
<td><strong>0 signal</strong></td>
<td><strong>FP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>RFI filter available</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>F3E regenerative feedback into the line supply</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Internal Braking Module</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Safe Brake Control (SBC) supported</td>
<td>No</td>
<td>Yes</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Safety Integrated supported</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Internal LC output filter</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Line voltage</td>
<td>1-phase</td>
<td>3-phase</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p0205</td>
<td>The duty cycles can be overloaded provided that the drive converter is operated with its base load current before and after the overload. This is based on a load duty cycle of 300 s.</td>
<td>Integer16</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>C(1, 2)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Value</td>
<td>0: Load duty cycle with high overload for vector drives</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1: Load duty cycle with low overload for vector drives</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Parameters

List of parameters

Dependency: Refer to: r3996
Notice: The parameter value is not reset when the factory setting is restored (see p0010 = 30, p0970).
When the power unit use is changed, short-term communication interruptions may occur.
Note: When the parameter is changed, all of the motor parameters (p0305 ... p0311), the technological application
(p0500) and the control mode (p1300) are pre-assigned according to the selected application. The parameter has
no influence when calculating the thermal overload.
p0205 can only be changed to the settings that are saved in the power unit EEPROM.

table 1

<table>
<thead>
<tr>
<th>r0206[0...4]</th>
<th>Rated power unit power / PU ( P_{\text{rated}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Access level: 2</td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
</tr>
<tr>
<td></td>
<td>Units group: 14_6</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>- [kW]</td>
<td>- [kW]</td>
</tr>
</tbody>
</table>

Description: Displays the rated power unit power for various load duty cycles.

Index: 
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = Reserved
[4] = Reserved

Dependency: IECdrives (p0100 = 0): Units kW
NEMA drives (p0100 = 1): Units hp
Refer to: p0100, p0205

<table>
<thead>
<tr>
<th>r0207[0...4]</th>
<th>Rated power unit current / PU ( I_{\text{rated}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Access level: 3</td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>- [Arms]</td>
<td>- [Arms]</td>
</tr>
</tbody>
</table>

Description: Displays the rated power unit power for various load duty cycles.

Index: 
[0] = Rated value
[1] = Load duty cycle with low overload
[2] = Load duty cycle with high overload
[3] = Reserved
[4] = Reserved

Dependency: Refer to: p0205

<table>
<thead>
<tr>
<th>r0208</th>
<th>Rated power unit line supply voltage / PU ( U_{\text{rated}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Access level: 2</td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>- [Vrms]</td>
<td>- [Vrms]</td>
</tr>
</tbody>
</table>

Description: Displays the rated line supply voltage of the power unit.
r0208 = 400 : 380 - 480 V +/-10 %
r0208 = 500 : 500 - 600 V +/-10 %
r0208 = 690 : 660 - 690 V +/-10 %
## List of parameters

### r0209[0...4]  
**Power unit maximum current / PU I_max**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 8750, 8850, 8950</td>
</tr>
</tbody>
</table>

**Min**  
- [Arms]

**Max**  
- [Arms]

**Description:** Displays the maximum output current of the power unit.

**Index:**
- [0] = Catalog
- [1] = Load duty cycle with low overload
- [2] = Load duty cycle with high overload
- [3] = Reserved
- [4] = Reserved

**Dependency:** Refer to: p0205

### p0210  
**Drive unit line supply voltage / V_connect**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(2), T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 [V]</td>
<td>63000 [V]</td>
<td>400 [V]</td>
</tr>
</tbody>
</table>

**Description:** Sets the drive unit supply voltage (rms value of the phase-to-phase line supply voltage).

**Dependency:** Set p1254, p1294 (automatic detection of the Vdc switch-on levels) = 0.

**Caution:** The switch-in thresholds of the Vdc_max controller are then directly determined using p0210.

**Note:** If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.

**Setting ranges for p0210 as a function of the rated power unit voltage:**

- $U_{\text{rated}} = 230 \text{ V}$:
  - $p0210 = 200 \ldots 240 \text{ V}$
- $U_{\text{rated}} = 400 \text{ V}$:
  - $p0210 = 380 \ldots 480 \text{ V}$
- $U_{\text{rated}} = 500 \text{ V}$:
  - $p0210 = 500 \ldots 600 \text{ V}$
- $U_{\text{rated}} = 690 \text{ V}$:
  - $p0210 = 660 \ldots 690 \text{ V}$

The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210:

$V_{\text{dc\_pre}} = p0210 \times 0.82 \times 1.35$

The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage:

- $U_{\text{rated}} = 400 \text{ V}$:
  - $U_{\text{min}} = p0210 \times 0.78 > 360 \text{ V}$
- $U_{\text{rated}} = 500 \text{ V}$:
  - $U_{\text{min}} = p0210 \times 0.76$
- $U_{\text{rated}} = 690 \text{ V}$:
  - $U_{\text{min}} = p0210 \times 0.74 > 450 \text{ V}$

### p0219  
**Braking resistor braking power / R_brake P_brake**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(1, 2), T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: 14_6</td>
<td>Unit selection: p0100</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 [kW]</td>
<td>20000.00 [kW]</td>
<td>0.00 [kW]</td>
</tr>
</tbody>
</table>

**Description:** Sets the braking power of the connected braking resistor.
Parameters

List of parameters

| Dependency: | Refer to: p1240, p1280, p1531 |
| Note: | When setting a value for the braking power, the following calculations are made: |
| | - p1240, p1280: Vdc_max control is deactivated. |
| | - p1531 = - p0219: the power limit when generating is set (limited to - p1530). |
| | - The minimum ramp-down time is calculated (p1127) as a function of p0341, p0342 and p1082 (not for vector control with speed encoder). |
| | If the parameter is reset again to zero, then the Vdc_max controller is reactivated and the power limit as well as the ramp-down time are recalculated. |

<table>
<thead>
<tr>
<th>p0230</th>
<th>Drive filter type motor side / Drv filt type mot</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Sets the type of the filter at the motor side.</td>
</tr>
<tr>
<td><strong>Value:</strong></td>
<td>0: No filter</td>
</tr>
<tr>
<td></td>
<td>1: Motor reactor</td>
</tr>
<tr>
<td></td>
<td>2: dv/dt filter</td>
</tr>
<tr>
<td></td>
<td>3: Sine-wave filter Siemens</td>
</tr>
<tr>
<td></td>
<td>4: Sine-wave filter third-party</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td>The following parameters are influenced using p0230:</td>
</tr>
<tr>
<td></td>
<td>p0230 = 1:</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0233 (power unit, motor reactor) = filter inductance</td>
</tr>
<tr>
<td></td>
<td>p0230 = 3:</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0233 (power unit, motor reactor) = filter inductance</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0234 (power unit sine-wave filter capacitance) = filter capacitance</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0290 (power unit overload response) = inhibit pulse frequency reduction</td>
</tr>
<tr>
<td></td>
<td>--&gt; p1082 (maximum speed) = Fmax filter / pole pair number</td>
</tr>
<tr>
<td></td>
<td>--&gt; p1800 (pulse frequency) &gt;= nominal pulse frequency of the filter</td>
</tr>
<tr>
<td></td>
<td>--&gt; p1802 (modulator modes) = space vector modulation without overcontrol</td>
</tr>
<tr>
<td></td>
<td>p0230 = 4:</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0290 (power unit overload response) = inhibit pulse frequency reduction</td>
</tr>
<tr>
<td></td>
<td>--&gt; p1802 (modulator modes) = space vector modulation without overcontrol</td>
</tr>
<tr>
<td></td>
<td>The user must set the following parameters according to the data sheet of the sine-wave filter and also the user must check whether they are permitted.</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0233 (power unit, motor reactor) = filter inductance</td>
</tr>
<tr>
<td></td>
<td>--&gt; p0234 (power unit sine-wave filter capacitance) = filter capacitance</td>
</tr>
<tr>
<td></td>
<td>--&gt; p1082 (maximum speed) = Fmax filter / pole pair number</td>
</tr>
<tr>
<td></td>
<td>--&gt; p1800 (pulse frequency) &gt;= nominal pulse frequency of the filter</td>
</tr>
<tr>
<td></td>
<td>Refer to: p0233, p0234, p0290, p1082, p1800, p1802</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>The parameter cannot be changed if the power unit (e.g. PM260) is equipped with an internal sine-wave filter.</td>
</tr>
<tr>
<td></td>
<td>if a filter type cannot be selected, then this filter type is not permitted for the Motor Module.</td>
</tr>
<tr>
<td></td>
<td>p0230 = 1:</td>
</tr>
<tr>
<td></td>
<td>Power units with output reactor are limited to output frequencies of 150 Hz.</td>
</tr>
<tr>
<td></td>
<td>p0230 = 3:</td>
</tr>
<tr>
<td></td>
<td>Power units with sine-wave filter are limited to output frequencies of 200 Hz.</td>
</tr>
</tbody>
</table>
### p0233 Power unit motor reactor / PU mot reactor

**Access level:** 2  
**Can be changed:** C(2), U, T  
**Units group:** -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 [mH]</td>
<td>1000.000 [mH]</td>
<td>0.000 [mH]</td>
</tr>
</tbody>
</table>

**Description:** Enter the inductance of a filter connected at the power unit output.

**Dependency:** This parameter is automatically pre-set when you select a filter via p0230 if a SIEMENS filter is defined for the power unit.  
Refer to: p0230

**Note:** When exiting the quick commissioning using p3900 = 1, the parameter value is set to the value of the defined SIEMENS filter or to zero. For this reason, the parameter value of a third-party filter only has to be entered outside the commissioning phase (p0010 = 0) and then the controller calculation (p0340 = 3) is carried out.  
The parameter cannot be changed if the power unit has an internal sine-wave filter.

### p0234 Power unit sine-wave filter capacitance / PU sine filter C

**Access level:** 2  
**Can be changed:** C(2), U, T  
**Units group:** -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 [µF]</td>
<td>1000.000 [µF]</td>
<td>0.000 [µF]</td>
</tr>
</tbody>
</table>

**Description:** Enters the capacitance of a sine-wave filter connected at the power unit output.

**Dependency:** This parameter is automatically pre-set when you select a filter via p0230 if a SIEMENS filter is defined for the power unit.  
Refer to: p0230

**Note:** The parameter value includes the sum of all of the capacitances of a phase connected in series (phase - ground).  
When exiting the quick commissioning using p3900 = 1, the parameter value is set to the value of the defined SIEMENS filter or to zero. For this reason, the parameter value of a third-party filter only has to be entered outside the commissioning phase (p0010 = 0).  
The parameter cannot be changed if the power unit has an internal sine-wave filter.

### r0238 Internal power unit resistance / PU R internal

**Access level:** 3  
**Can be changed:** -  
**Units group:** -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [ohm]</td>
<td>- [ohm]</td>
<td>- [ohm]</td>
</tr>
</tbody>
</table>

**Description:** Displays the internal resistance of the power unit (IGBT and line resistance).

### p0287[0...1] Ground fault monitoring thresholds / Gnd flt threshold

**Access level:** 3  
**Can be changed:** T  
**Units group:** -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
</table>
| 0.0 [%] | 100.0 [%] | [0] 6.0 [%]  
|       |       | [1] 16.0 [%] |

**Description:** Sets the shutdown thresholds for the ground fault monitoring.  
The setting is made as a percentage of the maximum current of the power unit (r0209).

**Index:**  
[0] = Threshold at which pre-charging starts  
[1] = Threshold at which pre-charging stops

**Dependency:**  
Refer to: p1901  
Refer to: F30021
**Parameters**

**List of parameters**

**Note:**
This parameter is only relevant for chassis power units.

**r0289 CO: Maximum power unit output current / PU I_outp max**

| Access level: | 3 |
| Can be changed: | - |
| Units group: | - |
| Min | Max | Factory setting |
| - [Arms] | - [Arms] |

**Description:**
Displays the actual maximum output current of the power unit taking into account derating factors.

**p0290 Power unit overload response / PU overld response**

| Access level: | 3 |
| Can be changed: | T |
| Units group: | - |
| Min | Max | Factory setting |
| 0 | 3 |

**Description:**
Sets the response to a thermal overload condition of the power unit.

The following quantities can result in a response to thermal overload:
- heat sink temperature (r0037.0)
- chip temperature (r0037.1)
- power unit overload I2T (r0036)

Possible measures to avoid thermal overload:
- reduce the output current limit r0289 and r0067 or the output frequency (for U/f control) indirectly via the output current limit and the intervention of the current limiting controller).
- reduce the pulse frequency.

A reduction, if parameterized, is always realized after an appropriate alarm is output.

**Value:**
0: Reduce output current or output frequency
1: No reduction shutdown when overload threshold is reached
2: Reduce I_output or f_output and f_pulse (not using I2t)
3: Reduce the pulse frequency (not using I2t)

**Dependency:**
If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1).

For a thermal power unit overload, an appropriate alarm or fault is output, and r2135.15 or r2135.13 set.

Refer to: r0036, r0037, p0230, r2135
Refer to: A05000, A05001, A07805

**Caution:**
If the thermal overload of the power unit is not sufficiently reduced by the actions taken, the drive is always shut down. This means that the power unit is always protected irrespective of the setting of this parameter.

**Note:**
The setting p0290 = 0, 2 is only practical if the load decreases with decreasing speed (e.g. for applications with variable torque such as for pumps and fans).

Under overload conditions, if the current and torque limits are reduced, and therefore the motor is braked, then forbidden speed ranges (e.g. minimum speed and suppression [skip] speeds) can also be passed through.

For p0290 = 2, 3, the I2T overload detection of the power unit does not influence the responses.

When the motor data identification routine is selected, p0290 cannot be changed.

**p0292[0...1] Power unit temperature alarm threshold / PU T_alarm thresh**

| Access level: | 3 |
| Can be changed: | U, T |
| Units group: | - |
| Min | Max | Factory setting |
| 0 [°C] | 25 [°C] |

**Description:**
Sets the alarm threshold for power unit overtemperatures. The value is set as a difference to the tripping (shutdown) temperature.
Drive:
If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290.

Infeed:
When the threshold value is exceeded, only an overload alarm is output.

Index:
[0] = Heat sink temperature
[1] = Power semiconductor (chip) temperature

Dependency:
Refer to: r0037, p0290
Refer to: A05000

<table>
<thead>
<tr>
<th>p0295</th>
<th>Fan run-on time / Fan run-on time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Can be changed: U, T</td>
</tr>
<tr>
<td>Calculated: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Data type: FloatingPoint32</td>
<td>Dyn. index: -</td>
</tr>
</tbody>
</table>

Min: 0 [s] Max: 600 [s] Factory setting: 0 [s]

Description: Sets the fan run-on time after the pulses for the power unit have been canceled.
Note: - Under certain circumstances, the fan can continue to run for longer than was set (e.g. as a result of the excessively high heat sink temperature).
- For values less than 1 s, a 1 s run on time for the fan is active.
- For a PM230 power unit, sizes D - F the parameter is ineffective.

<table>
<thead>
<tr>
<th>p0300[0...n]</th>
<th>Motor type selection / Mot type sel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 2</td>
<td>Can be changed: C(1, 3)</td>
</tr>
<tr>
<td>Calculated: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Data type: Integer16</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Func. diagram: 6310</td>
<td></td>
</tr>
</tbody>
</table>

Min: 0 Max: 100 Factory setting: 0

Description: Selecting the motor type.
The first digit of the parameter value always defines the general motor type and corresponds to the third-party motor belonging to a motor list:
1 = Rotating induction motor
2 = Rotating synchronous motor

The type information must be entered to filter motor-specific parameters and to optimize the operating characteristics and behavior. For example, for synchronous motors, power factor (p0308) is neither used nor displayed (in the BOP/IOP).

Value:
0: No motor
1: Induction motor (rotating)
2: Synchronous motor (rotating, permanent-magnet)
10: 1LE1 standard induction motor series
13: 1LG6 standard induction motor series
17: 1LA7 standard induction motor series
19: 1LA9 standard induction motor series
100: 1LE1 standard induction motor

Dependency: When selecting a motor type from the 1LA7 series, parameters of the thermal motor model are pre-assigned as a function of p0307 and p0311.

Note:
Once the Control Unit has been powered up for the first time or if the factory settings have been defined accordingly; the motor type is pre-configured to induction motor (p0300 = 1).
If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.
**Description:**
The parameter is used to select a motor from a motor parameter list.

**Dependency:**
Code numbers can only be selected for motor types that correspond to the motor type selected in p0300.

**Note:**
The motor code number can only be changed if the matching catalog motor was first selected in p0300.

---

**Description:**
Sets the rated motor voltage (rating plate).

**Caution:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
When the parameter value is entered the connection type of the motor (star-delta) must be taken into account.

---

**Description:**
Sets the rated motor current (rating plate).

**Notice:**
If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly.

**Note:**
When the parameter value is entered the connection type of the motor (star-delta) must be taken into account.

---

**Description:**
The number of motors that can be operated in parallel using one motor data set.

**Note:**
Depending on the motor number entered, internally an equivalent motor is calculated.
The following should be observed in motors connected in parallel:

The following rating plate data should only be entered for one motor:
- resistances and inductances: p0350 ... p0360
- currents: p0305, p0320, p0323
- power ratings: p0307
- masses/moments of inertia: p0341, p0344

All other parameters take into account the replacement motor.

Dependency:
Refer to: r0331, r0382

Caution:
The motors to be connected in parallel must be of the same type and size (same order no. (MLFB)).
The mounting regulations when connecting motors in parallel must be carefully maintained!

After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1, p3900 > 0).

For synchronous motors connected in parallel with p1300 >= 20, be following applies:
- the individual motors must be mechanically coupled with one another and the EMF must be aligned to one another.

For induction motors that are connected in parallel, but which are not mechanically coupled with one another, then the following applies:
- an individual motor must not be loaded beyond its stall point.

Notice:
If p0306 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned.

Note:
Only operation with U/f characteristic makes sense if more than 10 identical motors are connected in parallel.

### p0307[0...n] Rated motor power / Mot P_rated

| Access level: | 1 |
| Can be changed: | C(1, 3) |
| Units group: | 14_6 |
| Calculated: | - |
| Scaling: | - |
| Unit selection: | p0100 |
| Min | 0.00 [kW] |
| Max | 100000.00 [kW] |
| Factory setting | 0.00 [kW] |

Description: Sets the rated motor power (rating plate).
Dependency: IECdrives (p0100 = 0): Units kW
NEMA drives (p0100 = 1): Units hp
NEMA drives (p0100 = 2): Unit kW
Refer to: p0100
Caution: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.
Note: Once the Control Unit has booted for the first time or if the factory settings have been restored, the parameter is pre-assigned to match the power unit.

### p0308[0...n] Rated motor power factor / Mot cos_phi_rated

| Access level: | 1 |
| Can be changed: | C(1, 3) |
| Units group: | - |
| Calculated: | - |
| Scaling: | - |
| Unit selection: | - |
| Min | 0.000 |
| Max | 1.000 |
| Factory setting | 0.000 |

Description: Sets the rated motor power factor (cos phi, rating plate).
For a parameter value of 0.000, the power factor is internally calculated.
Dependency: This parameter is only available for p0100 = 0, 2.
Refer to: p0100, p0309
Caution: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.
Note: The parameter is not used for synchronous motors (p0300 = 2xx).
Once the Control Unit has booted for the first time or if the factory settings have been restored, the parameter is pre-assigned to match the power unit.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0309[0...n]</strong> Rated motor efficiency / Mot (\eta_{\text{rated}})</td>
<td>Sets the rated motor efficiency (rating plate). For a parameter value of 0.0, the power factor is internally calculated.</td>
<td>This parameter is only available for NEMA motors (p0100 = 1). Refer to: p0100, p0308</td>
<td>The parameter is not used for synchronous motors.</td>
</tr>
<tr>
<td><strong>p0310[0...n]</strong> Rated motor frequency / Mot (f_{\text{rated}})</td>
<td>Sets the rated motor frequency (rating plate). The number of pole pairs is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0. The rated frequency is restricted to values between 1.00 Hz and 650.00 Hz. Refer to: p0311</td>
<td>Caution: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection. Notice: If p0310 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3). Note: Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.</td>
<td></td>
</tr>
<tr>
<td><strong>p0311[0...n]</strong> Rated motor speed / Mot (n_{\text{rated}})</td>
<td>Sets the rated motor speed (rating plate). For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330. It is especially important to correctly enter the rated motor speed for vector control and slip compensation for U/f control.</td>
<td>If p0311 is changed and for p0314 = 0, the pole pair is re-calculated automatically. Refer to: p0310</td>
<td>Caution: When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection. Notice: If p0311 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3). Note: Once the Control Unit has been booted up for the first time or if the factory settings have been defined accordingly, the parameter is defined in accordance with the power unit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0309</strong></td>
<td>1</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS</td>
<td>-</td>
</tr>
<tr>
<td><strong>p0310</strong></td>
<td>1</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS</td>
<td>6300</td>
</tr>
<tr>
<td><strong>p0311</strong></td>
<td>1</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0309</strong></td>
<td>0.0 [%]</td>
<td>99.9 [%]</td>
<td>0.0 [%]</td>
</tr>
<tr>
<td><strong>p0310</strong></td>
<td>0.00 [Hz]</td>
<td>650.00 [Hz]</td>
<td>0.00 [Hz]</td>
</tr>
<tr>
<td><strong>p0311</strong></td>
<td>0.0 [rpm]</td>
<td>210000.0 [rpm]</td>
<td>0.0 [rpm]</td>
</tr>
</tbody>
</table>
### List of parameters

#### p0312[0...n] Rated motor torque / Mot M\_rated

| Access level: | 3 |
| Calculated: | - |
| Can be changed: | C(3) |
| Scaling: | - |
| Units group: | - |
| Dyn. index: | MDS |
| Min | 0.00 [Nm] |
| Max | 1000000.00 [Nm] |

**Description:** Sets the rated motor torque (rating plate).

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

| Factory setting |
| 0.00 [Nm] |

#### p0316[0...n] Motor torque constant / Mot kT

| Access level: | 4 |
| Calculated: | - |
| Can be changed: | C(1, 3), U, T |
| Scaling: | - |
| Units group: | 28_1 |
| Dyn. index: | MDS |
| Min | 0.00 [Nm/A] |
| Max | 400.00 [Nm/A] |

**Description:** Sets the torque constant of the synchronous motor.

**Caution:** When selecting a catalog motor (p0301), the torque constant is calculated from the motor data. p0316 > 0: The selected value is used as torque constant.

| Factory setting |
| 0.00 [Nm/A] |

#### p0320[0...n] Motor rated magnetizing current/short-circuit current / Mot I\_mag\_rated

| Access level: | 3 |
| Calculated: | - |
| Can be changed: | C(3), U, T |
| Scaling: | - |
| Units group: | - |
| Dyn. index: | MDS |
| Min | 0.000 [Arms] |
| Max | 5000.000 [Arms] |

**Description:** Sets the rated motor magnetizing current.

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

| Factory setting |
| 0.000 [Arms] |

#### p0322[0...n] Maximum motor speed / Mot n\_max

| Access level: | 1 |
| Calculated: | - |
| Can be changed: | C(1, 3) |
| Scaling: | - |
| Units group: | - |
| Dyn. index: | MDS |
| Min | 0.0 [rpm] |
| Max | 210000.0 [rpm] |

**Description:** Sets the maximum motor speed.

**Dependency:** Refer to: p1082

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:** This parameter is not used for induction motors (p0300 = 1xx).
### List of parameters

#### p0323[0...n]  Maximum motor current / Mot I_max
- **Access level:** 1
- **Can be changed:** C(1, 3)
- **Units group:** -
- **Min:** 0.00 [Arms]
- **Max:** 20000.00 [Arms]

**Description:**
Sets the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).

**Caution:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Notice:**
If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly.

**Note:**
The parameter has no effect for induction motors.
The parameter has not effect for synchronous motors if a value of 0.0 is entered. The user-selectable current limit is entered into p0640.

#### r0330[0...n]  Rated motor slip / Mot slip_rated
- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** - [Hz]
- **Max:** - [Hz]

**Description:**
Displays the rated motor slip.

**Dependency:**
The rated slip is calculated from the rated frequency, rated speed and number of pole pairs.

Refer to: p0310, p0311

**Note:**
The parameter is not used for synchronous motors (p0300 = 2xx).

#### r0331[0...n]  Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act
- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** - [Arms]
- **Max:** - [Arms]

**Description:**
Induction motor:
Displays the rated magnetizing current from p0320.

For p0320 = 0, the internally calculated magnetizing current is displayed.

Synchronous motor:
Displays the rated short-circuit current from p0320.

**Dependency:**
If p0320 was not entered, then the parameter is calculated from the rating plate parameters.

#### r0333[0...n]  Rated motor torque / Mot M_rated
- **Access level:** 3
- **Can be changed:** -
- **Units group:** 7_4
- **Min:** - [Nm]
- **Max:** - [Nm]

**Description:**
Displays the rated motor torque.

**Dependency:**
IEC drives (p0100 = 0): unit Nm
NEMA drives (p0100 = 1): unit lbf ft
Note: For induction motors, r0333 is calculated from p0307 and p0311.
For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328.

### p0335[0...n] Motor cooling type / Mot cool type

- **Description:** Sets the motor cooling system used.
- **Value:**
  - 0: Non-ventilated
  - 1: Forced cooling
  - 2: Liquid cooling
  - 128: No fan
- **Dependency:** For 1LA7 motors (p0300), the parameter is pre-set as a function of p0307 and p0311.
- **Notice:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.
- **Note:** The parameter influences the thermal 3-mass motor model.

1LA7 motors, frame size 56 are operated without fan.

### p0340[0...n] Automatic calculation motor/control parameters / Calc auto par

- **Description:** Setting to automatically calculate motor parameters and U/f open-loop and closed-loop control parameters from the rating plate data.
- **Value:**
  - 0: No calculation
  - 1: Complete calculation
  - 2: Calculation of equivalent circuit diagram parameters
  - 3: Calculation of closed-loop control parameters
  - 4: Calculation of controller parameters
  - 5: Calculation of technological limits and threshold values
- **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:**
  - p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5
  - p0340 = 2 calculates the motor parameters (p0350 ... p0360).
  - p0340 = 3 contains the calculations of p0340 = 4, 5,

The following parameters are influenced using p0340:
- p0340 = 1:
  - All of the parameters influenced for p0340 = 2, 3, 4, 5
- p0340 = 2:
  - p0350, p0354 ... p0360
  - p0625 (matching p0350)
- p0340 = 3:
  - All of the parameters influenced for p0340 = 4, 5
### p0340 \[0...n\] Motor moment of inertia / Mot M_mom of inert

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>p0340 = 1</th>
<th>Data type: FloatingPoint32</th>
</tr>
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<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>25_1</td>
<td>Unit selection:</td>
<td>p0100</td>
<td>Func. diagram: 1700, 5042, 5210, 6030, 6031</td>
</tr>
<tr>
<td>Min</td>
<td>0.000000 [kgm²]</td>
<td>Max</td>
<td>10000.000000 [kgm²]</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:**
Sets the motor moment of inertia (without load).

**Dependency:**
IEC drives (p0100 = 0): unit kg m²
NEMA drives (p0100 = 1): unit lb ft²

The parameter value is included, together with p0342, in the rated starting time of the motor.

**Refer to:** p0342, r0345

**Caution:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

### p0340 \[0...n\] Ratio between the total and motor moment of inertia / Mot MmotInert Ratio

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>p0340 = 1</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: 1700, 5042, 5210, 6030, 6031</td>
</tr>
<tr>
<td>Min</td>
<td>1.000</td>
<td>Max</td>
<td>10000.000</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:**
Sets the ratio between the total moment of inertia/mass (load + motor) and the intrinsic motor moment of inertia/mass (no load).

**Dependency:**
This means that together with p0341, the rated starting (accelerating time) of the motor is calculated for a vector drive.

**Refer to:** p0341, r0345

**Note:**
The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

### p0344 \[0...n\] Motor weight (for the thermal motor model) / Mot weight th mod

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>p0340 = 1</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>27_1</td>
<td>Unit selection:</td>
<td>p0100</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.0 [kg]</td>
<td>Max</td>
<td>50000.0 [kg]</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:**
Sets the motor weight.

**Dependency:**
IEC drives (p0100 = 0): unit kg
NEMA drives (p0100 = 1): unit lb

**Caution:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
The parameter influences the thermal 3 mass model of the induction motor.
The parameter is not used for synchronous motors (p0300 = 2xx).
### r0345[0...n] Nominal motor starting time / Mot t_start_rated

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

#### Description:
Displays the rated motor starting time. This time corresponds to the time from standstill up to reaching the motor rated speed and the acceleration with motor rated torque.

#### Dependency:
Refer to: r0333, p0341, p0342

#### Note:
The parameter is calculated using p0340 = 1,3.

#### r0346[0...n] Motor excitation build-up time / Mot t_excitation

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: p0340 = 1,3</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(3), U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

#### Description:
Sets the excitation build-up time of the motor. This involves the delay time between enabling the pulses and enabling the ramp-function generator. The induction motor is magnetized during this time.

#### Caution:
If there is insufficient magnetization under load or if the acceleration rate is too high, then an induction motor can stall (refer to the note).

#### Note:
The parameter is calculated using p0340 = 1, 3.

For induction motors, the result depends on the rotor time constant (r0384). If this time is excessively reduced, this can result in an inadequate magnetizing of the induction motor. This is the case if the current limit is reached while building up magnetizing. For induction motors, the parameter cannot be set to 0 s (internal limit: 0.1 * r0384).

For permanent-magnet synchronous motors and vector control, the value depends on the stator time constant (r0386). Here, it defines the time to establish the current for encoderless operation immediately after the pulses have been enabled.

#### r0347[0...n] Motor de-excitation time / Mot t_de-excitat.

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: p0340 = 1,3</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(3), U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

#### Description:
Sets the de-magnetizing time (for induction motors) after the inverter pulses have been canceled. The inverter pulses cannot be switched in (enabled) within this delay time.

#### Note:
The parameter is calculated using p0340 = 1, 3.

For induction motors, the result depends on the rotor time constant (r0384).

If this time is shortened too much, then this can result in an inadequate de-magnetizing of the induction motor and in an overcurrent condition when the pulses are subsequently enabled (only when the flying restart function is activated and the motor is rotating).
### List of parameters

#### p0350[0...n]  Motor stator resistance cold / Mot R_stator cold

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>p0340 = 1,2</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00000 [ohm]</td>
<td>Max</td>
<td>2000.00000 [ohm]</td>
<td>Factory setting: 0.00000 [ohm]</td>
</tr>
</tbody>
</table>

**Description:**
Sets the stator resistance of the motor at ambient temperature p0625 (phase value).

**Dependency:**
Refer to: p0625

**Notice:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).

#### p0352[0...n]  Cable resistance / R_cable

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00000 [ohm]</td>
<td>Max</td>
<td>120.00000 [ohm]</td>
<td>Factory setting: 0.00000 [ohm]</td>
</tr>
</tbody>
</table>

**Description:**
Resistance of the power cable between the power unit and motor.

**Caution:**
The cable resistance should be entered prior to motor data identification. If it is used subsequently, the difference by which p0352 was changed must be subtracted from the stator resistance p0350 or motor data identification must be repeated.

**Note:**
The parameter influences the temperature adaptation of the stator resistance.
The motor identification sets the cable resistance to 20% of the measured total resistance if p0352 is zero at the time that the measurement is made. If p0352 is not zero, then the value is subtracted from the measured total stator resistance to calculate stator resistance p0350. In this case, p0350 is a minimum of 10% of the measured value.
The cable resistance is reset when quick commissioning is exited with p3900 > 0.

#### p0354[0...n]  Motor rotor resistance cold / Mot R_r cold

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>p0340 = 1,2</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: 6727</td>
</tr>
<tr>
<td>Min</td>
<td>0.00000 [ohm]</td>
<td>Max</td>
<td>300.00000 [ohm]</td>
<td>Factory setting: 0.00000 [ohm]</td>
</tr>
</tbody>
</table>

**Description:**
Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625.

**Dependency:**
Refer to: p0625

**Caution:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
The parameter is not used for synchronous motors (p0300 = 2).

#### p0356[0...n]  Motor stator leakage inductance / Mot L_stator leak.

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>p0340 = 1,2</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00000 [mH]</td>
<td>Max</td>
<td>1000.00000 [mH]</td>
<td>Factory setting: 0.00000 [mH]</td>
</tr>
</tbody>
</table>

**Description:**
Induction machine: sets the stator leakage inductance of the motor.
Synchronous motor: Sets the stator quadrature axis inductance of the motor.
This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).

**Caution:**
When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
If the stator leakage inductance (p0356) for induction motors is changed outside the commissioning phase (p0010 > 0), the magnetizing inductance (p0360) is automatically adapted to the new EMF. You are then advised to repeat the measurement for the saturation characteristic (p1960).

For permanent-magnet synchronous motors (p0300 = 2), this is the non-saturated value and is, therefore, ideal for a low current.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min [mH]</th>
<th>Max [mH]</th>
<th>Factory setting [mH]</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0357[0...n]</td>
<td>Motor stator inductance d axis / Mot L_stator d</td>
<td>4</td>
<td>C(3), U, T</td>
<td>-</td>
<td>p0340 = 1,2</td>
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<td>-</td>
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<td>MDS</td>
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<td>0.00000</td>
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<tr>
<td>p0358[0...n]</td>
<td>Motor rotor leakage inductance / Mot L_rot leak</td>
<td>4</td>
<td>C(3), U, T</td>
<td>-</td>
<td>p0340 = 1,2</td>
<td>-</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS</td>
<td>6727</td>
<td>0.00000</td>
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<td>0.00000</td>
</tr>
<tr>
<td>p0360[0...n]</td>
<td>Motor magnetizing inductance / Mot Lh</td>
<td>4</td>
<td>C(3), U, T</td>
<td>-</td>
<td>p0340 = 1,2</td>
<td>-</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS</td>
<td>6727</td>
<td>0.00000</td>
<td>10000.00000</td>
<td>0.00000</td>
</tr>
</tbody>
</table>

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0362[0...n]</td>
<td>Motor saturation characteristic flux 1 / Mot saturat.flux 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 4</td>
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<tr>
<td>Can be changed: C(3), U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: MDS</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 6723, 6726</td>
<td></td>
</tr>
<tr>
<td>Min 10.0 [%]</td>
<td>Max 300.0 [%]</td>
<td>Factory setting 60.0 [%]</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.</td>
<td>Sets the first flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).</td>
<td>For induction motors, p0362 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (p0300).</td>
</tr>
<tr>
<td>Dependency:</td>
<td>The following applies for the flux values: p0362 &lt; p0363 &lt; p0364 &lt; p0365</td>
<td>Refer to: p0366</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p0363[0...n]</td>
<td>Motor saturation characteristic flux 2 / Mot saturat.flux 2</td>
<td></td>
<td></td>
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<td>Dyn. index: MDS</td>
<td></td>
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<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 6723, 6726</td>
<td></td>
</tr>
<tr>
<td>Min 10.0 [%]</td>
<td>Max 300.0 [%]</td>
<td>Factory setting 85.0 [%]</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.</td>
<td>Sets the second flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).</td>
<td>For induction motors, p0363 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (p0300).</td>
</tr>
<tr>
<td>Dependency:</td>
<td>The following applies for the flux values: p0362 &lt; p0363 &lt; p0364 &lt; p0365</td>
<td>Refer to: p0367</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>p0364[0...n]</td>
<td>Motor saturation characteristic flux 3 / Mot saturat.flux 3</td>
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<td>Scaling: -</td>
<td>Dyn. index: MDS</td>
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</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 6723, 6726</td>
<td></td>
</tr>
<tr>
<td>Min 10.0 [%]</td>
<td>Max 300.0 [%]</td>
<td>Factory setting 115.0 [%]</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points.</td>
<td>Sets the third flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).</td>
<td>For induction motors, p0364 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (p0300).</td>
</tr>
<tr>
<td>Dependency:</td>
<td>The following applies for the flux values: p0362 &lt; p0363 &lt; p0364 &lt; p0365</td>
<td>Refer to: p0368</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### List of parameters

#### p0365[0...n] Motor saturation characteristic flux 4 / Mot saturat.flux 4

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
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<td><strong>Can be changed:</strong></td>
<td>C(3), U, T</td>
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<tr>
<td><strong>Scaling:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Dyn. index:</strong></td>
<td>MDS</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Unit selection:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>6723, 6726</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>10.0 [%]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>300.0 [%]</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td>125.0 [%]</td>
</tr>
</tbody>
</table>

**Description:**
The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the y coordinate (flux) for the 4th value pair of the characteristic. Sets the fourth flux value of the saturation characteristic as a [%] referred to the rated motor flux (100 %).

**Dependency:**
The following applies for the flux values:
p0362 < p0363 < p0364 < p0365
Refer to: p0369

**Note:**
For induction motors, p0365 = 100 % corresponds to the rated motor flux. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

#### p0366[0...n] Motor saturation characteristic I_mag 1 / Mot sat. I_mag 1

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
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<tr>
<td><strong>Scaling:</strong></td>
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<tr>
<td><strong>Dyn. index:</strong></td>
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<tr>
<td><strong>Unit selection:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>6723, 6726</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>5.0 [%]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>800.0 [%]</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td>50.0 [%]</td>
</tr>
</tbody>
</table>

**Description:**
The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 1st value pair of the characteristic. Sets the first magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

**Dependency:**
The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0362

**Note:**
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

#### p0367[0...n] Motor saturation characteristic I_mag 2 / Mot sat. I_mag 2

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
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<tr>
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</tr>
<tr>
<td><strong>Data type:</strong></td>
<td>FloatingPoint32</td>
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<tr>
<td><strong>Can be changed:</strong></td>
<td>C(3), U, T</td>
</tr>
<tr>
<td><strong>Scaling:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Dyn. index:</strong></td>
<td>MDS</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Unit selection:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>6723, 6726</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>5.0 [%]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>800.0 [%]</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td>75.0 [%]</td>
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</table>

**Description:**
The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 2nd value pair of the characteristic. Sets the second magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

**Dependency:**
The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0363

**Note:**
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0368[0...n]</td>
<td>Motor saturation characteristic I_mag 3 / Mot sat. I_mag 3</td>
<td>The following applies for the magnetizing currents: p0366 &lt; p0367 &lt; p0368 &lt; p0369</td>
<td>When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (p0300).</td>
</tr>
<tr>
<td>p0369[0...n]</td>
<td>Motor saturation characteristic I_mag 4 / Mot sat. I_mag 4</td>
<td>The following applies for the magnetizing currents: p0366 &lt; p0367 &lt; p0368 &lt; p0369</td>
<td>When quick commissioning is exited with p3900 &gt; 0, then the parameter is reset if a catalog motor has not been selected (p0300).</td>
</tr>
<tr>
<td>r0382[0...n]</td>
<td>Motor magnetizing inductance transformed / Mot L_magn transf</td>
<td></td>
<td></td>
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<tr>
<td>r0384[0...n]</td>
<td>Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 3rd value pair of the characteristic. Sets the third magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

**Dependency:**
The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0364

**Note:**
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

**Description:**
The saturation characteristics (flux as a function of the magnetizing current) is defined using 4 points. This parameter specifies the x coordinate (magnetizing current) for the 4th value pair of the characteristic. Sets the fourth magnetization current of the saturation characteristic in [%] with reference to the rated magnetization current (r0331).

**Dependency:**
The following applies for the magnetizing currents:
p0366 < p0367 < p0368 < p0369
Refer to: p0365

**Note:**
When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

**Description:**
Displays the magnetizing inductance of the motor.

**Note:**
The parameter is not used for synchronous motors (p0300 = 2xx).

**Description:**
Displays the rotor time constant.

**Note:**
The parameter is not used for synchronous motors. The value is calculated from the total of the inductances on the rotor side (p0358, p0360) divided by the rotor resistance (p0354). The temperature adaptation of the rotor resistance for induction motors is not taken into account.
### r0386[0...n] Motor stator leakage time constant / Mot T_stator leak

<table>
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<tr>
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<td>Dyn. index: MDS</td>
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<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min - [ms]</td>
<td>Max - [ms]</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the stator leakage time constant.

**Note:** The value is calculated from the total of all leakage inductances (p0233, p0356, p0358) divided by the total of all motor resistances (p0350, p0352, p0354). The temperature adaptation of the resistances is not taken into account.

### r0395[0...n] Actual stator resistance / R_stator act

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<thead>
<tr>
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<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min - [ohm]</td>
<td>Max - [ohm]</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the actual stator resistance (phase value).

**Dependency:** In the case of induction motors the parameter is also affected by the motor temperature model.

**Note:** Refer to: p0350, p0352, p0620

In each case, only the stator resistance of the active Motor Data Set is included with the stator temperature of the thermal motor model.

### r0396[0...n] Actual rotor resistance / R_rotor act

<table>
<thead>
<tr>
<th>Access level: 3</th>
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<tbody>
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<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 6730</td>
</tr>
<tr>
<td>Min - [ohm]</td>
<td>Max - [ohm]</td>
<td>Factory setting</td>
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</table>

**Description:** Displays the actual rotor resistance (phase value).

**Dependency:** Refer to: p0354, p0620

In each case, only the rotor resistance of the active Motor Data Set is included with the rotor temperature of the thermal motor model.

This parameter is not used for synchronous motors (p0300 = 2xx).

### p0422[0...n] Absolute encoder linear measuring step resolution / Enc abs meas step

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</thead>
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<td>Dyn. index: EDS</td>
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<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 4704</td>
</tr>
<tr>
<td>Min 0 [nm]</td>
<td>Max 4294967295 [nm]</td>
<td>Factory setting 100 [nm]</td>
</tr>
</tbody>
</table>

**Description:** Sets the resolution of the absolute position for a linear absolute encoder.

**Caution:** 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.
Parameters

List of parameters

**p0500 Technology application / Tec application**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Notice</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0500</td>
<td>Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0340 = 5.</td>
<td>0: Standard drive 1: Pumps and fans 2: Sensorless closed-loop control down to f = 0 (passive loads) 3: Pumps and fans, efficiency optimization</td>
<td>If the technological application is set to p0500 = 0 ... 3 during commissioning (p0010 = 1, 5, 30), the operating mode (p1300) is pre-set accordingly.</td>
<td>The calculation of parameters dependent on the technology application can be called up as follows: - when exiting quick commissioning using p3900 &gt; 0 - when writing p0340 = 1, 3, 5 For p0500 = 0 and when the calculation is initiated, the following parameters are set: - p1802 = 0 (automatic changeover SVM/FLB) - p1803 = 106 % For p0500 = 1 and when the calculation is initiated, the following parameters are set: - p1802 = 0 (automatic changeover SVM/FLB) - p1803 = 106 % For p0500 = 2 and when the calculation is initiated, the following parameters are set: - p1802 = 0 (automatic changeover SVM/FLB) - p1803 = 106 % For p0500 = 3 and when the calculation is initiated, the following parameters are set: - p1802 = 0 (automatic changeover SVM/FLB) - p1803 = 106 % Re p1750: Re p1802 / p1803: p1802 and p1803 are only changed, in all cases, if a sine-wave output filter (p0230 = 3, 4) has not been selected.</td>
</tr>
</tbody>
</table>

**p0505 Selecting the system of units / Unit sys select**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Caution</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0505</td>
<td>Sets the actual system of units.</td>
<td>1: SI system of units 2: System of units referred/SI 3: US system of units 4: System of units referred/US</td>
<td>The parameter cannot be changed when master control is active.</td>
<td>If a per unit representation is selected and if the reference parameters (e.g. p2000) are subsequently changed, then the physical significance of several control parameters is also adapted at the same time. The control behavior can change as a consequence.</td>
<td>Reference parameter for the unit system % are, for example, p2000 ... p2004. Depending on what has been selected, these are displayed using either SI or US units.</td>
</tr>
</tbody>
</table>
### p0573  Inhibit automatic reference value calculation / Inhibit calc

| Description: | Setting to inhibit the calculation of reference parameters (e.g. p2000) when automatically calculating the motor and closed-loop control parameters (p0340, p3900). |
| Value: | 0: No  
| Notice: | The inhibit for the reference value calculation is canceled when new motor parameters (e.g. p0305) are entered and only one drive data set exists (p0180 = 1). This is the case during initial commissioning. Once the motor and control parameters have been calculated (p0340, p3900), the inhibit for the reference value calculation is automatically re-activated. |
| Note: | If value = 0: The automatic calculation (p0340, p3900) overwrites the reference parameters.  
| | If value = 1: The automatic calculation (p0340, p3900) does not overwrite the reference parameters. |

| Access level: | 3  
| Can be changed: | U, T  
| Units group: | -  
| Calculated: | -  
| Scaling: | -  
| Dyn. index: | -  
| Func. diagram: | -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

### p0595  Technological unit selection / Tech unit select

| 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  

| Access level: | 1  
| Can be changed: | C(5)  
| Units group: | -  
| Calculated: | -  
| Scaling: | -  
| Dyn. index: | -  
| Func. diagram: | -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>46</td>
<td>1</td>
</tr>
</tbody>
</table>

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
### Parameters

#### List of parameters

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>31:</td>
<td>lbf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32:</td>
<td>lbf ft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33:</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34:</td>
<td>rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35:</td>
<td>parts/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36:</td>
<td>m/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37:</td>
<td>ft/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38:</td>
<td>ft/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39:</td>
<td>BTU/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40:</td>
<td>BTU/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41:</td>
<td>mbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42:</td>
<td>inch wg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43:</td>
<td>ft wg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44:</td>
<td>m wg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45:</td>
<td>% r.h.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46:</td>
<td>g/kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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**

- **Access level:** 1
- **Calculated:** -
- **Data type:** FloatingPoint32
- **Can be changed:** T
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** -

**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**

- **Access level:** 2
- **Calculated:** -
- **Data type:** Integer16
- **Can be changed:** C(3), U, T
- **Scaling:** -
- **Dyn. index:** MDS
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 8016

**Description:**

Sets the sensor type for the motor temperature monitoring.

**Value:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0:</td>
<td>No sensor</td>
</tr>
<tr>
<td>1:</td>
<td>PTC alarm</td>
</tr>
<tr>
<td>2:</td>
<td>KTY84</td>
</tr>
<tr>
<td>4:</td>
<td>Bimetallic NC contact alarm</td>
</tr>
</tbody>
</table>

**Caution:**

Re p0601 = 2:

If the motor temperature sensor is not connected but another encoder, then the temperature adaptation of the motor resistances must be switched out (p0620 = 0). Otherwise, in controlled-loop operation, torque errors will occur that will mean that the motor will not be able to be stopped.

**Note:**

Re p0601 = 1:

Tripping resistance = 1650 Ohm. Wire breakage and short-circuit monitoring.
### Mot_temp_mod 2/KTY alarm threshold / Mod 2/KTY A thresh

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated:</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0604[n]</td>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
</tr>
</tbody>
</table>

**Description:**
Sets the alarm threshold for monitoring the motor temperature for motor temperature model 2 or KTY.

After the alarm threshold is exceeded, alarm A07910 is output and timer (p0606) is started.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F07011 is output.

**Dependency:**
- Refer to: p0612
- Refer to: F07011, A07910

**Caution:**
- When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:**
- The hysteresis is 2 K.
- When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

### Mot_temp_mod 1/2 threshold / Mod 1/2 threshold

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated:</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0605[n]</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
</tr>
</tbody>
</table>

**Description:**
Sets the threshold for monitoring the motor temperature for motor temperature model 1/2 or KTY.

Motor temperature model 1 (p0612.0 = 1): alarm threshold
- Alarm A07012 is output after the alarm threshold is exceeded.

Motor temperature model 2 (p0612.1 = 1) or KTY: fault threshold
- Fault F07011 is output after the fault threshold is exceeded.

**Dependency:**
- Refer to: p0611, p0612
- Refer to: F07011, A07012

**Caution:**
- When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Notice:**
- Motor temperature model 1:
  - p0605 also defines the target temperature of the model for r0034 = 100 %. Therefore, p0605 has no influence on the time up to alarm A07012 being issued. The time is only determined by time constant p0611, the actual current and the reference value p0305.

**Note:**
- The hysteresis is 2 K.
- When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

### Motor overtemperature response / Mot temp response

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated:</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0610[n]</td>
<td>2</td>
<td>-</td>
<td>Integer16</td>
</tr>
</tbody>
</table>

**Description:**
Sets the system response when the motor temperature reaches the alarm threshold.

**Value:**
- 0: No response only alarm no reduction of I_max
- 1: Messages, reduction of I_max
- 2: Messages, no reduction of I_max
- 12: Messages, no reduction of I_max, temperature storage
Parameters

List of parameters

Dependency:
Refer to: p0601, p0604, p0605, p0614, p0615
Refer to: F07011, A07012, A07910

Note:
The I\_max reduction is not executed for PTC (p0601 = 1) or bimetallic NC contact (p0601 = 4).
The I\_max reduction results in a lower output frequency.
If value = 0:
An alarm is output and I\_max is not reduced.
If value = 1:
An alarm is output and a timer is started. A fault is output if the alarm is still active after this timer has expired.
- for KTY84, the following applies: I\_max. is reduced
- for PTC, the following is valid: I\_max. is not reduced
If value = 2:
An alarm is output and a timer is started. A fault is output if the alarm is still active after this timer has expired.
If value = 12:
Behavior is always the same as for value 2.
For motor temperature monitoring without temperature sensor, when switching off, the model temperature is saved in a non-volatile fashion. When switching on, the same value (reduced by p0614) is taken into account in the model calculation. As a consequence, the UL508C specification is fulfilled.

p0611[0...n]  I2t motor model thermal time constant / I2t mot_mod T

| Access level: | 3 |
| Can be changed: | C(3), U, T |
| Units group: | - |
| Min | 0 [s] |
| Max | 20000 [s] |

Description:
Sets the winding time constant.
The time constant specifies the warm-up time of the cold stator winding when loaded with the motor standstill current (rated motor current, if the motor standstill current is not parameterized) up until a temperature rise of 63 % of the continuously permissible winding temperature has been reached.

Dependency:
This parameter is only used for synchronous motors (p0300 = 2xx).
Refer to: r0034, p0612, p0615
Refer to: F07011, A07012, A07910

Caution:
This parameter is automatically pre-set from the motor database for motors from the motor list (p0301).
When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note:
When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model.
If no temperature sensor is parameterized, then the ambient temperature for the thermal motor model is referred to p0625.

p0612[0...n]  Mot_temp_mod activation / Mot_temp_mod act

| Access level: | 3 |
| Can be changed: | U, T |
| Units group: | - |
| Min | - |
| Max | - |

Description:
Setting to activate the motor temperature model.

Bit field: | Bit | Signal name | 1 signal | 0 signal | FP |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Activating motor temperature model 1 (I2t)</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Activate motor temperature model 2</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Dependency:
Refer to: r0034, p0604, p0605, p0611, p0615, p0625
Refer to: F07011, A07012, A07910

Notice:
Re bit 00:
This bit is only automatically activated for permanent-magnet 1FT7 synchronous motors. For other permanent-magnet synchronous motors, the user himself must activate motor temperature model 1 (I2t).
It is only possible to activate this motor temperature model (I2t) for a time constant greater than zero (p0611 > 0).

**Note:**
- Mot_temp_mod: motor temperature model
- Re bit 00: This bit is used to activate/deactivate the motor temperature model for permanent-magnet synchronous motors.
- Re bit 01: This bit is used to activate/deactivate the motor temperature model for induction motors.

### p0614[0...n] Thermal resistance adaptation reduction factor / Therm R_adapt red

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
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<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0 [%]</td>
<td>Max</td>
<td>100 [%]</td>
<td>Factory setting 30 [%]</td>
</tr>
</tbody>
</table>

**Description:** Sets the reduction factor for the overtemperature of the thermal adaptation of the stator/rotor resistance. The value is a starting value when switching on. Internally, after switch-on, the reduction factor has no effect corresponding to the thermal time constant.

**Dependency:** Refer to: p0610

**Note:** The reduction factor is only effective for p0610 = 12, and refers to the overtemperature.

### p0615[0...n] Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>21_1</td>
<td>Unit selection: p0505</td>
<td>-</td>
<td>Func. diagram: 8017</td>
</tr>
<tr>
<td>Min</td>
<td>0.0 [°C]</td>
<td>Max</td>
<td>220.0 [°C]</td>
<td>Factory setting 180.0 [°C]</td>
</tr>
</tbody>
</table>

**Description:** Sets the fault threshold for monitoring the motor temperature for motor temperature model 1 (I2t). - Fault F07011 is output after the fault threshold is exceeded. - fault threshold for r0034 = 100 % * (p0615 - 40) / (p0605 - 40).

**Dependency:** The parameter is only used for permanent-magnet synchronous motors (p0300 = 2xx).

**Caution:** When selecting a catalog motor (p0301), this parameter is automatically pre-assigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

**Note:** The hysteresis is 2 K.

### p0620[0...n] Thermal adaptation, stator and rotor resistance / Mot therm_adapt R

<table>
<thead>
<tr>
<th>Access level:</th>
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<th>p0340 = 1</th>
<th>Data type: Integer16</th>
</tr>
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<tbody>
<tr>
<td>Can be changed:</td>
<td>C(3), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>2</td>
<td>Factory setting 1</td>
</tr>
</tbody>
</table>

**Description:** Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.

**Value:**
0: No thermal adaptation of stator and rotor resistances
1: Resistances adapted to the temperatures of the thermal model
2: Resistances adapted to the measured stator winding temperature

**Note:**
- For p0620 = 1, the following applies: The stator resistance is adapted using the temperature in r0035 and the rotor resistance together with the model temperature.
- For p0620 = 2, the following applies: The stator resistance is adapted using the temperature in r0035.
**Description:**
Selects the identification of the stator resistance after booting the Control Unit (only for vector control).

The identification is used to measure the actual stator resistance and from the ratio of the result of motor data identification (p0350) to the matching ambient temperature (p0625) the actual mean temperature of the stator winding is calculated. The result is used to initialize the thermal motor model.

- **p0621 = 1:** Identification of the stator resistance only when the drive is powered up for the first time (pulse enable) after booting the Control Unit.
- **p0621 = 2:** Identification of the stator resistance every time the drive is powered up (pulse enable).

**Value:**
0: No Rs identification  
1: Rs identification after switching-on again  
2: Rs identification after switching-on each time

**Dependency:**
- perform motor data identification (see p1910) with cold motor.  
- enter ambient temperature at time of motor data identification in p0625.

Refer to: p0622, r0623

**Notice:**
The calculated stator temperature can only be compared with the measured value of a temperature sensor (KTY) to a certain extent, as the sensor is usually the warmest point of the stator winding, whereas the measured value of identification reflects the mean value of the stator winding. Furthermore this is a short-time measurement with limited accuracy that is performed during the magnetizing phase of the induction motor.

**Note:**
The measurement is carried out:
- For induction motors  
- When vector control is active (see p1300)  
- If a temperature sensor (KTY) has not been connected  
- When the motor is at a standstill when switched on

When a flying restart is performed on a rotating motor, the temperatures of the thermal motor model are set to a third of the overtemperatures. This occurs only once, however, when the CU is booted (e.g. after a power failure). If identification is activated, the magnetizing time is determined via p0622 and not via p0346. The speed is enabled after completion of the measurement.

**Description:**
Sets the excitation time of the motor for the stator resistance identification after powering up again (restart).

**Dependency:**
Refer to: p0621, r0623

**Note:**
For p0622 < p0346 the following applies:
If identification is activated, the magnetizing time is influenced by p0622. The speed is enabled after measurement is complete, but not before the time in p0346 has elapsed (see r0056 bit 4). The time taken for measurement also depends on the settling time of the measured current.

For p0622 >= p0346 the following applies:
Parameter p0622 is internally limited to the magnetizing time p0346, so that p0346 represents the maximum possible magnetizing time during identification. The entire measurement period (magnetizing plus measurement settling time plus measuring time) will always be greater than p0346.
### List of parameters

#### r0623  Rs identification stator resistance after switch on again / Rs-id Rs aft sw-on

- **Access level:** 4
- **Can be changed:** -
- **Units group:** -
- **Min:** - [ohm]
- **Max:** - [ohm]

**Description:** Displays the stator resistance determined using the Rs identification after switching on again.

**Dependency:** Refer to: p0621, p0622

- **Data type:** FloatingPoint32
- **Calculated:** -
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Func. diagram:** -
- **Factory setting:** - [ohm]

#### p0625[0...n]  Motor ambient temperature / Mot T_ambient

- **Access level:** 3
- **Can be changed:** C(3), U, T
- **Units group:** 21_1
- **Min:** -40 [°C]
- **Max:** 80 [°C]

**Description:** Defines the ambient temperature of the motor for calculating the motor temperature model.

**Note:**
- The parameters for stator and rotor resistance (p0350, p0354) refer to this temperature.
- If the thermal I2t motor model is activated for permanent-magnet synchronous motors (refer to p0611), p0625 is included in the model calculation if a temperature sensor is not being used (see p0601).

**Data type:** FloatingPoint32
- **Calculated:** p0340 = 1,2
- **Scaling:** -
- **Unit selection:** p0505
- **Dyn. index:** MDS
- **Func. diagram:** DDS, p0180

#### r0632[0...n]  Mot_temp_mod stator winding temperature / Mod T_winding

- **Access level:** 4
- **Can be changed:** -
- **Units group:** 21_1
- **Min:** - [°C]
- **Max:** - [°C]

**Description:** Displays the stator winding temperature of the motor temperature model.

**Data type:** FloatingPoint32
- **Calculated:** -
- **Scaling:** p2006
- **Unit selection:** p0505
- **Dyn. index:** MDS
- **Func. diagram:** DDS, p0180

#### p0637[0...n]  Q flux flux gradient saturated / PSIQ Grad SAT

- **Access level:** 3
- **Can be changed:** C(3), U, T
- **Units group:** -
- **Min:** 0.00 [mH]
- **Max:** 10000.00 [mH]

**Description:** The non-linear and cross-coupled quadrature axis flux functions are defined using 4 coefficients. This parameter describes the gradients of the saturated component over the quadrature axis current.

**Data type:** FloatingPoint32
- **Calculated:** -
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** MDS
- **Func. diagram:** -

#### p0640[0...n]  Current limit / Current limit

- **Access level:** 2
- **Can be changed:** C(1, 3), U, T
- **Units group:** -
- **Min:** 0.00 [Arms]
- **Max:** 10000.00 [Arms]

**Description:** Sets the current limit.

**Dependency:** Refer to: r0209, p0323

**Data type:** FloatingPoint32
- **Calculated:** p0340 = 1
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** DDS, p0180
- **Func. diagram:** DDS, p0180

**Note:**
- The parameter is part of the quick commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0305. The current limit p0640 is limited to r0209.
- The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the power unit.
- The torque and power limits (p1520, p1521, p1530, p1531) matching the current limit are automatically calculated when exiting the quick commissioning using p3900 > 0 or using the automatic parameterization with p0340 = 3, 5.
p0640 is limited to $4.0 \times p0305$.
p0640 is pre-assigned for the automatic self commissioning routine (e.g. $1.5 \times p0305$, with $p0305 = r0207[1]$).
p0640 must be entered when commissioning the system. This is the reason that p0640 is not calculated by the automatic parameterization when exiting the quick commissioning ($p3900 > 0$).

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0]</td>
<td>Number of digital inputs</td>
<td>[2]</td>
<td>Number of digital input/outputs bidirectional</td>
</tr>
<tr>
<td>[1]</td>
<td>Number of digital outputs</td>
<td>[3]</td>
<td>Number of analog inputs</td>
</tr>
<tr>
<td>[4]</td>
<td>Number of analog outputs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**r0720[0...4]**  
**CU number of inputs and outputs / CU I/O count**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
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<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>Unit selection:</td>
<td>Func. diagram: 1510</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the number of inputs and outputs

**Dependency:**
- $[0] = $ Number of digital inputs
- $[1] = $ Number of digital outputs
- $[2] = $ Number of digital input/outputs bidirectional
- $[3] = $ Number of analog inputs
- $[4] = $ Number of analog outputs

**r0722.0...11**  
**CO/BO: CU digital inputs status / CU DI status**

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
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</thead>
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<td>Can be changed:</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>Unit selection:</td>
<td>Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the status of the digital inputs.

**Dependency:**
- Refer to: r0723

**Note:**
- AI: Analog Input
- DI: Digital Input
- T: Terminal

**r0723.0...11**  
**CO/BO: CU digital inputs status inverted / CU DI status inv**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
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<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling: -</td>
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<tr>
<td>Units group:</td>
<td>Unit selection:</td>
<td>Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the inverted status of the digital inputs.
**List of parameters**

**Dependency:** Refer to: r0722

**Note:**
AI: Analog Input  
DI: Digital Input  
T: Terminal

### p0724 CU digital inputs debounce time / CU DI t_debounce

- **Access level:** 4  
- **Can be changed:** U, T  
- **Units group:** -  
- **Calculated:** -  
- **Scaling:** -  
- **Data type:** FloatingPoint32  
- **Dyn. index:** -  
- **Func. diagram:** -  
- **Min:** 0.000 [ms]  
- **Max:** 20.000 [ms]  
- **Factory setting:** 4.000 [ms]

**Description:** Sets the debounce time for digital inputs.

**Note:** The digital inputs are read in cyclically every 2 ms (DI 11, DI 12 every 4 ms).  
To debounce the signals, the set debounce time is converted into integer multiple debounce clock cycles Tp (Tp = p0724 / 2 ms).

**DI: Digital Input**

### p0730 BI: CU signal source for terminal DO 0 / CU S_src DO 0

- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** -  
- **Calculated:** -  
- **Scaling:** -  
- **Data type:** U32 / Binary  
- **Dyn. index:** -  
- **Func. diagram:** 1510, 2030, 2130  
- **Min:** -  
- **Max:** -  
- **Factory setting:** 52.3

**Description:** Sets the signal source for terminal DO 0 (NO: T. 19 / NC: T. 18).

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

**Note:**  
DO: Digital Output  
T: Terminal  
Relay output: NO = normally open, NC = normally closed

### p0731 BI: CU signal source for terminal DO 1 / CU S_src DO 1

- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** -  
- **Calculated:** -  
- **Scaling:** -  
- **Data type:** U32 / Binary  
- **Dyn. index:** -  
- **Func. diagram:** 1510, 2030, 2130  
- **Min:** -  
- **Max:** -  
- **Factory setting:** 52.7

**Description:** Sets the signal source for terminal DO 1 (NO: T. 21).

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

**Note:**  
DO: Digital Output  
T: Terminal  
Relay output: NO = normally open, NC = normally closed

### r0747 CU digital outputs status / CU DO status

- **Access level:** 3  
- **Can be changed:** -  
- **Units group:** -  
- **Calculated:** -  
- **Scaling:** -  
- **Data type:** Unsigned32  
- **Dyn. index:** -  
- **Func. diagram:** 2130, 2131, 2132, 2133

- **Min:** -  
- **Max:** -  
- **Factory setting:** -

**Description:** Displays the status of digital outputs.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Bit field</th>
<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>DO 0 (NO: T. 19 / NC: T. 18)</td>
<td>High</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>DO 1 (NO: T. 21)</td>
<td>High</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- DO: Digital Output
- T: Terminal
- Relay output: NO = normally open, NC = normally closed
- Inversion using p0748 has been taken into account.

#### p0748

**CU invert digital outputs / CU DO inv**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned32</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0000 bin</td>
</tr>
</tbody>
</table>

**Description:**
- Setting to invert the signals at the digital outputs.

<table>
<thead>
<tr>
<th>Bit field</th>
<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>DO 0 (NO: T. 19 / NC: T. 18)</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>DO 1 (NO: T. 21)</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- DO: Digital Output
- T: Terminal
- Relay output: NO = normally open, NC = normally closed

#### r0751.0...9

**BO: CU analog inputs status word / CU AI status word**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
- Displays the status of analog inputs.

<table>
<thead>
<tr>
<th>Bit field</th>
<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>Analog input AI0 wire breakage</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Analog input AI1 wire breakage</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Analog input AI0 no wire breakage</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Analog input AI1 no wire breakage</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- AI: Analog Input

#### r0752[0...1]

**CO: CU analog inputs input voltage/current actual / CU AI U/I_inp act**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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] = AI0 (T. 3/4)
- [1] = AI1 (T. 10/11)

**Dependency:**
- The type of analog input AIx (voltage or current input) is set using p0756.
  - Refer to: p0756

**Note:**
- AI: Analog Input
- T: Terminal
**p0753[0...1]**  
**CU analog inputs smoothing time constant / CU AI T_smooth**

| Access level: | 4 |
| Can be changed: | U, T |
| Units group: | - |
| Min | 0.0 [ms] |
| Max | 1000.0 [ms] |

Description: Sets the smoothing time constant of the 1st-order low pass filter for the analog inputs.

Index:  
[0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

Note:  
AI: Analog Input  
T: Terminal

**r0755[0...1]**  
**CO: CU analog inputs actual value in percent / CU AI value in %**

| Access level: | 2 |
| Can be changed: | - |
| Units group: | - |
| Min | - [%] |
| Max | - [%] |

Description: Displays the currently referred input value of the analog inputs.

When interconnected, the signals are referred to the reference quantities p200x and p205x.

Index:  
[0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

Note:  
AI: Analog Input  
T: Terminal

**p0756[0...1]**  
**CU analog inputs type / CU AI type**

| Access level: | 2 |
| Can be changed: | U, T |
| Units group: | - |
| Min | 0 |
| Max | 8 |

Description: Sets the type of analog inputs.

Value:  
0: Unipolar voltage input (0 V ... +10 V)  
1: Unipolar voltage input monitored (+2 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)  
8: No sensor connected

Index:  
[0] = AI0 (T. 3/4)  
[1] = AI1 (T. 10/11)

Warning:  
The maximum voltage difference between analog input terminals AI+, AI-, and the ground must not exceed 35 V.

If the system is operated when the load resistor is switched on (DIP switch set to "I"), the voltage between differential inputs AI+ and AI- must not exceed 10 V or the injected 80 mA current otherwise the input will be damaged.
### Parameters

#### List of parameters

**Note:**
When changing p0756, the parameters of the scaling characteristic (p0757, p0758, p0759, p0760) are overwritten with the following default values:

For p0756 = 0, 4, p0757 is set to 0.0 V, p0758 = 0.0 %, p0759 = 10.0 V and p0760 = 100.0 %.
For p0756 = 1, p0757 is set to 2.0 V, p0758 = 0.0 %, p0759 = 10.0 V and p0760 = 100.0 %.
For p0756 = 2, p0757 is set to 0.0 mA, p0758 = 0.0 %, p0759 = 20.0 mA and p0760 = 100.0 %.
For p0756 = 3, p0757 is set to 4.0 mA, p0758 = 0.0 %, p0759 = 20.0 mA and p0760 = 100.0 %.

#### p0757[0...1] CU analog inputs characteristic value x1 / CU AI char x1

| Access level: 2 | Calculated: - | Data type: FloatingPoint32 |
| Can be changed: U, T | Scailing: - | Dyn. index: - |
| Units group: - | Unit selection: - | Func. diagram: 9566, 9568, 9576 |
| Min | Max | Factory setting |
| -50.000 | 160.000 | 0.000 |

**Description:**
Sets the scaling characteristic for the analog inputs.
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the x coordinate (V, mA) of the 1st value pair of the characteristic.

**Index:**
- [0] = AI0 (T. 3/4)
- [1] = AI1 (T. 10/11)

**Note:**
The parameters for the characteristic do not have a limiting effect.

#### p0758[0...1] CU analog inputs characteristic value y1 / CU AI char y1

| Access level: 2 | Calculated: - | Data type: FloatingPoint32 |
| Can be changed: U, T | Scailing: - | Dyn. index: - |
| Units group: - | Unit selection: - | Func. diagram: 9566, 9568, 9576 |
| Min | Max | Factory setting |
| -1000.00 [%] | 1000.00 [%] | 0.00 [%] |

**Description:**
Sets the scaling characteristic for the analog inputs.
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] = AI0 (T. 3/4)
- [1] = AI1 (T. 10/11)

**Note:**
The parameters for the characteristic do not have a limiting effect.

#### p0759[0...1] CU analog inputs characteristic value x2 / CU AI char x2

| Access level: 2 | Calculated: - | Data type: FloatingPoint32 |
| Can be changed: U, T | Scailing: - | Dyn. index: - |
| Units group: - | Unit selection: - | Func. diagram: 9566, 9568, 9576 |
| Min | Max | Factory setting |
| -50.000 | 160.000 | 10.000 |

**Description:**
Sets the scaling characteristic for the analog inputs.
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the x coordinate (V, mA) of the 2nd value pair of the characteristic.

**Index:**
- [0] = AI0 (T. 3/4)
- [1] = AI1 (T. 10/11)

**Note:**
The parameters for the characteristic do not have a limiting effect.
### Parameters List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0760[0...1]</strong></td>
<td>CU analog inputs characteristic value y2 / CU AI y2 char</td>
<td>Access level: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can be changed: U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Units group: -</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| | | Min | Max | Factory setting
| | | -1000.00 [%] | 1000.00 [%] | 100.00 [%] |
| | | | | |
| **p0761[0...1]** | CU analog inputs wire breakage monitoring response threshold / CU WireBrkThresh | Access level: 2 | | |
| | | Can be changed: U, T | | |
| | | Units group: - | | |
| | | Min | Max | Factory setting
| | | 0.00 | 20.00 | 2.00 |
| **p0764[0...1]** | CU analog inputs dead zone / CU AI dead zone | Access level: 2 | | |
| | | Can be changed: U, T | | |
| | | Units group: - | | |
| | | Min | Max | Factory setting
| | | 0.000 [V] | 20.000 [V] | 0.000 [V] |
### p0771[0...1] CU analog outputs signal source / CU AO S_src

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Sets the signal source for the analog outputs.</td>
</tr>
<tr>
<td>Index</td>
<td>[0] = AO0 (T 12/13)</td>
</tr>
<tr>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
</tr>
<tr>
<td>Note</td>
<td>AO: Analog Output</td>
</tr>
<tr>
<td></td>
<td>T: Terminal</td>
</tr>
</tbody>
</table>

### r0772[0...1] CU analog outputs output value currently referred / CU AO outp_val

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Displays the actual referred output value of the analog outputs.</td>
</tr>
<tr>
<td>Index</td>
<td>[0] = AO0 (T 12/13)</td>
</tr>
<tr>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
</tr>
<tr>
<td>Note</td>
<td>AO: Analog Output</td>
</tr>
<tr>
<td></td>
<td>T: Terminal</td>
</tr>
</tbody>
</table>

### r0774[0...1] CU analog outputs output voltage/current actual / CU AO U/I_outp

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Displays the actual output voltage or output current at the analog outputs.</td>
</tr>
<tr>
<td>Index</td>
<td>[0] = AO0 (T 12/13)</td>
</tr>
<tr>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
</tr>
<tr>
<td>Note</td>
<td>AO: Analog Output</td>
</tr>
<tr>
<td></td>
<td>T: Terminal</td>
</tr>
</tbody>
</table>

### p0775[0...1] CU analog outputs activate absolute value generation / CU AO absVal act

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Activates the absolute value generation for the analog outputs.</td>
</tr>
<tr>
<td>Value</td>
<td>0: No absolute value generation</td>
</tr>
<tr>
<td></td>
<td>1: Absolute value generation switched in</td>
</tr>
<tr>
<td>Index</td>
<td>[0] = AO0 (T 12/13)</td>
</tr>
<tr>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
</tr>
<tr>
<td>Note</td>
<td>AO: Analog Output</td>
</tr>
<tr>
<td></td>
<td>T: Terminal</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Index</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0776[0...1]</td>
<td>CU analog outputs type / CU AO type</td>
<td>Sets the analog output type.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 2</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 9572</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p0777[0...1]</td>
<td>CU analog outputs characteristic value x1 / CU AO char x1</td>
<td>Sets the scaling characteristic for the analog outputs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 2</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 9572</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1000.00 [%]</td>
<td>1000.00 [%]</td>
<td>0.00 [%]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p0778[0...1]</td>
<td>CU analog outputs characteristic value y1 / CU AO char y1</td>
<td>Sets the scaling characteristic for the analog outputs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 2</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 9572</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-20.000 [V]</td>
<td>20.000 [V]</td>
<td>0.000 [V]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
**Parameters**

**List of parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0779[0...1]</td>
<td><strong>CU analog outputs characteristic value x2 / CU AO char x2</strong></td>
<td></td>
<td>[0] = AO0 (T 12/13)</td>
<td>This parameter is automatically overwritten when changing p0776 (type of analog outputs).</td>
</tr>
<tr>
<td>Access level: 2</td>
<td></td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td></td>
<td>Can be changed: U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td></td>
<td>Unit selection: -</td>
<td>Func. diagram: 9572</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice:</td>
<td>Sets the scaling characteristic for the analog outputs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>The scaling characteristic for the analog outputs is defined using 2 points.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index:</td>
<td>The parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependency:</td>
<td>Refer to: p0776</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice:</td>
<td>This parameter is automatically overwritten when changing p0776 (type of analog outputs).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>The parameters for the characteristic do not have a limiting effect.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p0780[0...1]</td>
<td><strong>CU analog outputs characteristic value y2 / CU AO char y2</strong></td>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
<td></td>
</tr>
<tr>
<td>Access level: 2</td>
<td></td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td></td>
<td>Can be changed: U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td></td>
<td>Unit selection: -</td>
<td>Func. diagram: 9572</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice:</td>
<td>Sets the scaling characteristic for the analog outputs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>The scaling characteristic for the analog outputs is defined using 2 points.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index:</td>
<td>The parameter specifies the y coordinate (output voltage in V or output current in mA) of the 2nd value pair of the characteristic.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependency:</td>
<td>Refer to: p0776</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice:</td>
<td>This parameter is automatically overwritten when changing p0776 (type of analog outputs).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>The parameters for the characteristic do not have a limiting effect.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p0782[0...1]</td>
<td><strong>BI: CU analog outputs invert signal source / CU AO inv S_src</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 3</td>
<td></td>
<td>Calculated: -</td>
<td>Data type: U32 / Binary</td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td></td>
<td>Can be changed: U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td></td>
<td>Unit selection: -</td>
<td>Func. diagram: 9572</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice:</td>
<td>Sets the signal source to invert the analog output signals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index:</td>
<td>[0] = AO0 (T 12/13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>[0] = AO0 (T 12/13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1] = AO1 (T 26/27)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r0785.0...1</td>
<td><strong>BO: CU analog outputs status word / CU AO ZSW</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 3</td>
<td></td>
<td>Calculated: -</td>
<td>Data type: Unsigned16</td>
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<tr>
<td>Can be changed: -</td>
<td></td>
<td>Can be changed: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td>Units group: -</td>
<td>Func. diagram: 9572</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice:</td>
<td>Displays the status of analog outputs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### List of parameters

#### Parameters

**Note:**
- **AO:** Analog Output

**Description:**
Sets the simulation mode for digital inputs.

**Dependency:**
The setpoint for the input signals is specified using p0796.

**Note:**
- This parameter is not saved when data is backed up (p0971).

**CU digital inputs simulation mode / CU DI simulation**

<table>
<thead>
<tr>
<th>Bit field:</th>
<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>AO 0 negative</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>AO 1 negative</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
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**Access level:** 3  
**Calculated:** -  
**Can be changed:** U, T  
**Units group:** -  
**Unit selection:** -

**Min** | **Max** | **Factory setting** |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0000 0000 0000 0000 bin</td>
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</table>

**Data type:** Unsigned32  
**Dyn. index:** -  
**Func. diagram:** 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133

**CU digital inputs simulation mode setpoint / CU DI simul setp**

<table>
<thead>
<tr>
<th>Bit field:</th>
<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>DI 0 (T. 5)</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
<td></td>
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<tr>
<td>01</td>
<td>DI 1 (T. 6)</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
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<tr>
<td>02</td>
<td>DI 2 (T. 7)</td>
<td>Simulation</td>
<td>Terminal eval</td>
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<tr>
<td>03</td>
<td>DI 3 (T. 8)</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>DI 4 (T. 16)</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>DI 5 (T. 17)</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>DI 11 (T. 3, 4) AI 0</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>DI 12 (T. 10, 11) AI 1</td>
<td>Simulation</td>
<td>Terminal eval</td>
<td>-</td>
<td></td>
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</table>

**Access level:** 3  
**Calculated:** -  
**Can be changed:** U, T  
**Units group:** -  
**Unit selection:** -

**Min** | **Max** | **Factory setting** |
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0000 0000 0000 0000 bin</td>
</tr>
</tbody>
</table>

**Data type:** Unsigned32  
**Dyn. index:** -  
**Func. diagram:** 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133

**Dependency:**
The simulation of a digital input is selected using p0795.

**Note:**
- This parameter is not saved when data is backed up (p0971).

**AI:** Analog Input  
**DI:** Digital Input  
**T:** Terminal
**Parameters**

**List of parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Index</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0797[0...1]</strong></td>
<td>CU analog inputs simulation mode / CU AI sim_mode</td>
<td>Sets the simulation mode for the analog inputs.</td>
<td></td>
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<td></td>
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<tr>
<td>Access level:</td>
<td>Calculated:</td>
<td>Data type: Integer16</td>
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<td>U, T</td>
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<td>Units group:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
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<td>0</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>p0798[0...1]</strong></td>
<td>CU analog inputs simulation mode setpoint / CU AI sim_setp</td>
<td>Sets the setpoint for the input value in the simulation mode of the analog inputs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level:</td>
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<td>Data type: FloatingPoint32</td>
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<td></td>
</tr>
<tr>
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<td>U, T</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group:</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-50.000</td>
<td>2000.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>p0802</strong></td>
<td>Data transfer: memory card as source/target / mem_card src/targ</td>
<td>Sets the number for data transfer of a parameter backup from/to memory card.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level:</td>
<td>Calculated:</td>
<td>Data type: Integer16</td>
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<td></td>
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<tr>
<td>Can be changed:</td>
<td>T</td>
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<td>Units group:</td>
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<td>Min</td>
<td>Max</td>
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<td>0</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### Parameters

#### p0803

**Data transfer: device memory as source/target / Dev_mem src/targ**

| Access level: | 3 |
| Data type: | Integer16 |
| Can be changed: | T |
| Scaling: | - |
| Units group: | - |
| Unit selection: | - |
| Funk. diagram: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

**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

**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**

| G120C_CAN | Access level: | 3 |
| G120C_USS | Calculated: | - |
| Data type: | Integer16 |
| Can be changed: | T |
| Scaling: | - |
| Units group: | - |
| Unit selection: | - |
| Funk. diagram: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1100</td>
<td>0</td>
</tr>
</tbody>
</table>

**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.

Example 3 (only supported for PROFINET):
The PROFIBUS or PROFINET device master data (GSD) should be transferred from the device memory to the memory card.
- p0802 = (not relevant)
- p0803 = (not relevant)
- p0804 = 12 (start transferring the GSD files to the memory card)
  --> The GSD files are transferred from the device memory to the memory card and stored in the /SIEMENS/SINAMICS/DATA/CFG directory.

**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
Parameters

List of parameters

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.
For p0014 = 1, 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:
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 mem-
ory 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.

<table>
<thead>
<tr>
<th>p0804</th>
<th>Data transfer start / Data transf start</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>Access level: 3</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Can be changed: T</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>0</td>
<td>1100</td>
</tr>
</tbody>
</table>

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 parama-
ter 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 param-
ter 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.

Example 3 (only supported for PROFIBUS/PROFINET):
The PROFIBUS or PROFINET device master data (GSD) should be transferred from the device memory to the
memory card.
p0802 = (not relevant)
p0803 = (not relevant)
p0804 = 12 (start transferring the GSD files to the memory card)
--> The GSD files are transferred from the device memory to the memory card and stored in the /SIEMENS/SIN-
AMICS/DATA/CFG directory.

Value:
0: Inactive
1: Memory card to device memory
2: Device memory to memory card
12: Device memory (GSD files) 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.
For p0014 = 1, 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:
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
Access level: 3  Calculated: -  Data type: U32 / Binary
Can be changed: T  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
Min  Max  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
Access level: 3  Calculated: -  Data type: Unsigned8
Can be changed: -  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
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  5030,
      6031
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.
### List of parameters

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Copies one Command Data Set (CDS) into another.</th>
</tr>
</thead>
</table>
| Index       | \[
|            | [0] = Source Command Data Set \|  
|            | [1] = Target Command Data Set \|  
|            | [2] = Start copying procedure \|  
| Dependency  | Refer to: r3996 \|  
| Notice      | When the command data sets are copied, short-term communication interruptions may occur. \|  
| 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. \|  
| Min         | 0 \|  
| Max         | 3 \|  
| Factory setting | 0 \|  

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>2 |</td>
</tr>
<tr>
<td>Calculated</td>
<td>- |</td>
</tr>
<tr>
<td>Data type</td>
<td>U32 / Binary |</td>
</tr>
<tr>
<td>Can be changed</td>
<td>T |</td>
</tr>
<tr>
<td>Scaling:</td>
<td>- |</td>
</tr>
<tr>
<td>Dyn. index:</td>
<td>- |</td>
</tr>
<tr>
<td>Units group:</td>
<td>- |</td>
</tr>
<tr>
<td>Unit selection:</td>
<td>- |</td>
</tr>
<tr>
<td>Min</td>
<td>- |</td>
</tr>
<tr>
<td>Max</td>
<td>0 |</td>
</tr>
<tr>
<td>Factory setting</td>
<td>- |</td>
</tr>
</tbody>
</table>

#### p0819[0...2]  Copy Drive Data Set DDS / Copy DDS

<table>
<thead>
<tr>
<th>Description</th>
<th>Copies one Drive Data Set (DDS) into another.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>3 |</td>
</tr>
<tr>
<td>Calculated</td>
<td>- |</td>
</tr>
<tr>
<td>Data type</td>
<td>Unsigned8 |</td>
</tr>
<tr>
<td>Can be changed</td>
<td>C(15) |</td>
</tr>
<tr>
<td>Scaling:</td>
<td>- |</td>
</tr>
<tr>
<td>Dyn. index:</td>
<td>- |</td>
</tr>
<tr>
<td>Units group:</td>
<td>- |</td>
</tr>
<tr>
<td>Unit selection:</td>
<td>- |</td>
</tr>
<tr>
<td>Min</td>
<td>0 |</td>
</tr>
<tr>
<td>Max</td>
<td>1 |</td>
</tr>
<tr>
<td>Factory setting</td>
<td>0 |</td>
</tr>
</tbody>
</table>

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### List of parameters

#### Index:
- [0] = Source Drive Data Set
- [1] = Target Drive Data Set
- [2] = Start copying procedure

#### Dependency:
Refer to: r3996

#### Notice:
When the drive data sets are copied, short-term communication interruptions may occur.

#### 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

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: U32 / Binary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(15), T</td>
<td>Scaling: -</td>
<td>Dyn. index: CDS, p0170</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 8565, 8575</td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting**
--- | --- | ---
- | - | 0

**Description:**
Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).

**Dependency:**
Refer to: r0051, p0826, r0837

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

#### p0826[0...n] Motor changeover motor number / Mot_chng mot No.

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(3), T</td>
<td>Scaling: -</td>
<td>Dyn. index: MDS</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting**
--- | --- | ---
0 | 1 | 0

**Description:**
Sets the freely-assignable motor number for the drive data set changeover.
If the same motor is driven by different drive data sets, the same motor number must also be entered in these data sets.
If the motor is also switched with the drive data set, different motor numbers must be used. In this case, the data set can only be switched when the pulse inhibit is set.

**Note:**
- If the motor numbers are identical, the same thermal motor model is used for calculation after data set changeover.
- If different motor numbers are used, different models are also used for calculating (the inactive motor cools down in each case).

#### r0835.2...8 CO/BO: Data set changeover status word / DDS_ZSW

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 8575</td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting**
--- | --- | ---
- | - | -

**Description:**
Displays the status word for the drive data set changeover.

**Bit field:**

<table>
<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>02</td>
<td>Internal parameter calculation active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Armature short circuit active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Identification running</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Rotating measurement running</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Motor data identification running</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**
- Re bit 02:
  A data set changeover is delayed by the time required for the internal parameter calculation.
- Re bit 04:
  A data set changeover is only carried out when the armature short circuit is not activated.
Re bit 05:
A data set changeover is only carried out when pole position identification is not running.
Re bit 07:
A data set changeover is only carried out when rotating measurement is not running.
Re bit 08:
A data set changeover is only carried out when motor data identification is not running.

**r0836.0...1**
**CO/BO: Command Data Set CDS selected / CDS selected**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Calculated:** -
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Data type:** Unsigned8
- **Factory setting:** -

**Description:**
Displays the command data set (CDS) selected via the binector input.

**Dependency:**
Refer to: r0050, p0810

**Note:**
Command data sets are selected via binector input p0810 and following.
The currently effective command data set is displayed in r0050.

**r0837.0**
**CO/BO: Drive Data Set DDS selected / DDS selected**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Calculated:** -
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Data type:** Unsigned8
- **Factory setting:** -

**Description:**
Displays the drive data set (DDS) selected via the binector input.

**Dependency:**
Refer to: r0051, p0820

**Note:**
Drive data sets are selected via binector input p0820 and following.
The currently effective drive data set is displayed in r0051.

If there is only one data set, then a value of 0 is displayed in this parameter and not the selection via binector inputs.

**p0840[0...n]**
**BI: ON / OFF (OFF1) / ON / OFF (OFF1)**

- **G120C_CAN**
- **G120C_USS**

- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Calculated:** -
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** CDS, p0170
- **Data type:** U32 / Binary
- **Factory setting:** [0] 722.0 [1] 0
- **Func. diagram:** 2501, 2610, 8720, 8820, 8920

**Description:**
Sets the signal source for the command "ON/OFF (OFF1)".
For the PROFdrive profile, this command corresponds to control word 1 bit 0 (STW1.0).

**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 (p1300 = 20), the following applies:
- BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression and switch-on inhibit)
- BI: p0840 = 0/1 signal: ON (pulses can be enabled)

<table>
<thead>
<tr>
<th>p0840[0...n]</th>
<th>BI: ON / OFF (OFF1) / ON / OFF (OFF1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>Access level: 3</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Can be changed: T</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td></td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Data type:</td>
<td>U32 / Binary</td>
</tr>
<tr>
<td>Dyn. index:</td>
<td>CDS, p0170</td>
</tr>
<tr>
<td>Min</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>[0] 2090.0</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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).

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 (p1300 = 20), the following applies:
- BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression and switch-on inhibit)
- BI: p0840 = 0/1 signal: ON (pulses can be enabled)

<table>
<thead>
<tr>
<th>p0844[0...n]</th>
<th>BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Access level: 3</td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Can be changed: T</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td></td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Data type:</td>
<td>U32 / Binary</td>
</tr>
<tr>
<td>Dyn. index:</td>
<td>CDS, p0170</td>
</tr>
<tr>
<td>Min</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>p0844[0...n]</th>
<th>BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G120C_DP</strong></td>
<td>Access level: 3  Calculated: -  Data type: U32 / Binary</td>
</tr>
<tr>
<td><strong>G120C_PN</strong></td>
<td>Can be changed: T  Scaling: -  Dyn. index: CDS, p0170</td>
</tr>
<tr>
<td></td>
<td>Units group: -  Unit selection: -  Func. diagram: 2501, 8720, 8820, 8920</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>p0845[0...n]</th>
<th>BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G120C_DP</strong></td>
<td>Access level: 3  Calculated: -  Data type: U32 / Binary</td>
</tr>
<tr>
<td><strong>G120C_PN</strong></td>
<td>Can be changed: T  Scaling: -  Dyn. index: CDS, p0170</td>
</tr>
<tr>
<td></td>
<td>Units group: -  Unit selection: -  Func. diagram: 2501, 8720, 8820, 8920</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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.
**List of parameters**

### p0848[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>G120C_USS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
</tbody>
</table>

**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 (p1135), 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.

**Note:**
For drives with closed-loop torque control (activated using p1501), the following applies:
- BI: p0848 = 0 signal:
  - No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227).

### p0848[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting**
---|---|---
[0] 2090.2 | [1] 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 (p1135), 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.

**Note:**
For drives with closed-loop torque control (activated using p1501), the following applies:
- BI: p0848 = 0 signal:
  - No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227).
### p0849[0...n]  
**BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2**

| 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 (p1135), 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.

| Note | For drives with closed-loop torque control (activated using p1501), the following applies:
- BI: p0849 = 0 signal:
  - No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227).

| Data type | U32 / Binary  
| Functional diagram | 2501  
| Access level | 3  
| Can be changed | T  
| Scaling | -  
| Units group | -  
| Unit selection | -  
| Min | -  
| Max | 1  
| Factory setting | -  

#### G120C_CAN

| Can be changed | T  
| Units group | -  
| Min | -  
| Max | 1  

#### G120C_USS

| Can be changed | T  
| Units group | -  
| Min | -  
| Max | 1  

### p0852[0...n]  
**BI: Enable operation/inhibit operation / Operation enable**

| 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.

| Data type | U32 / Binary  
| Functional diagram | 2501  
| Access level | 3  
| Min Max Factory setting | - [0] 2090.3 [1] 1  

#### G120C_DP

| Min | -  
| Max | 1  

#### G120C_PN

| Min | -  
| Max | 1  

### p0852[0...n]  
**BI: Enable operation/inhibit operation / Operation enable**

| 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).

| Data type | U32 / Binary  
| Functional diagram | 2501  
| Access level | 3  
| Min Max Factory setting | -  

#### G120C_DP

| Min | -  
| Max | 1  

#### G120C_PN

| Min | -  
| Max | 1  

---

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**List of parameters**

**p0852**

- **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.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0852</strong></td>
<td>BI: Control by PLC/no control by PLC / Master ctrl by PLC</td>
<td>(- - 1)</td>
</tr>
</tbody>
</table>

**p0854**

- **BI:** \( p0854 = 0 \) signal
  
  No control by PLC

- **BI:** \( p0854 = 1 \) signal
  
  Master ctrl 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 open holding brake / Uncond open brake

- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** 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

- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** 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

- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** 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

- **Access level:** 2
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Max:** -

**Description:**
Displays the control word of the sequence control.

<table>
<thead>
<tr>
<th>Bit field</th>
<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>ON/OFF1</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>OC / OFF2</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>OC / OFF3</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Operation enable</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Ramp-function generator enable</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Continue ramp-function generator</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
Parameters
List of parameters

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
Re bit 10:
If p0700 = 2 is set, bit 10 always shows "1".

r0899.0...13 CO/BO: Status word sequence control / ZSW seq_ctrl

<table>
<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>Rdy for switch on</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Ready</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Operation enabled</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Jog active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>No coasting active</td>
<td>OFF2 inactive</td>
<td>OFF2 active</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>No Quick Stop active</td>
<td>OFF3 inactive</td>
<td>OFF3 active</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Switching on inhibited active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Drive ready</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Controller enable</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Control request</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Pulses enabled</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Open holding brake</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Command close holding brake</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

Description:
Displays the status word of the sequence control.

Notice:
For PROFIdrive, these signals are used for status word 1.

p0918
PROFIBUS address / PB address

G120C_DP

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>126</td>
<td>126</td>
</tr>
</tbody>
</table>

Description:
Displays or sets the PROFIBUS address for PROFIBUS interface on the Control Unit.
The address can be set as follows:
1) Using the DIP switch on the Control Unit.
   --> p0918 can then only be read and displays the selected address.
   --> A change only becomes effective after a POWER ON.
2) Using p0918
   --> Only if all of the DIP switches are set to ON or OFF.
   --> 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.

Notice:
For p0014 = 1, 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.
For p0014 = 0, the following applies:
Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do
this, set p0971 = 1 or p0014 = 1.

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

### p0922  
**PROFIdrive PZD telegram selection / PZD telegr_sel**

| Access level: | 1 |
| Calculated: | - |
| Data type: | Unsigned16 |
| Units group: | - |
| Scaling: | - |
| Dyn. index: | - |
| Func. diagram: | 1520, 2415, 2416, 2419, 2420, 2421, 2422, 2423 |

**Description:**
Sets the send and receive telegram.

**Value:**
1: Standard telegram 1, PZD-2/2
20: Standard telegram 20, PZD-2/6
352: SIEMENS telegram 352, PZD-6/6
353: SIEMENS telegram 353, PZD-2/2, PKW-4/4
354: SIEMENS telegram 354, PZD-6/6, PKW-4/4
999: Free telegram configuration with BICO

**Dependency:**
Refer to: F01505

**Note:**
If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhib-
ited.
The inhibited interconnections can only be changed again after setting value 999.

### r0944  
**CO: Counter for fault buffer changes / Fault buff change**

| Access level: | 3 |
| Calculated: | - |
| Data type: | Unsigned16 |
| Units group: | - |
| Scaling: | - |
| Dyn. index: | - |
| Func. diagram: | 8060 |

**Description:**
Displays fault buffer changes. This counter is incremented every time the fault buffer changes.

**Dependency:**
Refer to: r0945, r0947, r0948, r0949, r2109

### r0945[0...63]  
**Fault code / Fault code**

| Access level: | 3 |
| Calculated: | - |
| Data type: | Unsigned16 |
| Units group: | - |
| Scaling: | - |
| Dyn. index: | - |
| Func. diagram: | 1750, 8060 |

**Description:**
Displays the numbers of faults that have occurred.

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

**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] --> actual fault case, fault 1
...

r0945[7], r0949[7], r0948[7], r2109[7] --> actual fault case, fault 8
r0945[8], r0949[8], r0948[8], r2109[8] --> 1st acknowledged fault case, fault 1
...

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

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

Access level: 3
Can be changed: -
Units group: -
Min -
Max -

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

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

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

Access level: 2
Can be changed: -
Units group: -
Min -
Max -

Description:
This parameter is identical to r0945.

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

Access level: 3
Can be changed: -
Units group: -
Min - [ms]
Max - [ms]

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

Dependency:
Refer to: r0945, r0947, r0949, r2109, r2130, r2133, r2136

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

Note:
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

Access level: 3
Can be changed: -
Units group: -
Min -
Max -

Description:
Displays additional information about the fault that occurred (as integer number).

Dependency:
Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136

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.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p0952</strong> Fault cases counter / Fault cases qty</td>
<td>Number of fault situations that have occurred since the last reset.</td>
<td>0-65535</td>
<td>The fault buffer is deleted (cleared) by setting p0952 to 0.</td>
</tr>
<tr>
<td><strong>r0963</strong> PROFIBUS baud rate / PB baud rate</td>
<td>Displays the corresponding value for the PROFIBUS baud rate.</td>
<td>0-255</td>
<td>Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136</td>
</tr>
</tbody>
</table>

### Notes

- **p0952**: Fault cases counter / Fault cases qty
  - **Access level**: 3
  - **Can be changed**: U, T
  - **Units group**: -
  - **Min**: 0
  - **Max**: 65535
  - **Data type**: Unsigned16
  - **Scaling**: -
  - **Dyn. index**: -
  - **Factory setting**: 0

- **r0963**: PROFIBUS baud rate / PB baud rate
  - **Access level**: 3
  - **Can be changed**: -
  - **Units group**: -
  - **Min**: 0
  - **Max**: 255
  - **Data type**: Unsigned16
  - **Scaling**: -
  - **Dyn. index**: -
  - **Factory setting**: 0

- **r0964[0...6]**: Device identification / Device ident.
  - **Access level**: 3
  - **Can be changed**: -
  - **Units group**: -
  - **Min**: -
  - **Max**: -
  - **Data type**: Unsigned16
  - **Scaling**: -
  - **Dyn. index**: -
  - **Factory setting**: -
  - **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[4] = 1705 --> 17th of May
    - r0964[5] = 1 --> 1 drive object
    - r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00)
### List of parameters

**Device type:**

- `r0964[1] = 6510` → SINAMICS G120C_DP
- `r0964[1] = 6511` → SINAMICS G120C_PN
- `r0964[1] = 6512` → SINAMICS G120C_CAN
- `r0964[1] = 6513` → SINAMICS G120C_USS/MB

**r0965**

**PROFIdrive profile number / PD profile number**

<table>
<thead>
<tr>
<th>Device type</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Can be changed:** -

**Description:**
Displays the PROFIdrive profile number and profile version.

- **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**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned32</td>
</tr>
</tbody>
</table>

**Can be changed:** T

**Units group:** -

**Description:**
Displays the system runtime in ms since the last POWER ON.

- The value in p0969 can only be reset to 0.
- The value overflows after approx. 49 days.

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

**p0970**

**Reset drive parameters / Drive par reset**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>Unsigned16</td>
</tr>
</tbody>
</table>

**Can be changed:** C(1, 30)

**Units group:** -

**Description:**
The parameter is used to initiate the reset of the drive parameters.

- Parameters p0100, p0205 are not reset.
- The following motor parameters are defined in accordance with the power unit: p0300 ... p0311.
- When downloading settings 10, 11, 12, the buffer memory mode is automatically deactivated (p0014 = 0).

**Value:**

- 0: Inactive
- 1: Start a parameter reset
- 3: Start download of volatile parameters from RAM
- 5: Starts a safety parameter reset
- 10: Starts to download setting 10
- 11: Starts to download setting 11
- 12: Starts to download setting 12
- 100: Start a BICO interconnection reset
- 300: Only Siemens int

**Dependency:**
Refer to: F01659

**Caution:**
When the buffer memory is active (see p0014), the actual parameters are backed up from RAM to ROM when a parameter set is loaded (p0970 = 10, 11, 12).
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.
Peculiarities of communication via PROFIBUS DP:
- Communication with Class 1 masters (e.g. S7 controllers) is interrupted.
- Communication with Class 2 masters (e.g. STARTER) is retained.

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.
Parameter reset is completed with p0970 = 0 and r3996[0] = 0.
For p0970 = 1 the following applies:
If a Safety Integrated function is parameterized (p9601), then the safety parameters are not reset. In this case, an error message (F01659) is output with fault value 2.
The following generally applies:
One index of parameters p2100, p2101, p2126, p2127 is not reset, if a parameterized message is precisely active in this index.

p0971  Save parameters / Save par
Access level: 1  Calculated: -  Data type: Unsigned16
Can be changed: U, T  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
Min 0  Max 12  Factory setting 0

Description: Setting to save parameters 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
10: Save in non-volatile memory as setting 10
11: Save in non-volatile memory as setting 11
12: Save in non-volatile memory as setting 12

Dependency:
Refer to: p1960, 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.

p0972  Drive unit reset / Drv_unit reset
Access level: 3  Calculated: -  Data type: Unsigned16
Can be changed: U, T  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
Min 0  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.
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.

r0980[0...299] List of existing parameters 1 / List avail par 1
Access level: 4
Can be changed: -
Units group: -
Calculated: -
Scaling: -
Unit selection: -
Data type: Unsigned16
Dyn. index: -
Func. diagram: -
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
Access level: 4
Can be changed: -
Units group: -
Calculated: -
Scaling: -
Unit selection: -
Data type: Unsigned16
Dyn. index: -
Func. diagram: -
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).
### List of parameters

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

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
<td>-</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
<td>-</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
<td>-</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Access level:</th>
<th>4</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned16</th>
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</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
<td>-</td>
</tr>
</tbody>
</table>

**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., PROFINET master).

### p1000[0...n] Speed setpoint selection / n_set sel

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>Access level: 1</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
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</thead>
<tbody>
<tr>
<td>G120C_USS</td>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: CDS, p0170</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>200</td>
<td>2</td>
</tr>
</tbody>
</table>

Description: Sets the source for the speed setpoint.
For single-digit values, the following applies:
The value specifies the main setpoint.
For double-digit values, the following applies:
The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.
Example:
Value = 26
--> The analog setpoint (2) supplies the supplementary setpoint.
--> The fieldbus (6) supplies the main setpoint.

Value:
0: No main setpoint
1: Motorized potentiometer
2: Analog setpoint
3: Fixed speed setpoint
6: Fieldbus
10: Motor potentiometer + no main setpoint
11: Motor potentiometer + motor potentiometer
12: Motor potentiometer + analog setpoint
13: Motor potentiometer + fixed speed setpoint
16: Motor potentiometer + fieldbus
20: Analog setpoint + no main setpoint
21: Analog setpoint + motor potentiometer
22: Analog setpoint + analog setpoint
23: Analog setpoint + fixed speed setpoint
26: Analog setpoint + fieldbus
30: Fixed speed setpoint + no main setpoint
31: Fixed speed setpoint + motor potentiometer
32: Fixed speed setpoint + analog setpoint
33: Fixed speed setpoint + fixed speed setpoint
36: Fixed speed setpoint + fieldbus
60: Fieldbus + no main setpoint
61: Fieldbus + motor potentiometer
62: Fieldbus + analog setpoint
63: Fieldbus + fixed speed setpoint
66: Fieldbus + fieldbus
200: Analog output connection

Dependency: When changing this parameter, the following settings are influenced:
Refer to: p1070, p1071, p1075, p1076

Caution: If p1000 is selected as the main setpoint of the fieldbus, the following BICO interconnection is set automatically:
p2051[1] = r0063

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

Notice: The parameter is possibly protected as a result of p0922.
For PROFINET/PROFINET Control Units, the following applies: The parameter can be freely set by setting p0922 = 999.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>p1000[0...n]</th>
<th>Speed setpoint selection / n_set sel</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td></td>
</tr>
<tr>
<td>G120C_PN</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>Sets the source for the speed setpoint.</td>
</tr>
<tr>
<td></td>
<td>For single-digit values, the following applies:</td>
</tr>
<tr>
<td></td>
<td>The value specifies the main setpoint.</td>
</tr>
<tr>
<td></td>
<td>For double-digit values, the following applies:</td>
</tr>
<tr>
<td></td>
<td>The left-hand digit specifies the supplementary setpoint, the right-hand digit the main setpoint.</td>
</tr>
<tr>
<td>Example:</td>
<td>Value = 26</td>
</tr>
<tr>
<td></td>
<td>-&gt; The analog setpoint (2) supplies the supplementary setpoint.</td>
</tr>
<tr>
<td></td>
<td>-&gt; The fieldbus (6) supplies the main setpoint.</td>
</tr>
<tr>
<td>Value:</td>
<td>0: No main setpoint</td>
</tr>
<tr>
<td></td>
<td>1: Motorized potentiometer</td>
</tr>
<tr>
<td></td>
<td>2: Analog setpoint</td>
</tr>
<tr>
<td></td>
<td>3: Fixed speed setpoint</td>
</tr>
<tr>
<td></td>
<td>6: Fieldbus</td>
</tr>
<tr>
<td></td>
<td>10: Motor potentiometer + no main setpoint</td>
</tr>
<tr>
<td></td>
<td>11: Motor potentiometer + motor potentiometer</td>
</tr>
<tr>
<td></td>
<td>12: Motor potentiometer + analog setpoint</td>
</tr>
<tr>
<td></td>
<td>13: Motor potentiometer + fixed speed setpoint</td>
</tr>
<tr>
<td></td>
<td>16: Motor potentiometer + fieldbus</td>
</tr>
<tr>
<td></td>
<td>20: Analog setpoint + no main setpoint</td>
</tr>
<tr>
<td></td>
<td>21: Analog setpoint + motor potentiometer</td>
</tr>
<tr>
<td></td>
<td>22: Analog setpoint + analog setpoint</td>
</tr>
<tr>
<td></td>
<td>23: Analog setpoint + fixed speed setpoint</td>
</tr>
<tr>
<td></td>
<td>26: Analog setpoint + fieldbus</td>
</tr>
<tr>
<td></td>
<td>30: Fixed speed setpoint + no main setpoint</td>
</tr>
<tr>
<td></td>
<td>31: Fixed speed setpoint + motor potentiometer</td>
</tr>
<tr>
<td></td>
<td>32: Fixed speed setpoint + analog setpoint</td>
</tr>
<tr>
<td></td>
<td>33: Fixed speed setpoint + fixed speed setpoint</td>
</tr>
<tr>
<td></td>
<td>36: Fixed speed setpoint + fieldbus</td>
</tr>
<tr>
<td></td>
<td>60: Fieldbus + no main setpoint</td>
</tr>
<tr>
<td></td>
<td>61: Fieldbus + motor potentiometer</td>
</tr>
<tr>
<td></td>
<td>62: Fieldbus + analog setpoint</td>
</tr>
<tr>
<td></td>
<td>63: Fieldbus + fixed speed setpoint</td>
</tr>
<tr>
<td></td>
<td>66: Fieldbus+fieldbus</td>
</tr>
<tr>
<td></td>
<td>200: Analog output connection</td>
</tr>
<tr>
<td>Dependency:</td>
<td>When changing this parameter, the following settings are influenced:</td>
</tr>
<tr>
<td></td>
<td>Refer to: p1070, p1071, p1075, p1076</td>
</tr>
<tr>
<td>Caution:</td>
<td>If p1000 is selected as the main setpoint of the fieldbus, the following BICO interconnection is set automatically:</td>
</tr>
<tr>
<td></td>
<td>p2051[1] = r0063</td>
</tr>
<tr>
<td>Caution:</td>
<td>When executing a specific macro, the corresponding programmed settings are made and become active.</td>
</tr>
<tr>
<td>Notice:</td>
<td>The parameter is possibly protected as a result of p0922.</td>
</tr>
</tbody>
</table>

For PROFIBUS/PROFINET Control Units, the following applies: The parameter can be freely set by setting p0922 = 999.
### List of parameters

#### p1001[0...n] CO: Fixed speed setpoint 1 / n_set_fixed 1
- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** 3_1  
- **Min:** -210000.000 [rpm]  
- **Max:** 210000.000 [rpm]  
- **Data type:** FloatingPoint32  
- **Dyn. index:** DDS, p0180  
- **Func. diagram:** 1021, 3010  
- **Calculated:** -  
- **Scaling:** p2000  
- **Unit selection:** p0505  
- **Factory setting:** 0.000 [rpm]

**Description:**
Sets a value for the fixed speed / velocity setpoint 1.

**Dependency:**
Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:**
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

#### p1002[0...n] CO: Fixed speed setpoint 2 / n_set_fixed 2
- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** 3_1  
- **Min:** -210000.000 [rpm]  
- **Max:** 210000.000 [rpm]  
- **Data type:** FloatingPoint32  
- **Dyn. index:** DDS, p0180  
- **Func. diagram:** 3010  
- **Calculated:** -  
- **Scaling:** p2000  
- **Unit selection:** p0505  
- **Factory setting:** 0.000 [rpm]

**Description:**
Sets a value for the fixed speed / velocity setpoint 2.

**Dependency:**
Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:**
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

#### p1003[0...n] CO: Fixed speed setpoint 3 / n_set_fixed 3
- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** 3_1  
- **Min:** -210000.000 [rpm]  
- **Max:** 210000.000 [rpm]  
- **Data type:** FloatingPoint32  
- **Dyn. index:** DDS, p0180  
- **Func. diagram:** 3010  
- **Calculated:** -  
- **Scaling:** p2000  
- **Unit selection:** p0505  
- **Factory setting:** 0.000 [rpm]

**Description:**
Sets a value for the fixed speed / velocity setpoint 3.

**Dependency:**
Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:**
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

#### p1004[0...n] CO: Fixed speed setpoint 4 / n_set_fixed 4
- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** 3_1  
- **Min:** -210000.000 [rpm]  
- **Max:** 210000.000 [rpm]  
- **Data type:** FloatingPoint32  
- **Dyn. index:** DDS, p0180  
- **Func. diagram:** 3010  
- **Calculated:** -  
- **Scaling:** p2000  
- **Unit selection:** p0505  
- **Factory setting:** 0.000 [rpm]

**Description:**
Sets a value for the fixed speed / velocity setpoint 4.

**Dependency:**
Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:**
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

#### p1005[0...n] CO: Fixed speed setpoint 5 / n_set_fixed 5
- **Access level:** 2  
- **Can be changed:** U, T  
- **Units group:** 3_1  
- **Min:** -210000.000 [rpm]  
- **Max:** 210000.000 [rpm]  
- **Data type:** FloatingPoint32  
- **Dyn. index:** DDS, p0180  
- **Func. diagram:** 3010  
- **Calculated:** -  
- **Scaling:** p2000  
- **Unit selection:** p0505  
- **Factory setting:** 0.000 [rpm]

**Description:**
Sets a value for the fixed speed / velocity setpoint 5.

**Dependency:**
Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:**
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.
### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1006[0...n]</td>
<td>CO: Fixed speed setpoint 6 / n_set_fixed 6</td>
<td>2</td>
<td>U, T</td>
<td>3_1</td>
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<td>0.000 [rpm]</td>
</tr>
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<td>p1007[0...n]</td>
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<td>2</td>
<td>U, T</td>
<td>3_1</td>
<td>-210000.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
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<tr>
<td>p1008[0...n]</td>
<td>CO: Fixed speed setpoint 8 / n_set_fixed 8</td>
<td>2</td>
<td>U, T</td>
<td>3_1</td>
<td>-210000.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
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<tr>
<td>p1009[0...n]</td>
<td>CO: Fixed speed setpoint 9 / n_set_fixed 9</td>
<td>2</td>
<td>U, T</td>
<td>3_1</td>
<td>-210000.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
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<tr>
<td>p1010[0...n]</td>
<td>CO: Fixed speed setpoint 10 / n_set_fixed 10</td>
<td>2</td>
<td>U, T</td>
<td>3_1</td>
<td>-210000.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
</tr>
</tbody>
</table>

**Dependency:**
- Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:**
- A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.
List of parameters

**p1011[0...n]** CO: Fixed speed setpoint 11 / n_set_fixed 11

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** -210000.000 [rpm]
- **Max:** 210000.000 [rpm]

**Description:** Sets a value for the fixed speed / velocity setpoint 11.

**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Data type:** FloatingPoint32
**Calculated:** -
**Scaling:** p2000
**Dyn. index:** DDS, p0180
**Unit selection:** p0505
**Func. diagram:** 3010
**Factory setting:** 0.000 [rpm]

**p1012[0...n]** CO: Fixed speed setpoint 12 / n_set_fixed 12

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** -210000.000 [rpm]
- **Max:** 210000.000 [rpm]

**Description:** Sets a value for the fixed speed / velocity setpoint 12.

**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Data type:** FloatingPoint32
**Calculated:** -
**Scaling:** p2000
**Dyn. index:** DDS, p0180
**Unit selection:** p0505
**Func. diagram:** 3010
**Factory setting:** 0.000 [rpm]

**p1013[0...n]** CO: Fixed speed setpoint 13 / n_set_fixed 13

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** -210000.000 [rpm]
- **Max:** 210000.000 [rpm]

**Description:** Sets a value for the fixed speed / velocity setpoint 13.

**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Data type:** FloatingPoint32
**Calculated:** -
**Scaling:** p2000
**Dyn. index:** DDS, p0180
**Unit selection:** p0505
**Func. diagram:** 3010
**Factory setting:** 0.000 [rpm]

**p1014[0...n]** CO: Fixed speed setpoint 14 / n_set_fixed 14

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** -210000.000 [rpm]
- **Max:** 210000.000 [rpm]

**Description:** Sets a value for the fixed speed / velocity setpoint 14.

**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Data type:** FloatingPoint32
**Calculated:** -
**Scaling:** p2000
**Dyn. index:** DDS, p0180
**Unit selection:** p0505
**Func. diagram:** 3010
**Factory setting:** 0.000 [rpm]

**p1015[0...n]** CO: Fixed speed setpoint 15 / n_set_fixed 15

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** -210000.000 [rpm]
- **Max:** 210000.000 [rpm]

**Description:** Sets a value for the fixed speed / velocity setpoint 15.

**Dependency:** Refer to: p1020, p1021, p1022, p1023, r1024

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Data type:** FloatingPoint32
**Calculated:** -
**Scaling:** p2000
**Dyn. index:** DDS, p0180
**Unit selection:** p0505
**Func. diagram:** 1021, 3010
**Factory setting:** 0.000 [rpm]
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
</table>
| p1016     | Sets the mode to select the fixed speed setpoint. | 1: Direct selection 2: Selection binary coded | Re p1016 = 1:  
Re p1016 = 2: |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1020[0...n]</td>
<td>Sets the signal source for selecting the fixed speed setpoint.</td>
<td>If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0), then r1024 = 0 (setpoint = 0).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1021[0...n]</td>
<td>Sets the signal source for selecting the fixed speed setpoint.</td>
<td>If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0), then r1024 = 0 (setpoint = 0).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1022[0...n]</td>
<td>Sets the signal source for selecting the fixed speed setpoint.</td>
<td>If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0), then r1024 = 0 (setpoint = 0).</td>
<td></td>
</tr>
</tbody>
</table>
### List of parameters

#### p1023[0...n]
- **Description:** Sets the signal source for selecting the fixed speed setpoint.
- **Dependency:** Selects the required fixed speed setpoint using p1020 ... p1023.
- **Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.**
- **Note:** If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0), then r1024 = 0 (setpoint = 0).

#### r1024
- **Description:** Displays the selected and effective fixed speed setpoint. This setpoint is the output value for the fixed speed setpoints and must be appropriately interconnected (e.g. with the main setpoint).
- **Dependency:** Selects the required fixed speed setpoint using p1020 ... p1023.
- **Sets the values for the fixed speed setpoints 1 ... 15 using p1001 ... p1015.**
- **Note:** If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0), then r1024 = 0 (setpoint = 0).

#### r1025.0
- **Description:** Displays the status when selecting the fixed speed setpoints.
- **Dependency:** Refer to: p1016
- **Note:** When the fixed speed setpoints are directly selected (p1016 = 1), this bit is set if at least 1 fixed speed setpoint is selected.

#### p1030[0...n]
- **Description:** Sets the configuration for the motorized potentiometer.
### Notice:
For p0014 = 1, 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:
Re bit 00:
0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.
1: The setpoint for the motorized potentiometer is saved after OFF and after ON set to the saved value. In order to save in a non-volatile fashion, bit 03 should be set to 1.
Re bit 01:
0: Without ramp-function generator in the automatic mode (ramp-up/ramp-down time = 0).
1: With ramp-function generator in the automatic mode.
For manual operation, the ramp-function generator is always active.
Re bit 02:
0: Without initial rounding-off
1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed).
The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum speed (p1082). It is calculated as follows:
\[ r = 0.01 \% \times p1082 \frac{[1/s]}{0.13^2 [s^2]} \]
The jerk acts up until the maximum acceleration is reached (a_max = p1082 [1/s] / p1047 [s]), and then the drive continues to run linearly with a constant rate of acceleration. The higher the maximum acceleration (the lower that p1047 is), the longer the ramp-up time increases with respect to the set ramp-up time.
Re bit 03:
0: Non-volatile data save de-activated.
1: The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for bit 00 = 1).
Re bit 04:
When the bit is set, the ramp-function generator is computed independent of the pulse enable. The actual output value of the motorized potentiometer is always in r1050.

### p1035[0...n]
**BI: Motorized potentiometer setpoint raise / Mop raise**

- **G120C_CAN**
- **G120C_USS**

| Access level: | 3 |
| Calculated: | - |
| Data type: | U32 / Binary |
| Can be changed: | T |
| Scaling: | - |
| Dyn. index: | CDS, p0170 |
| Units group: | - |
| Unit selection: | - |
| Func. diagram: | 2505, 3020 |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

**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.

### p1035[0...n]
**BI: Motorized potentiometer setpoint raise / Mop raise**

- **G120C_DP**
- **G120C_PN**

| Access level: | 3 |
| Calculated: | - |
| Data type: | U32 / Binary |
| Can be changed: | T |
| Scaling: | - |
| Dyn. index: | CDS, p0170 |
| Units group: | - |
| Unit selection: | - |
| Func. diagram: | 2505, 3020 |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

**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

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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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1036[0...n]</td>
<td>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).</td>
<td>3</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Dependency: Refer to: p1035

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

### p1037[0...n]
**Motorized potentiometer maximum speed / MotP n_max**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1037[0...n]</td>
<td>Sets the maximum speed/velocity for the motorized potentiometer. This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value (see function diagram 3020).</td>
<td>3</td>
<td>U, T</td>
<td>3_1</td>
<td>-210000.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
</tr>
</tbody>
</table>

### p1038[0...n]
**Motorized potentiometer minimum speed / MotP n_min**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1038[0...n]</td>
<td>Sets the minimum speed/velocity for the motorized potentiometer. This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value (see function diagram 3020).</td>
<td>3</td>
<td>U, T</td>
<td>3_1</td>
<td>-210000.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1040[0...n]</td>
<td>Motorized potentiometer starting value / Mop start value</td>
<td>Only effective if p1030.0 = 0. Refer to: p1030</td>
<td></td>
</tr>
<tr>
<td>p1043[0...n]</td>
<td>BI: Motorized potentiometer accept setting value / MotP acc set val</td>
<td>The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).</td>
<td></td>
</tr>
<tr>
<td>r1045</td>
<td>CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG</td>
<td>Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered up.</td>
<td></td>
</tr>
<tr>
<td>p1047[0...n]</td>
<td>Motorized potentiometer ramp-up time / Mop ramp-up time</td>
<td>When the initial rounding-off is activated (p1030.2) the ramp-up time is correspondingly extended.</td>
<td></td>
</tr>
</tbody>
</table>

### Parameter Details

- **p1040[0...n]** Motorized potentiometer starting value / Mop start value
  - **Access level:** 2
  - **Can be changed:** U, T
  - **Units group:** 3_1
  - **Min:** -210000.000 [rpm]
  - **Max:** 210000.000 [rpm]
  - **Description:** Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered up.
  - **Dependency:** Only effective if p1030.0 = 0. Refer to: p1030
  - **Calculated:** -
  - **Scaling:** -
  - **Unit selection:** p0505
  - **Data type:** FloatingPoint32
  - **Dyn. index:** DDS, p0180
  - **Func. diagram:** 3020
  - **Factory setting:** 0.000 [rpm]

- **p1043[0...n]** BI: Motorized potentiometer accept setting value / MotP acc set val
  - **Access level:** 3
  - **Can be changed:** T
  - **Units group:** -
  - **Min:** -
  - **Max:** -
  - **Description:** Sets the signal source to accept the setting value for the motorized potentiometer.
  - **Dependency:** Refer to: p1044
  - **Calculated:** -
  - **Scaling:** -
  - **Unit selection:** -
  - **Data type:** U32 / Binary
  - **Dyn. index:** CDS, p0170
  - **Func. diagram:** 3020
  - **Factory setting:** 0

- **p1044[0...n]** CI: Motorized potentiometer setting value / Mop set val
  - **Access level:** 3
  - **Can be changed:** T
  - **Units group:** -
  - **Min:** -
  - **Max:** -
  - **Description:** Sets the signal source for the setting value for the motorized potentiometer.
  - **Dependency:** Refer to: p1043
  - **Calculated:** -
  - **Scaling:** p2000
  - **Unit selection:** -
  - **Data type:** U32 / FloatingPoint32
  - **Dyn. index:** CDS, p0170
  - **Func. diagram:** 3020
  - **Factory setting:** 0

- **r1045** CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG
  - **Access level:** 3
  - **Can be changed:** -
  - **Units group:** 3_1
  - **Min:** - [rpm]
  - **Max:** - [rpm]
  - **Description:** Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.
  - **Calculated:** -
  - **Scaling:** p2000
  - **Unit selection:** p0505
  - **Data type:** FloatingPoint32
  - **Dyn. index:** -
  - **Func. diagram:** 3020
  - **Factory setting:** - [rpm]

- **p1047[0...n]** Motorized potentiometer ramp-up time / Mop ramp-up time
  - **Access level:** 2
  - **Can be changed:** U, T
  - **Units group:** -
  - **Min:** 0.000 [s]
  - **Max:** 1000.000 [s]
  - **Description:** Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer.
  - **Dependency:** Refer to: p1030, p1048, p1082
  - **Calculated:** -
  - **Scaling:** -
  - **Unit selection:** -
  - **Data type:** FloatingPoint32
  - **Dyn. index:** DDS, p0180
  - **Func. diagram:** 3020
  - **Factory setting:** 10.000 [s]
### List of parameters

#### p1048[0...n]  Motorized potentiometer ramp-down time / Mop ramp-down time

<table>
<thead>
<tr>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer. The setpoint is changed from the speed/velocity limit (p1082) to zero within this time (if no initial rounding-off has been activated).</td>
<td>10.000 [s]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to: p1030, p1047, p1082</td>
<td>The deceleration time is extended corresponding to the activated initial rounding-off (p1030.2).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1048</td>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U, T</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
<th>Units group</th>
<th>Unit selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 [s]</td>
<td>1000.000 [s]</td>
<td>10.000 [s]</td>
<td>3_1</td>
<td>p0505</td>
</tr>
</tbody>
</table>

| p1050 | CO: Motor, potentiometer setpoint after the ramp-function generator / Mop setp after RFG

<table>
<thead>
<tr>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the effective setpoint after the internal motorized potentiometer ramp-function generator. This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to: p1070</td>
<td>For &quot;With ramp-function generator&quot;, after an OFF1, OFF2, OFF3 or for a 0 signal via BI: p0852 (inhibit operation, suppress pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>r1050</td>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>T</td>
<td>p2000</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
<th>Units group</th>
<th>Unit selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [rpm]</td>
<td>- [rpm]</td>
<td>[rpm]</td>
<td>3_1</td>
<td>p0505</td>
</tr>
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</table>

#### p1055[0...n]  BI: Jog bit 0 / Jog bit 0

<table>
<thead>
<tr>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the signal source for jog 1.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to: p0840, p1058</td>
<td>The drive is enabled for jogging using BI: p1055 or BI: p1056. The command &quot;ON/OFF1&quot; 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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>3</td>
<td>-</td>
<td>U32 / Binary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>p0170</td>
<td></td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0</td>
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</table>

#### p1055[0...n]  BI: Jog bit 0 / Jog bit 0

<table>
<thead>
<tr>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the signal source for jog 1.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to: p0840, p1058</td>
<td>The drive is enabled for jogging using BI: p1055 or BI: p1056. The command &quot;ON/OFF1&quot; 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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>3</td>
<td>-</td>
<td>U32 / Binary</td>
<td></td>
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<table>
<thead>
<tr>
<th>Units group</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>p0170</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>[0] 0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T</td>
<td>p0170</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
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<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>[1] 722.0</td>
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**Parameters**

**List of parameters**

<table>
<thead>
<tr>
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<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Function diagram</th>
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</thead>
<tbody>
<tr>
<td>p1056[n]</td>
<td>BI: Jog bit 1 / Jog bit 1</td>
<td>3</td>
<td>-</td>
<td>U32 / Binary</td>
<td>CDS, p0170</td>
<td>2501, 3030</td>
</tr>
<tr>
<td>G120C_CAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_USS</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>p1056[n]</td>
<td>BI: Jog bit 1 / Jog bit 1</td>
<td>3</td>
<td>-</td>
<td>U32 / Binary</td>
<td>CDS, p0170</td>
<td>2501, 3030</td>
</tr>
<tr>
<td>G120C_DP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_PN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1058[n]</td>
<td>Jog 1 speed setpoint / Jog 1 n_set</td>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>DDS, p0180</td>
<td>1550, 3030</td>
</tr>
<tr>
<td>Access level</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Can be changed:</td>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group:</td>
<td>3_1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1059[n]</td>
<td>Jog 2 speed setpoint / Jog 2 n_set</td>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>DDS, p0180</td>
<td>1550, 3030</td>
</tr>
<tr>
<td>Access level</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Can be changed:</td>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group:</td>
<td>3_1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

**Description:**

Sets the signal source for jog 2.

Refer to: p0840, p1059

Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.

Refer to: p1055, p1056

Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.

Refer to: p1055, p1056
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Examples</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p1070[0...n]</strong></td>
<td>CI: Main setpoint / Main setpoint</td>
<td>Sets the signal source for the main setpoint.</td>
<td>r1024: Fixed speed setpoint effective &lt;br&gt;r1050: Motor. potentiometer setpoint after the ramp-function generator</td>
<td>The parameter may be protected as a result of p0922 or p2079 and cannot be changed.</td>
</tr>
<tr>
<td><strong>Access level</strong>: 3</td>
<td><strong>Calculated</strong>: -</td>
<td><strong>Data type</strong>: U32 / FloatingPoint32</td>
<td><strong>Dyn. index</strong>: CDS, p0170</td>
<td><strong>Func. diagram</strong>: 1550, 3030</td>
</tr>
<tr>
<td><strong>Can be changed</strong>: T</td>
<td><strong>Scaling</strong>: p2000</td>
<td><strong>Unit selection</strong>: -</td>
<td><strong>Factory setting</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Units group</strong>: -</td>
<td><strong>Min</strong>: - &lt;br&gt;<strong>Max</strong>: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>p1070[0...n]</strong></td>
<td>CI: Main setpoint / Main setpoint</td>
<td>Sets the signal source for the main setpoint.</td>
<td>r1024: Fixed speed setpoint effective &lt;br&gt;r1050: Motor. potentiometer setpoint after the ramp-function generator</td>
<td>The parameter may be protected as a result of p0922 or p2079 and cannot be changed.</td>
</tr>
<tr>
<td><strong>Access level</strong>: 3</td>
<td><strong>Calculated</strong>: -</td>
<td><strong>Data type</strong>: U32 / FloatingPoint32</td>
<td><strong>Dyn. index</strong>: CDS, p0170</td>
<td><strong>Func. diagram</strong>: 1550, 3030</td>
</tr>
<tr>
<td><strong>Can be changed</strong>: T</td>
<td><strong>Scaling</strong>: p2000</td>
<td><strong>Unit selection</strong>: -</td>
<td><strong>Factory setting</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Units group</strong>: -</td>
<td><strong>Min</strong>: - &lt;br&gt;<strong>Max</strong>: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>p1071[0...n]</strong></td>
<td>CI: Main setpoint scaling / Main setp scal</td>
<td>Sets the signal source for scaling the main setpoint.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Access level</strong>: 3</td>
<td><strong>Calculated</strong>: -</td>
<td><strong>Data type</strong>: U32 / FloatingPoint32</td>
<td><strong>Dyn. index</strong>: CDS, p0170</td>
<td><strong>Func. diagram</strong>: 1550, 3030</td>
</tr>
<tr>
<td><strong>Can be changed</strong>: T</td>
<td><strong>Scaling</strong>: PERCENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group</strong>: -</td>
<td><strong>Unit selection</strong>: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong>: - &lt;br&gt;<strong>Max</strong>: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>r1073</strong></td>
<td>CO: Main setpoint effective / Main setpoint eff</td>
<td>Displays the effective main setpoint.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Access level</strong>: 3</td>
<td><strong>Calculated</strong>: -</td>
<td><strong>Data type</strong>: FloatingPoint32</td>
<td><strong>Dyn. index</strong>: -</td>
<td><strong>Func. diagram</strong>: 3030</td>
</tr>
<tr>
<td><strong>Can be changed</strong>: -</td>
<td><strong>Scaling</strong>: p2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group</strong>: 3_1</td>
<td><strong>Unit selection</strong>: p0505</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong>: [-] &lt;br&gt;<strong>Max</strong>: [-]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1075[0...n]</td>
<td>CI: Supplementary setpoint / Suppl setp</td>
<td>Sets the signal source for the supplementary setpoint.</td>
</tr>
<tr>
<td>p1076[0...n]</td>
<td>CI: Supplementary setpoint scaling / Suppl setp scal</td>
<td>Sets the signal source for scaling the supplementary setpoint.</td>
</tr>
<tr>
<td>r1077</td>
<td>CO: Supplementary setpoint effective / Suppl setpoint eff</td>
<td>Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.</td>
</tr>
<tr>
<td>r1078</td>
<td>CO: Total setpoint effective / Total setpoint eff</td>
<td>Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.</td>
</tr>
<tr>
<td>p1080[0...n]</td>
<td>Minimum speed / n_min</td>
<td>Sets the lowest possible motor speed.</td>
</tr>
</tbody>
</table>

**Parameter Details**

- **p1075[0...n]**
  - **Access level:** 3
  - **Can be changed:** T
  - **Units group:** -
  - **Description:** Sets the signal source for the supplementary setpoint.
  - **Dependency:** Refer to: p1076, r1077, r1078
  - **Data type:** U32 / FloatingPoint32
  - **Dyn. index:** CDS, p0170
  - **Func. diagram:** 1550, 3030
  - **Calculated:** -
  - **Scaling:** p2000
  - **Unit selection:** -
  - **Min:** -
  - **Max:** -
  - **Factory setting:** 0

- **p1076[0...n]**
  - **Access level:** 3
  - **Can be changed:** T
  - **Units group:** -
  - **Description:** Sets the signal source for scaling the supplementary setpoint.
  - **Dependency:** Refer to: p1076
  - **Data type:** U32 / FloatingPoint32
  - **Dyn. index:** CDS, p0170
  - **Func. diagram:** 1550, 3030
  - **Calculated:** -
  - **Scaling:** PERCENT
  - **Unit selection:** -
  - **Min:** -
  - **Max:** -
  - **Factory setting:** 1

- **r1077**
  - **Access level:** 3
  - **Can be changed:** -
  - **Units group:** 3_1
  - **Description:** Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.
  - **Data type:** FloatingPoint32
  - **Dyn. index:** -
  - **Func. diagram:** 3030
  - **Calculated:** -
  - **Scaling:** p2000
  - **Unit selection:** p0505
  - **Min:** - [rpm]
  - **Max:** - [rpm]
  - **Factory setting:** - [rpm]

- **r1078**
  - **Access level:** 3
  - **Can be changed:** -
  - **Units group:** 3_1
  - **Description:** Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.
  - **Data type:** FloatingPoint32
  - **Dyn. index:** -
  - **Func. diagram:** 3030
  - **Calculated:** -
  - **Scaling:** p2000
  - **Unit selection:** p0505
  - **Min:** - [rpm]
  - **Max:** - [rpm]
  - **Factory setting:** - [rpm]

- **p1080[0...n]**
  - **Access level:** 1
  - **Can be changed:** C(1), T
  - **Units group:** 3_1
  - **Description:** Sets the lowest possible motor speed. This value is not undershot in operation.
  - **Dependency:** Refer to: p1106
  - **Data type:** FloatingPoint32
  - **Dyn. index:** DDS, p0180
  - **Func. diagram:** 3050
  - **Calculated:** -
  - **Scaling:** -
  - **Unit selection:** p0505
  - **Min:** 0.000 [rpm]
  - **Max:** 19500.000 [rpm]
  - **Factory setting:** 0.000 [rpm]

- **Notice:** The effective minimum speed is formed from p1080 and p1106.

- **Note:** The parameter value applies for both motor directions. In exceptional cases, the motor can operate below this value (e.g. when reversing).
### Description:
Sets the highest possible speed.

Example:
Induction motor $p0310 = 50 / 60$ Hz without output filter and Blocksize power unit
$p1082 \leq 60 \times 240$ Hz / $r0313$ (vector control)
$p1082 \leq 60 \times 650$ Hz / $r0313$ (U/f control)

#### Dependency:
For vector control, the maximum speed is restricted to $60.0 / (8.333 \times 500 \mu s \times r0313)$. This can be identified by a reduction in $r1084$. $p1082$ is not changed in this process due to the fact that the operating mode $p1300$ can be changed over.

If a sine-wave filter ($p0230 = 3$) is parameterized as output filter, then the maximum speed is limited corresponding to the maximum permissible filter output frequency (refer to the filter data sheet). When using sine-wave filters ($p0230 = 3, 4$), the maximum speed $r1084$ is limited to $70\%$ of the resonant frequency of the filter capacitance and the motor leakage inductance.

For reactors and dU/dt filters, it is limited to $120$ Hz / $r0313$.

Refer to: $p0230$, $p0322$

#### 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:
The parameter applies for both motor directions.

The parameter has a limiting effect and is the reference quantity for all ramp-up and ramp-down times (e.g. down ramps, ramp-function generator, motor potentiometer).

The parameter is part of the quick commissioning ($p0010 = 1$); this means that it is appropriately pre-assigned when changing $p0310$, $p0311$ and $p0322$.

The following limits are always effective for $p1082$:
$p1082 \leq 60 \times \min (15 \times r0310, 650$ Hz) / pole pair number
$p1082 \leq 60 \times \max \ power\ unit\ pulse\ frequency / (k \times pole\ pair\ number)$, with $k = 12$ (vector control), $k = 6.5$ (U/f control)

If a sine-wave filter ($p0230 = 3$) is parameterized as output filter, then the maximum speed is limited corresponding to the maximum permissible filter output frequency (refer to the filter data sheet). For reactors and dU/dt filters, it is limited to $120$ Hz / pole pair number.

During automatic calculation ($p0340 = 1$, $p3900 > 0$), the parameter value is assigned the maximum motor speed ($p0322$). For $p0322 = 0$ the rated motor speed ($p0311$) is used as default (pre-assignment) value. For induction motors, the synchronous no-load speed is used as the default value ($p0310 \times 60 / \text{pole pair number}$).

For synchronous motors, the following additionally applies:
During automatic calculation ($p0340, p3900$), $p1082$ is limited to speeds where the EMF does not exceed the DC link voltage.

$p1082$ is also available in the quick commissioning ($p0010 = 1$); this means that when exiting via $p3900 > 0$, the value is not changed.

For vector control, the maximum speed is restricted to $60.0 / (8.333 \times 500 \mu s \times \text{pole pair number})$. This can be identified by a reduction in $r1084$. $p1082$ is not changed in this process due to the fact that the operating mode $p1300$ can be changed over.

When using sine-wave filters ($p0230 = 3, 4$), the maximum speed $r1084$ is limited to $70\%$ of the resonant frequency of the filter capacitance and the motor leakage inductance.

---

**p1082[0...n]**  | **Maximum speed / n_max**
---|---
Access level: | 1
Can be changed: | C(1), T
Units group: | 3_1
Calculated: | $p0340 = 1$
Scaling: | -
Unit selection: | $p0505$
Dyn. index: | DDS, $p0180$
Func. diagram: | 3020, 3050, 3060, 3070, 3095

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 [rpm]</td>
<td>210000.000 [rpm]</td>
<td>1500.000 [rpm]</td>
</tr>
</tbody>
</table>
### List of parameters

#### p1083[0...n]
**CO: Speed limit in positive direction of rotation / n_limit pos**

<table>
<thead>
<tr>
<th>Description</th>
<th>Notice</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the maximum speed for the positive direction.</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
<td>210000.000 [rpm]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>n_limit pos</td>
<td>3</td>
<td>U, T</td>
<td>p2000</td>
<td>p0505</td>
<td>DDS, p0180</td>
<td>3050</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 [rpm]</td>
<td>210000.000 [rpm]</td>
</tr>
</tbody>
</table>

#### r1084
**CO: Speed limit positive effective / n_limit pos eff**

<table>
<thead>
<tr>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the effective positive speed limit.</td>
<td>- [rpm]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>n_limit pos eff</td>
<td>3</td>
<td>-</td>
<td>p2000</td>
<td>p0505</td>
<td>-</td>
<td>3050, 3095</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### p1086[0...n]
**CO: Speed limit in negative direction of rotation / n_limit neg**

<table>
<thead>
<tr>
<th>Description</th>
<th>Notice</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the speed limit for the negative direction.</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
<td>-210000.000 [rpm]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>n_limit neg</td>
<td>3</td>
<td>U, T</td>
<td>p2000</td>
<td>p0505</td>
<td>DDS, p0180</td>
<td>3050</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-210000.000 [rpm]</td>
<td>0.000 [rpm]</td>
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</tbody>
</table>

#### r1087
**CO: Speed limit negative effective / n_limit neg eff**

<table>
<thead>
<tr>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the effective negative speed limit.</td>
<td>-210000.000 [rpm]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>n_limit neg eff</td>
<td>3</td>
<td>-</td>
<td>p2000</td>
<td>p0505</td>
<td>-</td>
<td>3050, 3095</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### p1091[0...n]
**Skip speed 1 / n_skip 1**

<table>
<thead>
<tr>
<th>Description</th>
<th>Notice</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets skip speed 1.</td>
<td>Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.</td>
<td>0.000 [rpm]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>n_skip 1</td>
<td>3</td>
<td>U, T</td>
<td>p2000</td>
<td>p0505</td>
<td>DDS, p0180</td>
<td>3050</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 [rpm]</td>
<td>210000.000 [rpm]</td>
</tr>
</tbody>
</table>
**List of parameters**

### p1092[0...n] Skip speed 2 / n_skip 2
- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** 0.000 [rpm]
- **Max:** 210000.000 [rpm]
- **Data type:** FloatingPoint32
- **Scaling:** p2000
- **Unit selection:** p0505
- **Dyn. index:** DDS, p0180
- **Func. diagram:** 3050
- **Factory setting:** 0.000 [rpm]

**Description:** Sets skip speed 2.

**Dependency:** Refer to: p1091, p1101

**Notice:** Skip bandwidths can also become ineffective as a result of the downstream limits in the setpoint channel.

### p1101[0...n] Skip speed bandwidth / n_skip bandwidth
- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** 3_1
- **Min:** 0.000 [rpm]
- **Max:** 210000.000 [rpm]
- **Data type:** FloatingPoint32
- **Scaling:** p2000
- **Unit selection:** p0505
- **Dyn. index:** DDS, p0180
- **Func. diagram:** 3050
- **Factory setting:** 0.000 [rpm]

**Description:** Sets the bandwidth for the skip speeds/velocities 1 to 4.

**Dependency:** Refer to: p1091, p1092

**Note:** The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101. Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped.

**Example:**
- p1091 = 600 and p1101 = 20
  - --> setpoint speeds between 580 and 620 [rpm] are skipped.

  For the skip bandwidths, the following hysteresis behavior applies:
  - For a setpoint speed coming from below, the following applies:
  - For a setpoint speed coming from above, the following applies:
    - r1170 > 620 [rpm] and 580 [rpm] != r1114 <= 620 [rpm] --> r1119 = 620 [rpm]

### p1106[0...n] CI: Minimum speed signal source / n_min s_src
- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** -
- **Data type:** U32 / FloatingPoint32
- **Scaling:** p2000
- **Unit selection:** -
- **Dyn. index:** DDS, p0170
- **Func. diagram:** 3050
- **Factory setting:** 0

**Description:** Sets the signal source for lowest possible motor speed.

**Dependency:** Refer to: p1080

**Notice:** The effective minimum speed is formed from p1080 and p1106.

### p1110[0...n] BI: Inhibit negative direction / Inhib neg dir
- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** -
- **Data type:** U32 / Binary
- **Scaling:** -
- **Unit selection:** -
- **Dyn. index:** DDS, p0170
- **Func. diagram:** 2505, 3040
- **Factory setting:** 0

**Description:** Sets the signal source to disable the negative direction.

**Dependency:** Refer to: p1111
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1111[0...n]</td>
<td>BI: Inhibit positive direction / Inhib pos dir</td>
<td>Sets the signal source to disable the positive direction.</td>
</tr>
<tr>
<td>r1112</td>
<td>CO: Speed setpoint after minimum limiting / n_set aft min_lim</td>
<td>Displays the speed setpoint after the minimum limiting.</td>
</tr>
<tr>
<td>p1113[0...n]</td>
<td>BI: Setpoint inversion / Setp inv</td>
<td>Sets the signal source to invert the setpoint.</td>
</tr>
</tbody>
</table>

#### p1111[0...n] BI: Inhibit positive direction / Inhib pos dir

- **Access level:** 3
- **Can be changed:** T
- **Units group:** 3
- **Min:** -
- **Max:** -
- **Data type:** U32 / Binary
- **Dyn. index:** CDS, p0170
- **Func. diagram:** 2505, 3040
- **Factory setting:** 0

#### r1112 CO: Speed setpoint after minimum limiting / n_set aft min_lim

- **Access level:** 4
- **Can be changed:** -
- **Units group:** 3_1
- **Min:** - [rpm]
- **Max:** - [rpm]
- **Data type:** FloatingPoint32
- **Dyn. index:** -
- **Func. diagram:** 3050
- **Factory setting:** - [rpm]

#### p1113[0...n] BI: Setpoint inversion / Setp inv

- **G120C_CAN**
- **G120C_USS**
- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** -
- **Data type:** U32 / Binary
- **Dyn. index:** CDS, p0170
- **Func. diagram:** 2441, 2442, 2505, 3040
- **Factory setting:** [0] 722.1
- **Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

- **G120C_DP**
- **G120C_PN**
- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** -
- **Data type:** U32 / Binary
- **Dyn. index:** CDS, p0170
- **Func. diagram:** 2441, 2442, 2505, 3040
- **Factory setting:** [0] 2090.11
- **Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
## List of parameters

### r1114  CO: Setpoint after the direction limiting / Setp after limit

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>p2000</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>3_1</td>
<td>Unit selection:</td>
<td>p0505</td>
<td>Func. diagram: 1550, 3040, 3050</td>
</tr>
</tbody>
</table>

**Description:** Displays the speed/velocity setpoint after the changeover and limiting the direction.

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

**Note:** The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.

### r1119  CO: Ramp-function generator setpoint at the input / RFG setp at inp

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>p2000</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>3_1</td>
<td>Unit selection:</td>
<td>p0505</td>
<td>Func. diagram: 1550, 1690, 3050, 3060, 3070</td>
</tr>
</tbody>
</table>

**Description:** Displays the setpoint at the input of the ramp-function generator.

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

**Note:** The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.

### p1120[0...n]  Ramp-function generator ramp-up time / RFG ramp-up time

<table>
<thead>
<tr>
<th>Access level:</th>
<th>1</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(1), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>p0505</td>
<td>Func. diagram: 3060, 3070</td>
</tr>
</tbody>
</table>

**Min** 0.000 [s]  **Max** 999999.000 [s]  **Factory setting** 10.000 [s]

**Description:** The ramp-function generator ramps-up the speed setpoint from standstill (setpoint = 0) up to the maximum speed (p1082) in this time.

**Dependency:** Refer to: p1082

**Note:** The ramp-up time can be scaled via connector input p1138.

The parameter is adapted during the rotating measurement (p1960 > 0). This is the reason that during the rotating measurement, the motor can accelerate faster than was originally parameterized.

For U/f control and sensorless vector control (see p1300), ramp-up times of 0 s are not expedient. The setting should be based on the startup times (r0345) of the motor.

### p1121[0...n]  Ramp-function generator ramp-down time / RFG ramp-down time

<table>
<thead>
<tr>
<th>Access level:</th>
<th>1</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(1), U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: 3060, 3070</td>
</tr>
</tbody>
</table>

**Min** 0.000 [s]  **Max** 999999.000 [s]  **Factory setting** 10.000 [s]

**Description:** Sets the ramp-down time for the ramp-function generator.

The ramp-function generator ramps-down the speed setpoint from the maximum speed (p1082) down to standstill (setpoint = 0) in this time.

Further, the ramp-down time is always effective for OFF1.

**Dependency:** Refer to: p1082

**Note:** For U/f control and sensorless vector control (see p1300), ramp-down times of 0 s are not recommended. The setting should be based on the startup times (r0345) of the motor.
Parameters

List of parameters

### p1130[0...n]
**Ramp-function generator initial rounding-off time / RFG t_start_round**

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** -
- **Min:** 0.000 [s]
- **Max:** 30.000 [s]
- **Data type:** FloatingPoint32
- **Dependency:** No effect up to initial rounding-off time (p1130) > 0 s.
- **Note:**

Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.

### p1131[0...n]
**Ramp-function generator final rounding-off time / RFG t_end_delay**

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** -
- **Min:** 0.000 [s]
- **Max:** 30.000 [s]
- **Data type:** FloatingPoint32
- **Dependency:**

Sets the final rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.

### p1134[0...n]
**Ramp-function generator rounding-off type / RFG round-off type**

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** -
- **Min:** 0
- **Max:** 1
- **Data type:** Integer16
- **Dependency:**

Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.

### p1135[0...n]
**OFF3 ramp-down time / OFF3 t_RD**

- **Access level:** 2
- **Can be changed:** C(1), U, T
- **Units group:** -
- **Min:** 0.000 [s]
- **Max:** 5400.000 [s]
- **Data type:** FloatingPoint32
- **Dependency:**

Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.

- **Note:**

This time can be exceeded if the DC link voltage reaches its maximum value.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1136[0...n]</td>
<td>OFF3 initial rounding-off time / RFG OFF3 t_strt_rnd</td>
<td>3</td>
<td>U, T</td>
<td></td>
<td>0.000 [s]</td>
<td>30.000 [s]</td>
<td>0.000 [s]</td>
</tr>
<tr>
<td></td>
<td>Sets the initial rounding-off time for OFF3 for the extended ramp generator.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1137[0...n]</td>
<td>OFF3 final rounding-off time / RFG OFF3 t_end_del</td>
<td>3</td>
<td>U, T</td>
<td></td>
<td>0.000 [s]</td>
<td>30.000 [s]</td>
<td>0.000 [s]</td>
</tr>
<tr>
<td></td>
<td>Sets the final rounding-off time for OFF3 for the extended ramp generator.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1138[0...n]</td>
<td>CI: Up ramp scaling / Up ramp scaling</td>
<td>3</td>
<td>T</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sets the signal source for scaling the up ramp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependency: Refer to: p1120</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: The ramp-up time is set in p1120.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1139[0...n]</td>
<td>CI: Down ramp scaling / Down ramp scaling</td>
<td>3</td>
<td>T</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
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<tr>
<td></td>
<td>Sets the signal source for scaling the down ramp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependency: Refer to: p1121</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: The ramp-down time is set in p1121.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>p1140[0...n]</td>
<td>BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable</td>
<td>3</td>
<td>T</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sets the signal source for the command &quot;enable ramp-function generator/inhibit ramp-function generator&quot;. 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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependency: Refer to: r0054, p1141, p1142</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Parameters

### List of parameters

**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.

<table>
<thead>
<tr>
<th>p1140[0...n]</th>
<th><strong>BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td><strong>Calculated:</strong> -</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> T</td>
<td><strong>Scaling:</strong> -</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
<td><strong>Unit selection:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Caution:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**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: r0054, p1141, p1142

<table>
<thead>
<tr>
<th>p1141[0...n]</th>
<th><strong>BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td><strong>Calculated:</strong> -</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> T</td>
<td><strong>Scaling:</strong> -</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
<td><strong>Unit selection:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
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<tr>
<td>-</td>
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<tr>
<td><strong>Dependency:</strong></td>
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<tr>
<td><strong>Caution:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
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</tr>
</tbody>
</table>
### p1141[0...n]

**BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG**

<table>
<thead>
<tr>
<th></th>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
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<tr>
<td>Can be changed:</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
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<tr>
<td>Min</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>[0] 2090.5</td>
<td>[1] 1</td>
</tr>
</tbody>
</table>

**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: r0054, p1140, p1142

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

**Notice:**
The ramp-function generator is, independent of the state of the signal source, active in the following cases:
- OFF1/OFF3.
- ramp-function generator output within the suppression bandwidth.
- ramp-function generator output below the minimum speed.

### p1142[0...n]

**BI: Enable setpoint/inhibit setpoint / Setpoint enable**

<table>
<thead>
<tr>
<th></th>
<th>G120C_CAN</th>
<th>G120C_USS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
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<tr>
<td>Can be changed:</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td></td>
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<tr>
<td>Min</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**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.

**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**
**p1142[0...n]**  
**BI: Enable setpoint/inhibit setpoint / Setpoint enable**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level: 3</th>
<th>Can be changed: T</th>
<th>Units group: -</th>
<th>Min</th>
<th>Max</th>
<th>Data type:</th>
<th>Scaling:</th>
<th>Unit selection:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sets the signal source for the command &quot;enable setpoint/inhibit setpoint&quot;. 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.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong> Refer to: p1140, p1141</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Caution:</strong> When &quot;master control from PC&quot; is activated, this binector input is ineffective.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Notice:</strong> The parameter may be protected as a result of p0922 or p2079 and cannot be changed.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Note:</strong> When the function module &quot;position control&quot; (r0108.3 = 1) is activated, this binector input is interconnected as follows as standard: BI: p1142 = 0 signal</td>
<td></td>
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</tr>
</tbody>
</table>

**r1149**  
**CO: Ramp-function generator acceleration / RFG acceleration**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level: 3</th>
<th>Can be changed: -</th>
<th>Units group: 39_1</th>
<th>Min</th>
<th>Max</th>
<th>Data type:</th>
<th>Calculated:</th>
<th>Scaling:</th>
<th>Unit selection:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Displays the acceleration of the ramp-function generator.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**r1150**  
**CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level: 4</th>
<th>Can be changed: -</th>
<th>Units group: 3_1</th>
<th>Min</th>
<th>Max</th>
<th>Data type:</th>
<th>Calculated:</th>
<th>Scaling:</th>
<th>Unit selection:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Displays the setpoint at the output of the ramp-function generator.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**r1170**  
**CO: Speed controller setpoint sum / _n_ctrl setp sum**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level: 3</th>
<th>Can be changed: -</th>
<th>Units group: 3_1</th>
<th>Min</th>
<th>Max</th>
<th>Data type:</th>
<th>Calculated:</th>
<th>Scaling:</th>
<th>Unit selection:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Displays the speed setpoint.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong> Refer to: r1150</td>
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<td></td>
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</tr>
</tbody>
</table>
r1198.0...15  CO/BO: Control word setpoint channel / STW setpoint chan

- **Access level:** 3
- **Calculated:** -
- **Data type:** Unsigned16
- **Can be changed:** -
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 1530, 2505
- **Min:** -
- **Max:** -
- **Factory setting:** -

**Description:** Displays the control word for the setpoint channel.

**Bit field:**

- **Bit**
- **Signal name**
- **1 signal**
- **0 signal**
- **FP**
- 00 Fixed setpoint bit 0
- 01 Fixed setpoint bit 1
- 02 Fixed setpoint bit 2
- 03 Fixed setpoint bit 3
- 05 Inhibit negative direction
- 06 Inhibit positive direction
- 11 Setpoint inversion
- 13 Motorized potentiometer raise
- 14 Motorized potentiometer lower
- 15 Bypass ramp-function generator

**p1200[0...n]  Flying restart operating mode / FlyRest op_mode**

- **Access level:** 2
- **Calculated:** -
- **Data type:** Integer16
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 1690
- **Min:** 0
- **Max:** 4
- **Factory setting:** 0

**Description:** Sets the operating mode for flying restart.

The flying restart allows the drive converter to be powered up while the motor is still rotating. In so doing, the drive converter output frequency is changed until the actual motor speed/velocity is found. The motor then accelerates up to the setpoint at the ramp-function generator setting.

**Value:**

- 0: Flying restart inactive
- 1: Flying restart always active (start in setpoint direction)
- 4: Flying restart always active (start only in setpoint direction)

**Dependency:**

For synchronous motors, flying restart cannot be activated.

Refer to: p1201
Refer to: F07330, F07331

**Notice:** The "flying restart" function must be used in cases where the motor may still be running (e.g. after a brief line supply interruption) or is being driven by the load. The system might otherwise shut down as a result of overcurrent.

**Note:**

- When p1200 = 1, 4: Flying restart is active after faults, OFF1, OFF2, OFF3.
- When p1200 = 1: The search is made in both directions.
- When p1200 = 4: The search is only made in the setpoint direction.
- For U/f control (p1300 < 20), the following applies:
  - The speed can only be sensed for values above approx. 5 % of the rated motor speed. For lower speeds, it is assumed that the motor is at a standstill.
  - If p1200 is changed during commissioning (p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1200 have been changed by a parameter that was set when the drive was commissioned (e.g. p0300).

**p1201[0...n]  BI: Flying restart enable signal source / Fly_res enab S_src**

- **Access level:** 3
- **Calculated:** -
- **Data type:** U32 / Binary
- **Can be changed:** T
- **Scaling:** -
- **Dyn. index:** CDS, p0170
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** -
- **Min:** -
- **Max:** -
- **Factory setting:** 1

**Description:** Sets the signal source to enable the "flying restart" function.
## Parameters

### List of parameters

**Dependency:**
Refer to: p1200

**Note:**
Withdrawing the enable signal has the same effect as setting p1200 = 0.

### p1202[0...n] Flying restart search current / FlyRest I_srch

**Description:**
Sets the search current for the "flying restart" function.
The value is referred to the motor magnetizing current.

**Dependency:**
Refer to: r0331

**Caution:**
An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

**Note:**
In U/f control mode, the parameter serves as a threshold value for establishing the current at the beginning of the flying restart function. When the threshold value is reached, the prevailing search current is set dependent upon the frequency on the basis of voltage inputs.

Reducing the search current can also improve flying restart performance (if the system moment of inertia is not very high, for example).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
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<tbody>
<tr>
<td>p1202</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>DDS, p0180</td>
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</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1203</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>DDS, p0180</td>
<td>-</td>
</tr>
</tbody>
</table>

**Min** | 10 [%] | **Max** | 400 [%] | **Factory setting** | 100 [%] |

### p1203[0...n] Flying restart search rate factor / FlyRst v_Srch Fact

**Description:**
Sets the factor for the search speed for flying restart.
The value influences the rate at which the output frequency is changed during a flying restart. A higher value results in a longer search time.

**Caution:**
An unfavorable parameter value can result in the motor behaving in an uncontrollable fashion.

For vector control, a value that is too low or too high can cause flying restart to become unstable.

**Note:**
The parameter factory setting is selected so that standard induction motors that are rotating can be found and restarted as quickly as possible (fast flying restart).

With this pre-setting, if the motor is not found (e.g. for motors that are accelerated as a result of active loads or with U/f control and low speeds), we recommend that the search rate is reduced (by increasing p1203).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1203</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>DDS, p0180</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1206</td>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
<td>-</td>
<td>-</td>
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</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>-</td>
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1206</td>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Min** | 0 | **Max** | 65535 | **Factory setting** | 0 |
### p1210 Automatic restart mode / AR mode

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the automatic restart mode (AR). The parameters must be saved in the non-volatile memory p0971 = 1 in order that the setting becomes effective.</td>
</tr>
</tbody>
</table>

**Value:**

- 0: Inhibit automatic restart
- 1: Acknowledge all faults without restarting
- 4: Restart after line supply failure w/o additional start attempts
- 6: Restart after fault with additional start attempts
- 14: Restart after line supply failure following man. acknowledgment
- 16: Restart after fault following manual acknowledgment
- 26: Acknowledging all faults and reclosing for an ON command

**Dependency:**

The automatic restart requires an active ON command (e.g., via a digital input). If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted.

When using an Operator Panel in the LOCAL mode, then there is no automatic start.

For p1210 = 14, 16, a manual acknowledgement is required for an automatic restart.

Refer to: p0840

Refer to: F30003

**Danger:**

If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the Control Unit boots if the DC link voltage is present again. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

**Caution:**

A change is only accepted and made in the state "initialization" and "wait for alarm". When faults are present, therefore, the parameter cannot be changed.

For p1210 > 1, the motor is automatically started.

**Note:**

- Re p1210 = 1: Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgment, then these are also automatically acknowledged again. p1211 has no influence on the number of acknowledgment attempts.
- Re p1210 = 4: An automatic restart is only performed if fault F30003 has occurred on the power unit. If additional faults are present, then these faults are also acknowledged and when successful, starting continues. If the 24 V Control Unit power supply fails, then this is interpreted as a line supply failure.
- Re p1210 = 6: An automatic restart is carried out if any fault has occurred.
- Re p1210 = 14: As for p1210 = 4. However, faults that are present must be manually acknowledged.
- Re p1210 = 16: As for p1210 = 6. However, faults that are present must be manually acknowledged.
- Re p1210 = 26: The same as for p1210 = 6. For this mode, the switch-on command can be entered with a delay. The restart is interrupted with either OFF2 or OFF3.

### p1211 Automatic restart start attempts / AR start attempts

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the start attempts of the automatic restart function for p1210 = 4, 6, 14, 16, 26.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1210</td>
<td></td>
<td>Automatic restart mode / AR mode</td>
</tr>
<tr>
<td>p1211</td>
<td></td>
<td>Automatic restart start attempts / AR start attempts</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

**Dependency:**
- Refer to: p1210
- Refer to: F07320

**Caution:**
A change is only accepted and made in the state "initialization" and "wait for alarm".

**Notice:**
After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

After a complete power failure the start counter always starts with the counter value that applied before the power failure, and decrements this start attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to power failure, e.g. when the CU remains active on power failure longer than the time p1212 / 2, the fault counter will already have been decremented once. In this case, the start counter is thus decreased by the value 2.

**Note:**
A start attempt starts immediately when a fault occurs. The start attempt is considered to been completed if the motor was magnetized (r0056.4 = 1) and an additional delay time of 1 s has expired.

As long as a fault is present, an acknowledge command is generated in the time intervals of p1212 / 2. When successfully acknowledged, the start counter is decremented. If, after this, a fault re-occurs before a restart has been completed, then acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt, i.e. a fault/error has no longer occurred up to the end of the magnetizing phase, the start counter is again reset to the parameter value after 1 s. If a fault re-occurs - the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

For p1210 = 26, the start counter is decremented if after a successful fault acknowledgement, the on command is present.

### p1212 Automatic restart delay time start attempts / AR t_wait start

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Can be changed:</th>
<th>U, T</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
</tbody>
</table>

**Min**
- 0.1 [s]

**Max**
- 1000.0 [s]

**Factory setting**
- 1.0 [s]

**Description:**
Sets the delay time up to restart.

**Dependency:**
This parameter setting is active for p1210 = 4, 6, 26.

For p1210 = 1, the following applies:
Faults are only automatically acknowledged in half of the waiting time, no restart.

Refer to: p1210

**Notice:**
A change is only accepted and made in the state "initialization" and "wait for alarm".

**Note:**
The faults are automatically acknowledged after half of the delay time has expired and the full delay time.

If the cause of a fault is not removed in the first half of the delay time, then it is no longer possible to acknowledge in the delay time.

### p1213[0...1] Automatic restart monitoring time / AR t_monit

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Can be changed:</th>
<th>U, T</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
</tbody>
</table>

**Min**
- 0.0 [s]

**Max**
- 10000.0 [s]

**Factory setting**
- 0 [0] 60.0 [s]
- 1 [1] 0.0 [s]

**Description:**
Sets the monitoring time of the automatic restart (AR).

**Index:**
- [0] = Restart
- [1] = Reset start counter

**Dependency:**
Refer to: p1210

**Caution:**
A change is only accepted and made in the state "initialization" and "wait for alarm".
Notice: After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

Note: Re index 0:
The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. If, after the monitoring time has expired, the drive has still not successfully started again (flying restart and magnetizing of the motor must have been completed: r0056.4 = 1), then fault F07320 is output. The monitoring is de-activated with p1213 = 0. If p1213 is set lower than the sum of p1212, the magnetizing time p0346 and the additional delay time due to the flying restart, then fault F07320 is generated at each restart. If, for p1210 = 1, the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart. The monitoring time must be extended if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present).

In the case of p1210 = 14, 16, the faults which are present must be acknowledged manually within the time in p1213[0]. Otherwise, fault F07320 is generated after the set time.

Re index 1:
The start counter is only reset to the starting value p1211 if, after successful restart, the time in p1213[1]. The delay time is not effective for fault acknowledgement without automatic restart (p1210 = 1). After a power failure (black-out) the delay time only starts after the line supply returns and the Control Unit boots. The start counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged.

The start counter is immediately updated if the starting value p1211 or the mode p1210 is changed. For p1210 = 26, the fault must have been successfully acknowledged and the switch-on command issued within the time in p1213[0]. Otherwise, fault F07320 is generated after the set time.

### p1215 Motor holding brake configuration / Brake config

| Access level: | 2 | Calculated: | - |
| Can be changed: | T | Scaling: | - |
| Units group: | - | Unit selection: | - |
| Min | Max | Factory setting |
| 0 | 3 | 0 |

**Description:** Sets the holding brake configuration.

**Value:**
- 0: No motor holding brake available
- 3: Motor holding brake like sequence control connection via BICO

**Dependency:** Refer to: p1216, p1217

**Caution:** For the setting p1215 = 0, if a brake is used, it remains closed. If the motor moves, this will destroy the brake.

**Notice:** If p1215 was set to 1 or if p1215 was set to 3, then when the pulses are suppressed, the brake is closed even if the motor is still rotating. Pulse suppression can either be caused by a 0 signal at p0844, p0845 or p0852 or as a result of a fault with OFF2 response. If this is not desirable (e.g. for a flying restart), then the brake can be kept open using a 1 signal at p0855.

**Note:** If a holding brake integrated in the motor is used, then it is not permissible that p1215 is set to 3.

If an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

### p1216 Motor holding brake opening time / Brake t_open

| Access level: | 2 | Calculated: | - |
| Can be changed: | U, T | Scaling: | - |
| Units group: | - | Unit selection: | - |
| Min | Max | Factory setting |
| 0 [ms] | 10000 [ms] | 100 [ms] |

**Description:** Sets the time to open the motor holding brake.

The holding brake has been controlled (opened), the speed setpoint remains at zero for this time. After this, the speed setpoint is enabled.

**Dependency:** Refer to: p1215, p1217

**Note:** For a motor with DRIVE-CLIQ and integrated brake, for p0300 = 10000, this time is pre-assigned the value saved in the motor.
**Parameters**

**List of parameters**

---

### p1217 Motor holding brake closing time / Brake t_close

**Access level:** 2  
**Can be changed:** U, T  
**Units group:** -  
**Min:** 0 [ms]  
**Max:** 10000 [ms]

**Description:**
Sets the time to apply the motor holding brake. After OFF1 or OFF3 and the controlling (closing) of the holding brake, the drive remains stationary under closed-loop control for this time with a speed setpoint of zero. The pulses are suppressed when the time expires.

**Dependency:**
Refer to: p1215, p1216

**Notice:**
If the selected closing time is too short with respect to the actual closing time of the brake, then the load can sag.
If the closing time is selected to be too long with respect to the actual closing time of the brake, the control works against the brake and therefore reduces its lifetime.

**Note:**
For a motor with DRIVE-CLiQ and integrated brake, for p0300 = 10000, this time is pre-assigned the value saved in the motor.

### p1230[0...n] BI: DC braking activation / DC brake act

**Access level:** 2  
**Can be changed:** U, T  
**Units group:** -  
**Min:** -  
**Max:** -

**Description:**
Sets the signal source to activate DC braking.

**Dependency:**
Refer to: p1231, p1232, p1233, p1234, r1239

**Note:**
1 signal: DC braking activated.  
0 signal: DC braking de-activated.

### p1231[0...n] DC braking configuration / DCBRK config

**Access level:** 2  
**Can be changed:** U, T  
**Units group:** -  
**Min:** 0  
**Max:** 14

**Description:**
Setting to activate DC braking.

**Value:**
0: No function  
4: DC braking  
5: DC braking for OFF1/OFF3  
14: DC braking below starting speed

**Dependency:**
Refer to: p0300, p1232, p1233, p1234, r1239

**Note:**
The function can only be used for induction motors (p0300 = 1).  
Re p1231 = 4:  
The function is activated as soon as the activation criterion is fulfilled.  
- the function can be superseded by an OFF2 response.  
Activation criterion (one of the following criteria is fulfilled):  
- biector input p1230 = 1 signal (DC braking activation, depending on the operating mode).  
- the drive is not in the state "S4: Operation" or in "S5x".  
- the internal pulse enable is missing (r0046.19 = 0).  
DC braking can only be withdrawn (p1231 = 0) if it is not being used as a fault response in p2101.
Re p1231 = 5:
DC braking is activated if the OFF1 or OFF3 command is present. Binector input p1230 is ineffective. If the drive speed still lies above the speed threshold p1234, then initially, the drive is ramped-down to this threshold, demagnetized (see p0347) and is then switched into DC braking for the time set in p1233. After this, the drive is switched-off. If, at OFF1, the drive speed is below p1234, then it is immediately demagnetized and switched into DC braking. A change is made into normal operation if the OFF1 command is withdrawn prematurely. Flying restart must be activated if the motor is still rotating.
DC braking by means of fault response continues to be possible.
Re p1231 = 14:
In addition to the function for p1231 = 5, binector input p1230 is evaluated.
DC braking is only automatically activated when the speed threshold p1234 is fallen below if at binector input p1230 = 1 signal. This is also the case, if no OFF command is present.
After demagnetization and after the time in p1233 has expired, the drive changes back into normal operation or is switched-off (for OFF1/OFF3).
If a 0 signal is applied to binector input p1230, for OFF1 and OFF3 no DC braking is executed.
Note:
DCBRK: DC Braking

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Functional diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1232[n]</td>
<td>DC braking braking current / DCBRK I_brake</td>
<td>2</td>
<td>p0340 = 1</td>
<td>-</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS, p0130</td>
<td>7017</td>
</tr>
<tr>
<td>p1233[n]</td>
<td>DC braking time / DCBRK time</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS, p0130</td>
<td>7017</td>
</tr>
<tr>
<td>p1234[n]</td>
<td>Speed at the start of DC braking / DCBRK n_start</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>MDS, p0130</td>
<td>7017</td>
</tr>
</tbody>
</table>

Note:
- The value for p1232 is specified as an rms value in the 3-phase system. The magnitude of the braking current is the same as that of an identical output current at frequency zero (see r0067, r0068, p0640). The braking current is internally limited to r0067.
- For the current controller, the settings of parameters p1345 and p1346 (I_max limiting controller) are used.

Description:
- Sets the braking current for DC braking.
- Refer to: p1230, p1231, p1233, p1234, r1239, p1345, p1346
- A change to the braking current becomes effective the next time that DC braking is switched on.

Dependency:
- Refer to: p1230, p1231, p1232, p1234, r1239

Min Max Factory setting
0.00 [Arms] 10000.00 [Arms] 0.00 [Arms]

Description:
- Sets the DC braking time (as fault response).
- Refer to: p1230, p1231, p1232, p1234, r1239

Dependency:
- Refer to: p1230, p1231, p1232, p1234, r1239

Min Max Factory setting
0.0 [s] 3600.0 [s] 1.0 [s]

Description:
- Sets the starting speed for DC braking.
- If the actual speed falls below this threshold, then DC braking is activated.

Dependency:
- Refer to: p1230, p1231, p1232, p1233, r1239

Min Max Factory setting
0.00 [rpm] 210000.00 [rpm] 210000.00 [rpm]
### r1239.8...13
**CO/BO: DC braking status word / DCBRK ZSW**

- **Access level:** 2
- **Calculated:** -
- **Data type:** Unsigned32
- **Can be changed:** -
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Factory setting**

**Description:**
Status word of the DC braking.

**Dependency:**
Refer to: p1231, p1232, p1233, p1234

**Note:**
Re bit 12, 13:
Only effective for p1231 = 14.

### p1240[0...n]
**Vdc controller configuration (vector control) / Vdc_ctr config vec**

- **Access level:** 3
- **Calculated:** -
- **Data type:** Integer16
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Factory setting**

**Description:**
Sets the controller configuration of the DC link voltage (Vdc controller) in the closed-loop control mode. For U/f control: see p1280.

**Value:**
0: Inhib Vdc ctrl
1: Enable Vdc_max controller
2: Enable Vdc_min controller (kinetic buffering)
3: Enable Vdc_min controller and Vdc_max controller

**Dependency:**
Refer to: p1245
Refer to: A07400, A07401, A07402, F07405, F07406

**Notice:**
An excessively high value in p1245 can possibly negatively influence the normal operation of the drive.

**Note:**
p1240 = 1, 3:
When the DC link voltage limit specified for the power unit is reached the following applies:
- the Vdc_max controller limits the regenerative energy in order that the DC link voltage is kept below the maximum DC link voltage when braking.
- the ramp-down times are automatically increased.

p1240 = 2, 3:
When the switch-in threshold of the Vdc_min controller is reached (p1245), the following applies:
- the Vdc_min controller limits the energy taken from the DC link in order to keep the DC link voltage above the minimum DC link voltage when accelerating.
- the motor is braked in order to use its kinetic energy to buffer the DC link.

If a braking resistor is connected to the DC link (p0219 > 0), then the Vdc_max control is automatically deactivated.

### r1242
**Vdc_max controller switch-in level / Vdc_max on_level**

- **Access level:** 3
- **Calculated:** -
- **Data type:** FloatingPoint32
- **Can be changed:** -
- **Scaling:** p2001
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Factory setting**

**Description:**
Displays the switch-in level for the Vdc_max controller.
If p1254 = 0 (automatic sensing of the switch-in level = off), then the following applies:
\[ r1242 = 1.15 \times \sqrt{2} \times V_{\text{mains}} = 1.15 \times \sqrt{2} \times p0210 \text{ (supply voltage)} \]

If p1254 = 1 (automatic sensing of the switch-in level = on), then the following applies:
\[ r1242 = V_{\text{dc\_max}} - 50.0 \text{ V} (V_{\text{dc\_max}}: \text{Overvoltage threshold of the power unit}) \]

**Note:**
The Vdc_max controller is not switched back off until the DC-link voltage falls below the threshold 0.95 \times p1242 and the controller output is zero.

### p1243[0...n]
**Vdc_max controller dynamic factor / Vdc_max dyn_factor**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculated:</td>
<td>p0340 = 1,3,4</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>1 [%]</td>
</tr>
</tbody>
</table>

**Description:**
Sets the dynamic factor for the DC link voltage controller (Vdc_max controller).

100% means that p1250, p1251, and p1252 (gain, integral time, and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization.

If subsequent optimization is required, this can be carried out using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1243.

### p1245[0...n]
**Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculated:</td>
<td>-</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>65 [%]</td>
</tr>
</tbody>
</table>

**Description:**
Sets the switch-in level for the Vdc-min controller (kinetic buffering).

The value is obtained as follows:
\[ r1246[V] = p1245[\%] \times \sqrt{2} \times p0210 \]

**Dependency:**
Refer to: p0210

**Warning:**
An excessively high value may adversely affect normal drive operation.

### r1246
**Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculated:</td>
<td>-</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>- [V]</td>
</tr>
</tbody>
</table>

**Description:**
Displays the switch-in level for the Vdc_min controller (kinetic buffering).

**Note:**
The Vdc_min controller is not switched back off until the DC-link voltage rises above the threshold 1.05 \times p1246 and the controller output is zero.

### p1247[0...n]
**Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculated:</td>
<td>p0340 = 1,3,4</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>1 [%]</td>
</tr>
</tbody>
</table>

**Description:**
Sets the dynamic factor for the Vdc_min controller (kinetic buffering).

100% means that p1250, p1251, and p1252 (gain, integral time, and rate time) are used corresponding to their basic settings and based on a theoretical controller optimization.
If subsequent optimization is required, this can be carried out using the dynamic factor. In this case p1250, p1251, p1252 are weighted with the dynamic factor p1247.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated:</th>
<th>Data type:</th>
<th>Can be changed:</th>
<th>Scaling:</th>
<th>Dyn. index:</th>
<th>Unit selection:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1249[0...n] Vdc_max controller speed threshold / Vdc_max n_thresh</td>
<td>Sets the lower speed threshold for the Vdc_max controller. When this speed threshold is undershot, the Vdc_max control is switched out and the speed is controlled using the ramp-function generator. <strong>Note:</strong> For fast braking where the ramp-function generator tracking was active, it is possible to prevent the drive rotating in the opposite direction by increasing the speed threshold and setting a final rounding-off time in the ramp-function generator (p1131). This is supported using a dynamic setting of the speed controller.</td>
<td>3</td>
<td>p0340 = 1</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>-</td>
<td>DDS, p0180</td>
<td>p0505</td>
<td>-</td>
</tr>
<tr>
<td>p1250[0...n] Vdc controller proportional gain / Vdc_ctrl Kp</td>
<td>Sets the proportional gain for the DC-link voltage controller (Vdc_min controller, Vdc_max controller). The effective proportional gain is obtained taking into account p1243 (Vdc_max controller dynamic factor) and the DC link capacitance of the power unit.</td>
<td>4</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>-</td>
<td>DDS, p0180</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>p1251[0...n] Vdc controller integral time / Vdc_ctrl Tn</td>
<td>Sets the integral time for the DC-link voltage controller (Vdc_min controller, Vdc_max controller). The effective integral time is obtained taking into account p1243 (Vdc_max controller dynamic factor). <strong>Note:</strong> p1251 = 0: The integral component is de-activated.</td>
<td>4</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>-</td>
<td>DDS, p0180</td>
<td>-</td>
<td>6220</td>
</tr>
<tr>
<td>p1252[0...n] Vdc controller rate time / Vdc_ctrl t_rate</td>
<td>Sets the rate time constant for the DC-link voltage controller (Vdc_min controller, Vdc_max controller). The effective rate time is obtained taking into account p1243 (Vdc_max controller dynamic factor).</td>
<td>4</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>-</td>
<td>DDS, p0180</td>
<td>-</td>
<td>6220</td>
</tr>
<tr>
<td>p1254 Vdc_max controller automatic ON level detection / Vdc_max SenseOnLev</td>
<td>Activates/de-activates the automatic sensing of the switch-in level for the Vdc_max controller.</td>
<td>3</td>
<td>-</td>
<td>Integer16</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

**Value:**

- **0:** Automatic detection inhibited
- **1:** Automatic detection enabled

<table>
<thead>
<tr>
<th>p1255[0...n]</th>
<th>Vdc_min controller time threshold / Vdc_min t_thesh</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0.000 [s]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>1800.000 [s]</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td>0.000 [s]</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Sets the time threshold for the Vdc_min controller (kinetic buffering). If this value is exceeded a fault is output; the required response can be parameterized. Prerequisite: p1256 = 1</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td>Refer to: F07406</td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
<td>If a time threshold has been parameterized, the Vdc_max controller should also be activated (p1240 = 3) so that the drive does not shut down with overvoltage when Vdc_min control is exited (due to the time violation) and in the event of fault response OFF3. It is also possible to increase the OFF3 ramp-down time p1135.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>p1256[0...n]</th>
<th>Vdc_min controller response (kinetic buffering) / Vdc_min_response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Sets the response for the Vdc_min controller (kinetic buffering). Value: 0: Buffer Vdc until undervoltage, n&lt;p1257 -&gt; F07405 1: Buff. Vdc until undervolt., n&lt;p1257 -&gt; F07405, t&gt;p1255 -&gt; F07406</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td>Refer to: F07405, F07406</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>p1257[0...n]</th>
<th>Vdc_min controller speed threshold / Vdc_min n_thresh</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>3_1</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0.00 [rpm]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>210000.00 [rpm]</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td>50.00 [rpm]</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Sets the speed threshold for the Vdc-min controller (kinetic buffering). If this value is exceeded a fault is output; the required response can be parameterized .</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>r1258</th>
<th>CO: Vdc controller output / Vdc_ctrl output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>6_2</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>- [Arms]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>- [Arms]</td>
</tr>
<tr>
<td><strong>Factory setting</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Displays the actual output of the Vdc controller (DC link voltage controller) Note: The regenerative power limit p1531 is used for vector control to pre-control the Vdc_max controller. The lower the power limit is set, the lower the correction signals of the controller when the voltage limit is reached.</td>
</tr>
</tbody>
</table>
## Parameters

### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1280[0...n]</td>
<td>Vdc controller configuration (U/f) / Vdc_ctr config U/f</td>
<td>Sets the configuration of the controller for the DC link voltage (Vdc controller) in the U/f operating mode.</td>
<td>Sets the configuration of the controller for the DC link voltage (Vdc controller) in the U/f operating mode. For high input voltages (see p0210), the following settings can improve the degree of ruggedness of the Vdc_max controller: - Set the input voltage p0210 as low as possible (in so doing avoid A07401). - Set the rounding times (p1130, p1136). - Increase the ramp-down times (p1121). - Reduce the integral time of the controller (p1291) (factor 0.5). - Reduce the rate time of the controller (p1292) (factor 0.5). In this case, we generally recommend to use vector control (p1300 = 20) (Vdc controller, see p1240). The following measures are suitable to improve the Vdc_min controller: - Optimize the Vdc_min controller (see p1287). If a braking resistor is connected to the DC link (p0219 &gt; 0), then the Vdc_max control is automatically deactivated.</td>
</tr>
</tbody>
</table>

| r1282 | Vdc_max controller switch-in level (U/f) / Vdc_max on_level | Displays the switch-in level for the Vdc_max controller. If p1294 = 0 (automatic sensing of the switch-in level = off), then the following applies: r1282 = 1.15 * sqrt(2) * p0210 (supply voltage) If p1294 = 1 (automatic sensing of the switch-in level = on), then the following applies: r1282 = Vdc_max - 50.0 V (Vdc_max: Overvoltage threshold of the power unit) r1282 = Vdc_max - 25.0 V (for 230 V power units) | The Vdc_max controller is not switched back off until the DC-link voltage falls below the threshold 0.95 * p1282 and the controller output is zero. |

<p>| p1283[0...n] | Vdc_max controller dynamic factor (U/f) / Vdc_max dyn_factor | Sets the dynamic factor for the DC link voltage controller (Vdc_max controller). 100% means that p1290, p1291, and p1292 (gain, integral time, and rate time) are used in accordance with their basic settings and on the basis of a theoretical controller optimization. If subsequent optimization is required, this can be carried out using the dynamic factor. In this case, p1290, p1291, and p1292 are weighted with the dynamic factor p1283. | | |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1284[0...n]</td>
<td>Vdc_max controller time threshold (U/f) / Vdc_max t_thresh</td>
</tr>
<tr>
<td>Access level: 3</td>
<td>Calculated: p0340 = 1</td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Data type: FloatingPoint32</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Min 0.000 [s]</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Max 300.000 [s]</td>
<td>Factory setting 4.000 [s]</td>
</tr>
</tbody>
</table>

Sets the monitoring time of the Vdc_max controller. If the down ramp of the speed setpoint is permanently held longer than the set time, the system is shut down with fault message F7404.

| p1290[0...n] | Vdc controller proportional gain (U/f) / Vdc_ctrl Kp |
| Access level: 4 | Calculated: p0340 = 1,3,4 |
| Can be changed: U, T | Data type: FloatingPoint32 |
| Units group: - | Dyn. index: DDS, p0180 |
| Min 0.00 | Scaling: - |
| Max 100.00 | Func. diagram: 6320 |

Sets the proportional gain for the Vdc controller (DC link voltage controller).

Note: The gain factor is proportional to the capacitance of the DC link. The parameter is pre-set to a value that is optimally adapted to the capacitance of the power unit.

| p1291[0...n] | Vdc controller integral time (U/f) / Vdc_ctrl Tn |
| Access level: 4 | Calculated: - |
| Can be changed: U, T | Data type: FloatingPoint32 |
| Units group: - | Dyn. index: DDS, p0180 |
| Min 0 [ms] | Scaling: - |
| Max 10000 [ms] | Func. diagram: 6320 |

Sets the integral time for the Vdc controller (DC link voltage controller).

| p1292[0...n] | Vdc controller rate time (U/f) / Vdc_ctrl t_rate |
| Access level: 4 | Calculated: p0340 = 1,3,4 |
| Can be changed: U, T | Data type: FloatingPoint32 |
| Units group: - | Dyn. index: DDS, p0180 |
| Min 0 [ms] | Scaling: - |
| Max 1000 [ms] | Func. diagram: 6320 |

Sets the rate time constant for the Vdc controller (DC link voltage controller).

| r1298 | CO: Vdc controller output (U/f) / Vdc_ctrl output |
| Access level: 4 | Calculated: - |
| Can be changed: - | Data type: FloatingPoint32 |
| Units group: 3_1 | Dyn. index: - |
| Min - [rpm] | Scaling: p2000 |
| Max - [rpm] | Unit selection: p0505 |
| - [rpm] | Func. diagram: 6320 |

Displays the actual output of the Vdc controller (DC link voltage controller).

| p1300[0...n] | Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode |
| Access level: 2 | Calculated: - |
| Can be changed: C(1), T | Data type: Integer16 |
| Units group: - | Dyn. index: DDS, p0180 |
| Min 0 | Scaling: - |
| Max 20 | Func. diagram: 1690, 6300 |

Sets the open and closed-loop control mode of a drive.
**Parameters**

**List of parameters**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>U/f control with linear characteristic</td>
</tr>
<tr>
<td>1</td>
<td>U/f control with linear characteristic and FCC</td>
</tr>
<tr>
<td>2</td>
<td>U/f control with parabolic characteristic</td>
</tr>
<tr>
<td>3</td>
<td>U/f control with parameterizable characteristic</td>
</tr>
<tr>
<td>4</td>
<td>U/f control with linear characteristic and ECO</td>
</tr>
<tr>
<td>5</td>
<td>U/f control for drives requiring a precise freq. (e.g. textiles)</td>
</tr>
<tr>
<td>6</td>
<td>U/f control for drives requiring a precise frequency and FCC</td>
</tr>
<tr>
<td>7</td>
<td>U/f control for a parabolic characteristic and ECO</td>
</tr>
<tr>
<td>19</td>
<td>U/f control with independent voltage setpoint</td>
</tr>
<tr>
<td>20</td>
<td>Speed control (encoderless)</td>
</tr>
</tbody>
</table>

**Dependency:**

Only operation with U/f characteristic is possible if the rated motor speed is not entered (p0311).

Operation with a U/f characteristic is not supported for 1LE4 synchronous motors.

Refer to: p0300, p0311, p0500

**Notice:**

Active slip compensation is required in the U/f control types with Eco mode (p1300 = 4, 7). The scaling of the slip compensation (p1335) should be set so that the slip is completely compensated (generally 100%).

The Eco mode is only effective in steady-state operation and when the ramp-function generator is not bypassed.

Refer to: p0300, p0311, p0500

**Note:**

For the open-loop control modes p1300 = 5 and 6 (textile sector), slip compensation p1335, resonance damping p1338, and the Imax frequency controller are switched off internally so that the output frequency can be set precisely. The Imax voltage controller remains active.

During operation (the pulses enabled) the open-loop/closed-loop control mode cannot be changed by changing over drive data sets.

### p1302[0...n] U/f control configuration / U/f config

**Access level:** 3

**Can be changed:** T

**Units group:** -

**Min:** -

**Max:** 0000 bin

**Data type:** Unsigned16

**Dyn. index:** DDS, p0180

**Func. diagram:** -

**Description:**

Sets the configuration for the U/f control.

**Bit field:**

<table>
<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>03</td>
<td>Motor holding brake with constant stop frequency</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**

Re bit 03:

When the bit is set, when the drive stops, the starting frequency of the motor holding brake is also not fallen below when the actual slip frequency is less than the starting frequency.

### p1310[0...n] Voltage boost permanent / U_boost perm

**Access level:** 2

**Can be changed:** U, T

**Units group:** -

**Min:** 0.0 [%]

**Max:** 250.0 [%]

**Data type:** FloatingPoint32

**Dyn. index:** DDS, p0180

**Func. diagram:** 1690, 6300

**Factory setting**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50.0 [%]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**

Defines the voltage boost as a [%] referred to the rated motor current (p0305).

The magnitude of the permanent voltage boost is reduced with increasing frequency so that at the rated motor frequency, the rated motor voltage is present.

The magnitude of the boost in Volt at a frequency of zero is defined as follows:

\[ \text{Voltage boost [V]} = 1.732 \times \text{p0305 (rated motor current [A])} \times \text{p0395 (stator/primary section resistance [ohm])} \times \text{p1310 (permanent voltage boost [%])} / 100 \%

At low output frequencies, there is only a low output voltage in order to maintain the motor flux. However, the output voltage can be too low in order to achieve the following:

- magnetize the induction motor.
- hold the load.
- compensate for losses in the system.

This is the reason that the output voltage can be increased using p1310.

The voltage boost can be used for both linear as well as square-law U/f characteristics.
Dependency: The current limit p0640 limits the boost.

For vector control, the permanent voltage boost (p1310) has no effect as the drive converter automatically sets the optimum operating conditions.

Refer to: p1300, p1311, p1312, r1315

Notice: The voltage boost increases the motor temperature (particularly at zero speed).

Note: The voltage boost is only effective for U/f control (p1300).

The boost values are combined with one another if the permanent voltage boost (p1310) is used in conjunction with other boost parameters (acceleration boost (p1311), voltage boost for starting (p1312)).

However, these parameters are assigned the following priorities: p1310 > p1311, p1312

### p1311[0...n] Voltage boost at acceleration / U_boost accelerate

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Data type:</td>
<td>FloatingPoint32</td>
<td>Dyn. index:</td>
<td>DDS, p0180</td>
</tr>
<tr>
<td>Min</td>
<td>0.0 [%]</td>
<td>Max</td>
<td>250.0 [%]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>0.0 [%]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description: p1311 only results in a voltage boost when accelerating and generates a supplementary torque to accelerate the load.

The voltage boost becomes effective for a positive setpoint increase and disappears as soon as the setpoint has been reached. The build-up and withdrawal of the voltage boost are smoothed.

The magnitude of the boost in Volt at a frequency of zero is defined as follows:

\[
\text{Voltage boost (V)} = 1.732 \times \text{p0305 (rated motor current [A])} \times \text{r0395 (stator/primary section resistance [ohm])} \times \text{p1311 (voltage boost when accelerating [%])} / 100 \%
\]

Dependency: The current limit p0640 limits the boost.

Refer to: p1300, p1310, p1312, r1315

Notice: The voltage boost results in a higher motor temperature increase.

Note: The voltage boost when accelerating can improve the response to small, positive setpoint changes.

Assigning priorities for the voltage boosts: refer to p1310

### p1312[0...n] Voltage boost when starting / U_boost starting

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Data type:</td>
<td>FloatingPoint32</td>
<td>Dyn. index:</td>
<td>DDS, p0180</td>
</tr>
<tr>
<td>Min</td>
<td>0.0 [%]</td>
<td>Max</td>
<td>250.0 [%]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>0.0 [%]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description: Setting for an additional voltage boost when powering-up, however, only for the first acceleration phase.

The voltage boost becomes effective for a positive setpoint increase and disappears as soon as the setpoint has been reached. The build-up and withdrawal of the voltage boost are smoothed.

Dependency: The current limit p0640 limits the boost.

Refer to: p1300, p1310, p1311, r1315

Notice: The voltage boost results in a higher motor temperature increase.

Note: The voltage boost when accelerating can improve the response to small, positive setpoint changes.

Assigning priorities for the voltage boosts: refer to p1310

### r1315 Voltage boost total / U_boost total

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>p2001</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
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</tr>
<tr>
<td>Data type:</td>
<td>FloatingPoint32</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>- [Vrms]</td>
<td>Max</td>
<td>- [Vrms]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>- [Vrms]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description: Displays the total resulting voltage boost in volt.

\[
r1315 = \text{p1310} + \text{p1311} + \text{p1312}
\]

Dependency: Refer to: p1310, p1311, p1312

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### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1320[0...n]</td>
<td>U/f control programmable characteristic frequency 1 / Uf char f1</td>
<td>3</td>
<td>p0340 = 1</td>
<td>U, T</td>
<td>-</td>
<td>0.00 [Hz]</td>
<td>3000.00 [Hz]</td>
<td>0.00 [Hz]</td>
</tr>
<tr>
<td>p1321[0...n]</td>
<td>U/f control programmable characteristic voltage 1 / Uf char U1</td>
<td>3</td>
<td>p0340 = 1</td>
<td>U, T</td>
<td>-</td>
<td>0.0 [Vrms]</td>
<td>10000.0 [Vrms]</td>
<td>0.0 [Vrms]</td>
</tr>
<tr>
<td>p1322[0...n]</td>
<td>U/f control programmable characteristic frequency 2 / Uf char f2</td>
<td>3</td>
<td>p0340 = 1</td>
<td>U, T</td>
<td>-</td>
<td>0.00 [Hz]</td>
<td>3000.00 [Hz]</td>
<td>0.00 [Hz]</td>
</tr>
<tr>
<td>p1323[0...n]</td>
<td>U/f control programmable characteristic voltage 2 / Uf char U2</td>
<td>3</td>
<td>p0340 = 1</td>
<td>U, T</td>
<td>-</td>
<td>0.0 [Vrms]</td>
<td>10000.0 [Vrms]</td>
<td>0.0 [Vrms]</td>
</tr>
</tbody>
</table>

**Description:**
The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the first point along the characteristic.

**Dependency:**
Selects the freely programmable characteristic using p1300 = 3.

The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point.

Refer to: p1300, p1310, p1311, p1321, p1322, p1323, p1324, p1325, p1326, p1327

**Note:**
Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.
### List of parameters

#### p1324[0...n]
**U/f control programmable characteristic frequency 3 / Uf char f3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0.00 [Hz]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>3000.00 [Hz]</td>
<td></td>
<td>0.00 [Hz]</td>
</tr>
</tbody>
</table>

**Description:**
The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the third point along the characteristic.

**Dependency:**
The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1325, p1326, p1327

#### p1325[0...n]
**U/f control programmable characteristic voltage 3 / Uf char U3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0.0 [Vrms]</td>
<td></td>
<td>0.0 [Vrms]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>10000.00 [Vrms]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the third point along the characteristic.

**Dependency:**
Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1326, p1327

#### p1326[0...n]
**U/f control programmable characteristic frequency 4 / Uf char f4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0.00 [Hz]</td>
<td></td>
<td>0.00 [Hz]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>10000.00 [Hz]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the frequency of the fourth point along the characteristic.

**Dependency:**
Selects the freely programmable characteristic using p1300 = 3. The following applies for the frequency values: p1320 <= p1322 <= p1324 <= p1326 Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1325, p1327

**Note:**
Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327. For output frequencies above p1326, the characteristic is extrapolated with the gradient between the characteristic points p1324/p1325 and p1326/p1327.

The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.

#### p1327[0...n]
**U/f control programmable characteristic voltage 4 / Uf char U4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>0.0 [Vrms]</td>
<td></td>
<td>0.0 [Vrms]</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>10000.00 [Vrms]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
The programmable characteristic for the U/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the fourth point along the characteristic.

**Dependency:**
Selects the freely programmable characteristic using p1300 = 3. Refer to: p1310, p1311, p1320, p1321, p1322, p1323, p1324, p1325, p1326
### Note:
Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327.
The voltage boost when accelerating (p1311) is also applied to the freely programmable U/f characteristic.

#### p1330[0...n]
**PI: U/f control independent voltage setpoint / Uf U_set independ.**
- **Access level:** 3
- **Calculated:** -
- **Data type:** U32 / FloatingPoint32
- **Can be changed:** T
- **Scaling:** p2001
- **Dyn. index:** CDS, p0170
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 6300
- **Min:** -
- **Max:** -
- **Factory setting:** 0

**Description:**
Sets the signal source for the voltage setpoint for U/f control with an independent voltage setpoint (p1300 = 19).

**Dependency:**
Selects the U/f control with independent voltage setpoint via p1300 = 19.
Refer to: p1300

#### p1334[0...n]
**U/f control slip compensation starting frequency / Slip comp start**
- **Access level:** 3
- **Calculated:** p0340 = 1
- **Data type:** FloatingPoint32
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 6310
- **Min:** 0.00 [Hz]
- **Max:** 3000.00 [Hz]
- **Factory setting:** 0.00 [Hz]

**Description:**
Sets the starting frequency of the slip compensation.

**Note:**
For p1334 = 0, the starting frequency of the slip compensation is automatically set to 6 % of the rated motor frequency.

#### p1335[0...n]
**Slip compensation scaling / Slip comp scal**
- **Access level:** 3
- **Calculated:** -
- **Data type:** FloatingPoint32
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 1690, 6310
- **Min:** 0.0 [%]
- **Max:** 600.0 [%]
- **Factory setting:** 0.0 [%]

**Description:**
Sets the setpoint for slip compensation in [%] referred to r0330 (motor rated slip).

**p1335 = 0.0 %:** Slip compensation de-activated.

**p1335 = 100.0 %:** The slip is completely compensated.

**Dependency:**
Prerequisite for a precise slip compensation for p1335 = 100 % are the precise motor parameters (p0350 ... p0360).

If the parameters are not precisely known, a precise compensation can be achieved by varying p1335.
For U/f control types with Eco optimization (4 and 7), the slip compensation must be activated in order to guarantee correct operation.

**Note:**
The purpose of slip compensation is to maintain a constant motor speed regardless of the applied load. The fact that the motor speed decreases with increasing load is a typical characteristic of induction motors.

For synchronous motors, this effect does not occur and the parameter has no effect in this case.

For the open-loop control modes p1300 = 5 and 6 (textile sector), the slip compensation is internally disabled in order to be able to precisely set the output frequency.

If p1335 is changed during commissioning (p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1335 have been changed by a parameter that was set when the drive was commissioned (e.g. p0300).

#### p1336[0...n]
**Slip compensation limit value / Slip comp lim val**
- **Access level:** 3
- **Calculated:** -
- **Data type:** FloatingPoint32
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** 6310
- **Min:** 0.00 [%]
- **Max:** 600.00 [%]
- **Factory setting:** 250.00 [%]

**Description:**
Sets the limit value for slip compensation in [%] referred to r0330 (motor rated slip).
Parameters

List of parameters

r1337  CO: Actual slip compensation / Slip comp act val

Access level: 3  Calculated: -  Data type: FloatingPoint32
Can be changed: -  Scaling: PERCENT  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: 6310

Min  - [%]  Max  - [%]  Factory setting  - [%]

Description: Displays the actual compensated slip [%] referred to r0330 (rated motor slip).
Dependency: p1335 > 0 %: Slip compensation active.
Refer to: p1335

p1338[0...n]  U/f mode resonance damping gain / Uf Res_damp gain

Access level: 3  Calculated: p0340 = 1,3,4  Data type: FloatingPoint32
Can be changed: U, T  Scaling: -  Dyn. index: DDS, p0180
Units group: -  Unit selection: -  Func. diagram: 1690, 6310

Min  0.00  Max  100.00  Factory setting  0.00

Description: Sets the gain for resonance damping for U/f control.
Dependency: Refer to: p1300, p1349
Note: The resonance damping function damps active current oscillations that frequency occur under no-load conditions.
The resonance damping is active in a range from approximately 6 % of the rated motor frequency (p0310). The
shutoff frequency is determined by p1349.
For the open-loop control modes p1300 = 5 and 6 (textile sectors), the resonance damping is internally disabled in
order that the output frequency can be precisely set.

p1340[0...n]  I_max frequency controller proportional gain / I_max_ctrl Kp

Access level: 3  Calculated: p0340 = 1,3,4  Data type: FloatingPoint32
Can be changed: U, T  Scaling: -  Dyn. index: DDS, p0180
Units group: -  Unit selection: -  Func. diagram: 1690

Min  0.00  Max  0.500  Factory setting  0.00

Description: Sets the proportional gain of the I_max frequency controller.
The I_max controller reduces the drive converter output current if the maximum current (r0067) is exceeded.
In the U/f operating modes (p1300) for the I_max control, one controller is used that acts on the output frequency
and one controller that acts on the output voltage. The frequency controller reduces the current by decreasing the
converter output frequency. The frequency is reduced down to a minimum value (equaling twice rated slip). If the
overcurrent condition cannot be successfully resolved using this measure, then the drive converter output voltage is
reduced using the I_max voltage controller. Once the overcurrent condition has been resolved, the drive is accelerated
along the ramp set in p1120 (ramp-up time).
Dependency: In the U/f modes (p1300) for textile applications and for external voltage setpoints, only the I_max voltage controller
is used.
Notice: When de-activating the I_max controller, the following must be carefully observed:
When the maximum current (r0067) is exceeded, the output current is no longer reduced, however, overcurrent
alarm messages are generated. The drive is shut down if the overcurrent limit (r0209) is exceeded.
Note: p1341 = 0: I_max frequency controller de-activated and I_max voltage controller activated over the complete speed range.
### List of parameters

#### p1341[0...n]

**I_max frequency controller integral time / I_max_ctrl Tn**

| Access level: 4 | Calculated: p0340 = 1,3,4 | Data type: FloatingPoint32 |
| Can be changed: U, T | Scaling: - | Dyn. index: DDS, p0180 |
| Units group: - | Unit selection: - | Func. diagram: 1690 |
| **Min** | **Max** | **Factory setting** |
| 0.000 [s] | 50.000 [s] | 0.300 [s] |

**Description:**
Sets the integral time for the I_max frequency controller.

**Dependency:**
Refer to: p1340

**Note:**
When p1341 = 0, the current limiting controller influencing the frequency is de-activated and only the current limiting controller influencing the output voltage remains active (p1345, p1346). This current limiting function is de-activated with p1340 = p1341 = 0.

#### r1343

**CO: I_max controller frequency output / I_max_ctrl f_outp**

| Access level: 3 | Calculated: - | Data type: FloatingPoint32 |
| Can be changed: - | Scaling: p2000 | Dyn. index: - |
| Units group: 3_1 | Unit selection: p0505 | Func. diagram: 1690 |
| **Min** | **Max** | **Factory setting** |
| - [rpm] | - [rpm] | - [rpm] |

**Description:**
Displays the effective frequency limit.

**Dependency:**
Refer to: p1340

#### r1344

**I_max controller voltage output / I_max_ctrl U_outp**

| Access level: 4 | Calculated: - | Data type: FloatingPoint32 |
| Can be changed: - | Scaling: p2001 | Dyn. index: - |
| Units group: 5_1 | Unit selection: p0505 | Func. diagram: 1690 |
| **Min** | **Max** | **Factory setting** |
| - [Vrms] | - [Vrms] | - [Vrms] |

**Description:**
Displays the amount by which the converter output voltage is reduced.

**Dependency:**
Refer to: p1340

#### p1345[0...n]

**I_max voltage controller proportional gain / I_max_U_ctrl Kp**

| Access level: 4 | Calculated: p0340 = 1,3,4 | Data type: FloatingPoint32 |
| Can be changed: U, T | Scaling: - | Dyn. index: DDS, p0180 |
| Units group: - | Unit selection: - | Func. diagram: 1690 |
| **Min** | **Max** | **Factory setting** |
| 0.000 | 100000.000 | 0.000 |

**Description:**
Sets the proportional gain for the I_max voltage controller.

**Dependency:**
Refer to: p1340

**Note:**
The controller settings are also used in the current controller of the DC braking (refer to p1232).

#### p1346[0...n]

**I_max voltage controller integral time / I_max_U_ctrl Tn**

| Access level: 4 | Calculated: p0340 = 1,3,4 | Data type: FloatingPoint32 |
| Can be changed: U, T | Scaling: - | Dyn. index: DDS, p0180 |
| Units group: - | Unit selection: - | Func. diagram: 1690 |
| **Min** | **Max** | **Factory setting** |
| 0.000 [s] | 50.000 [s] | 0.030 [s] |

**Description:**
Sets the integral time for the I_max voltage controller.

**Dependency:**
Refer to: p1340
### List of parameters

#### Note:
- The controller settings are also used in the current controller of the DC braking (refer to p1232).
- For p1346 = 0, the following applies:
  - The integral time of the \( I_{\text{max}} \) voltage controller is de-activated.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>r1348 CO: U/f control Eco factor actual value / U/f Eco fac act v</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>Displays the economic factor determined for optimizing motor consumption.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 4</td>
<td>Calculated: -</td>
<td></td>
<td></td>
<td>Data type: FloatingPoint32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td></td>
<td></td>
<td>Dyn. index: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
<td></td>
<td>Dyn. index: 6300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min - [%] Max - [%]</td>
<td>Factory setting - [%]</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Dependency:</td>
<td></td>
<td></td>
<td></td>
<td>Refer to: p1335</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
<td>The value is only determined for operating modes with Economic (p1300 = 4, 7).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| p1349[0...n] U/f mode resonance damping maximum frequency / Uf res_damp f_max | 3            | U, T           | -           | Sets the maximum output frequency for resonance damping for U/f control.   |            |      |
| Access level: 3                                                           | Calculated: p0340 = 1 |                |             | Data type: FloatingPoint32                                                 |            |      |
| Can be changed: U, T                                                     | Scaling: -   |                |             | Dyn. index: DDS, p0180                                                     |            |      |
| Units group: -                                                            | Unit selection: - |             |             | Dyn. index: 6310                                                           |            |      |
| Min 0.00 [Hz] Max 3000.00 [Hz]                                            | Factory setting 0.00 [Hz] |         |             |                                                                          |            |      |
| Description:                                                              |              |                |             |                                                                             |            |      |
| Dependency:                                                               |              |                |             | Refer to: p1338                                                             |            |      |
| Note:                                                                    |              |                |             | For p1349 = 0, the changeover limit is automatically set to 95 % of the rated motor frequency - however, to a max. of 45 Hz. |            |      |

| p1351[0...n] CO: Motor holding brake starting frequency / Brake f_start     | 3            | U, T           | -           | Sets the frequency setting value at the slip compensation output for starting up with motor holding brake. |            |      |
| Access level: 3                                                           | Calculated: -|                |             | Data type: FloatingPoint32                                                 |            |      |
| Can be changed: U, T                                                     | Scaling: -   |                |             | Dyn. index: DDS, p0180                                                     |            |      |
| Units group: -                                                            | Unit selection: - |             |             | Dyn. index: 6310                                                           |            |      |
| Min -300.00 [%] Max 300.00 [%]                                            | Factory setting 0.00 [%] |         |             |                                                                          |            |      |
| Description:                                                              |              |                |             |                                                                             |            |      |
| Dependency:                                                               |              |                |             | When setting p1351 > 0, then slip compensation is automatically activated (p1335 = 100 %). |            |      |
| Note:                                                                    |              |                |             | Refer to: p1302, p1352                                                     |            |      |
| Notice:                                                                  |              |                |             | A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set. |            |      |
| Note:                                                                    |              |                |             | Connected with p1352 a value of 100% corresponds to the motor rated slip (r0330). |            |      |

| p1352[0...n] CI: Motor holding brake starting frequency signal source / Brake f_start | 3            | T              | -           | Sets the signal source for the frequency setting value at the slip compensation output for starting up with motor holding brake. |            |      |
| Access level: 3                                                           | Calculated: -|                |             | Data type: U32 / FloatingPoint32                                            |            |      |
| Can be changed: T                                                         | Scaling: -   |                |             | Dyn. index: CDS, p0170                                                      |            |      |
| Units group: -                                                            | Unit selection: - |             |             | Dyn. index: 6310                                                           |            |      |
| Min 1351[0] Max 1351[0]                                                 | Factory setting 1351[0] |         |             |                                                                          |            |      |
| Description:                                                              |              |                |             |                                                                             |            |      |
| Dependency:                                                               |              |                |             | Refer to: p1216                                                            |            |      |
| Note:                                                                    |              |                |             | A value of 100% corresponds to the motor rated slip (r0330).               |            |      |
| Note:                                                                    |              |                |             | The setting of the starting frequency begins after magnetizing (see p0346, r0056.4) and ends once the brake opening time (p1216) has elapsed and the starting frequency (p1334) has been reached. |            |      |
| Note:                                                                    |              |                |             | A setting value of zero means that no setting procedure will take place.    |            |      |
### r1406.4...15 CO/BO: Control word speed controller / STW n_ctrl

<table>
<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>04</td>
<td>Hold speed controller I component</td>
<td>Yes</td>
<td>No</td>
<td>6040</td>
</tr>
<tr>
<td>05</td>
<td>Set speed controller I component</td>
<td>Yes</td>
<td>No</td>
<td>6040</td>
</tr>
<tr>
<td>11</td>
<td>Droop enable</td>
<td>Yes</td>
<td>No</td>
<td>6030</td>
</tr>
<tr>
<td>15</td>
<td>Set speed adaptation controller I component</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:** Displays the control word of the speed controller.

### r1407.0...17 CO/BO: Status word speed controller / ZSW n_ctrl

<table>
<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>U/f control active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Encoderless operation active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Torque control active</td>
<td>Yes</td>
<td>No</td>
<td>6040, 6060, 8010</td>
</tr>
<tr>
<td>03</td>
<td>Speed control active</td>
<td>Yes</td>
<td>No</td>
<td>6040</td>
</tr>
<tr>
<td>05</td>
<td>Speed controller I component frozen</td>
<td>Yes</td>
<td>No</td>
<td>6040</td>
</tr>
<tr>
<td>06</td>
<td>Speed controller I component set</td>
<td>Yes</td>
<td>No</td>
<td>6040</td>
</tr>
<tr>
<td>07</td>
<td>Torque limit reached</td>
<td>Yes</td>
<td>No</td>
<td>6060</td>
</tr>
<tr>
<td>08</td>
<td>Upper torque limit active</td>
<td>Yes</td>
<td>No</td>
<td>6060</td>
</tr>
<tr>
<td>09</td>
<td>Lower torque limit active</td>
<td>Yes</td>
<td>No</td>
<td>6060</td>
</tr>
<tr>
<td>10</td>
<td>Droop enabled</td>
<td>Yes</td>
<td>No</td>
<td>6030</td>
</tr>
<tr>
<td>11</td>
<td>Speed setpoint limited</td>
<td>Yes</td>
<td>No</td>
<td>6030</td>
</tr>
<tr>
<td>12</td>
<td>Ramp-function generator set</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
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<tr>
<td>13</td>
<td>Encoderless operation due to a fault</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
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<tr>
<td>14</td>
<td>I/f control active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Torque limit reached (without pre-control)</td>
<td>Yes</td>
<td>No</td>
<td>6060</td>
</tr>
<tr>
<td>17</td>
<td>Speed limiting control active</td>
<td>Yes</td>
<td>No</td>
<td>6640</td>
</tr>
</tbody>
</table>

**Description:** Displays the status word of the speed controller.
### Parameters

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Separately excited synchronous motor is excited</td>
<td>3</td>
<td>-</td>
<td>3_1</td>
<td>- [rpm]</td>
<td>- [rpm]</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Current model FEM: magnetizing excitation current limited to 0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**r1438**

**CO: Speed controller speed setpoint / \( n_{\text{ctrl}} \) \( n_{\text{set}} \)**

- **Access level:** 3
- **Calculated:** -
- **Scaling:** p2000
- **Unit selection:** p0505
- **Data type:** FloatingPoint32
- **Dyn. index:** -
- **Func. diagram:** 1550, 1590, 1700, 5630, 5040, 5042, 5210, 5300, 5620, 6031, 6040

**Description:**
Display and connector output of the speed setpoint after setpoint limiting for the P component of the speed controller.
For U/f operation, the value that is displayed is of no relevance.

**r1445**

**CO: Actual speed smoothed / \( n_{\text{act}} \) smooth**

- **Access level:** 4
- **Calculated:** -
- **Scaling:** p2000
- **Unit selection:** p0505
- **Data type:** FloatingPoint32
- **Dyn. index:** -
- **Func. diagram:** 6040

**Description:**
Displays the actual smoothed actual speed for speed control.

**p1452[0...n]**

**Speed controller speed actual value smoothing time (SLVC) / \( n_{\text{C}} \) \( n_{\text{act}} \) \( T_s \) SLVC**

- **Access level:** 2
- **Calculated:** -
- **Scaling:** -
- **Unit selection:** -
- **Data type:** FloatingPoint32
- **Dyn. index:** DDS, p0180
- **Func. diagram:** 1700, 6040

**Description:**
Sets the smoothing time for the actual speed of the speed controller for encoderless closed-loop speed control.
The smoothing must be increased if there is gear backlash. For longer smoothing times, the integral time of the speed controller must also be increased (e.g. using \( p0340 = 4 \)).

**p1470[0...n]**

**Speed controller encoderless operation P-gain / \( n_{\text{ctrl}} \) SLVC \( K_p \)**

- **Access level:** 2
- **Calculated:** \( p0340 = 1,3,4 \)
- **Scaling:** -
- **Unit selection:** -
- **Data type:** FloatingPoint32
- **Dyn. index:** DDS, p0180
- **Func. diagram:** 6040, 6050

**Description:**
Sets the P gain for encoderless operation for the speed controller.
The product \( p0341 \times p0342 \) is taken into account when automatically calculating the speed controller (\( p0340 = 1,3,4 \)).

**p1472[0...n]**

**Speed controller encoderless operation integral time / \( n_{\text{ctrl}} \) SLVC \( T_n \)**

- **Access level:** 2
- **Calculated:** \( p0340 = 1,3,4 \)
- **Scaling:** -
- **Unit selection:** -
- **Data type:** FloatingPoint32
- **Dyn. index:** DDS, p0180
- **Func. diagram:** 6040, 6050

**Description:**
Set the integral time for encoderless operation for the speed controller.
Note: The integral component is stopped if the complete controller output or the sum of controller output and torque pre-control reach the torque limit.

**p1475[0...n]**  
**CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB**  
Access level: 3  
Can be changed: T  
Units group: -  
Min  
Max  
Factory setting  
Description: Sets the signal source for the torque setting value when starting up with motor holding brake.  
Dependency:  
Note: The setting of the integral output of the speed controller begins after magnetizing (see p0346, r0056 bit 4) and ends at the end of the brake control opening time p1216. A setting value of zero means that no setting procedure will take place.  
If p1351 is used as a signal source for the torque setting value, the percentage value is interpreted in relation to the rated torque (p2003).

**r1482**  
**CO: Speed controller I torque output / n_ctrl I-M_outp**  
Access level: 3  
Can be changed: -  
Units group: 7_1  
Min  
Max  
Factory setting  
Description: Display and connector output for the torque setpoint at the output of the I speed controller.  

**r1493**  
**CO: Moment of inertia total / M_inertia total**  
Access level: 3  
Can be changed: -  
Units group: 25_1  
Min  
Max  
Factory setting  
Description: Displays the parameterized total moment of inertia ((p0341 * p0342) * p1496).

**p1496[0...n]**  
**Acceleration pre-control scaling / a_prectrl scal**  
Access level: 3  
Can be changed: U, T  
Units group: -  
Min  
Max  
Factory setting  
Description: Sets the scaling for the acceleration pre-control of the speed/velocity controller.  
Dependency:  
Warning: The acceleration precontrol r1518 is kept at the old value if the ramp-function generator tracking (r1199.5) is active or the ramp-function generator output is set (r1199.3). This is used to avoid torque peaks. Depending on the application, it may therefore be necessary to disable the ramp-function generator tracking (p1145 = 0) or the acceleration precontrol (p1496 = 0).  
The acceleration precontrol is set to zero, if the Vdc control is active (r0056.14/15).  
Note: The parameter is set to 100% by the rotating measurement (refer to p1960).  
The acceleration pre-control may not be used if the speed setpoint manifests significant ripple (e.g. analog setpoint) and the rounding-off in the speed ramp-function generator is disabled.  
We also recommend that the pre-control mode is not used if there is gearbox backlash.
### Parameters

#### List of parameters

**r1508**

**CO: Torque setpoint before supplementary torque / M_set bef. M_suppl**

- **Access level:** 4
- **Can be changed:** -
- **Units group:** 7_1
- **Min:** [Nm]
- **Max:** [Nm]

<table>
<thead>
<tr>
<th>Description:</th>
<th>Displays the torque setpoint before entering the supplementary torque. For closed-loop speed control, r1508 corresponds to the speed controller output.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data type:</strong></td>
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<tr>
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<td><strong>Scaling:</strong></td>
<td>p2003</td>
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<td><strong>Dyn. index:</strong></td>
<td>-</td>
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<tr>
<td><strong>Func. diagram:</strong></td>
<td>6030, 6060, 6722</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
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<tr>
<td><strong>Min:</strong></td>
<td>- [Nm]</td>
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<tr>
<td><strong>Max:</strong></td>
<td>- [Nm]</td>
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<tr>
<td><strong>Units group:</strong></td>
<td>p0505</td>
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<tr>
<td><strong>Unit selection:</strong></td>
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<tr>
<td><strong>Factory setting:</strong></td>
<td>- [Nm]</td>
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<tr>
<td><strong>Access level:</strong></td>
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<td><strong>Data type:</strong></td>
<td>U32 / FloatingPoint32</td>
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<td><strong>Scaling:</strong></td>
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<td>CDS, p0170</td>
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<tr>
<td><strong>Func. diagram:</strong></td>
<td>5060, 6060</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
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<td>-</td>
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<tr>
<td><strong>Factory setting:</strong></td>
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**p1511[0...n]**

**CI: Supplementary torque 1 / M_suppl 1**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Sets the signal source for supplementary torque 1.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
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<tr>
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<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Min:</strong></td>
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<td><strong>Calculated:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Scaling:</strong></td>
<td>p2003</td>
</tr>
<tr>
<td><strong>Dyn. index:</strong></td>
<td>CDS, p0170</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>5060, 6060</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Unit selection:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Factory setting:</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

**r1515**

**Supplementary torque total / M_suppl total**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Displays the total supplementary torque. The displayed value is the total of supplementary torque values 1 and 2.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>7_1</td>
</tr>
<tr>
<td><strong>Min:</strong></td>
<td>[Nm]</td>
</tr>
<tr>
<td><strong>Max:</strong></td>
<td>[Nm]</td>
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<tr>
<td><strong>Data type:</strong></td>
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</tr>
<tr>
<td><strong>Calculated:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Scaling:</strong></td>
<td>p2003</td>
</tr>
<tr>
<td><strong>Dyn. index:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>5040, 5060</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>p0505</td>
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<tr>
<td><strong>Unit selection:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Factory setting:</strong></td>
<td>- [Nm]</td>
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</table>

**r1516**

**CO: Supplementary torque and acceleration torque / M_suppl + M_accel**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Displays the total supplementary torque and the accelerating torque. The displayed value is the total of the smoothed supplementary torque and the accelerating torque.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>7_1</td>
</tr>
<tr>
<td><strong>Min:</strong></td>
<td>[Nm]</td>
</tr>
<tr>
<td><strong>Max:</strong></td>
<td>[Nm]</td>
</tr>
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<td><strong>Data type:</strong></td>
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</tr>
<tr>
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<td>p2003</td>
</tr>
<tr>
<td><strong>Dyn. index:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>6060</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>p0505</td>
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<td><strong>Unit selection:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Factory setting:</strong></td>
<td>- [Nm]</td>
</tr>
</tbody>
</table>

**p1517[0...n]**

**Accelerating torque smoothing time constant / M_accel T_smooth**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Sets the smoothing time constant of the accelerating torque. The acceleration pre-control is inhibited if the smoothing is set to the maximum value.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
</tr>
<tr>
<td><strong>Units group:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Min:</strong></td>
<td>0.00 [ms]</td>
</tr>
<tr>
<td><strong>Max:</strong></td>
<td>100.00 [ms]</td>
</tr>
<tr>
<td><strong>Data type:</strong></td>
<td>FloatingPoint32</td>
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<tr>
<td><strong>Calculated:</strong></td>
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</tr>
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<td><strong>Scaling:</strong></td>
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<td><strong>Dyn. index:</strong></td>
<td>DDS, p0180</td>
</tr>
<tr>
<td><strong>Func. diagram:</strong></td>
<td>6060</td>
</tr>
</tbody>
</table>

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Danger</th>
<th>Notice</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1520[0...n]</td>
<td><strong>CO: Torque limit upper / M_max upper</strong></td>
<td>Access level: 2</td>
<td>Sets the fixed, upper torque limit.</td>
<td>Negative values when setting the upper torque limit (p1520 &lt; 0) can result in the motor accelerating in an uncontrollable fashion.</td>
<td>The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).</td>
</tr>
<tr>
<td>Access level: 2</td>
<td>Calculated: p0340 = 1,3,5</td>
<td>Data type: FloatingPoint32</td>
<td>Dyn. index: DDS, p0180</td>
<td>Func. diagram: 1700, 6630</td>
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</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: p2003</td>
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<td></td>
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</tr>
<tr>
<td>Units group: 7_1</td>
<td>Unit selection: p0505</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Min -1000000.00 [Nm]</td>
<td>Max 2000000.00 [Nm]</td>
<td>Factory setting 0.00 [Nm]</td>
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<tr>
<td>p1521[0...n]</td>
<td><strong>CO: Torque limit lower / M_max lower</strong></td>
<td>Access level: 2</td>
<td>Sets the fixed, lower torque limit.</td>
<td>Positive values when setting the lower torque limit (p1521 &gt; 0) can result in the motor accelerating in an uncontrollable fashion.</td>
<td>The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).</td>
</tr>
<tr>
<td>Access level: 2</td>
<td>Calculated: p0340 = 1,3,5</td>
<td>Data type: FloatingPoint32</td>
<td>Dyn. index: DDS, p0180</td>
<td>Func. diagram: 1700, 6630</td>
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</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: p2003</td>
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<td>Units group: 7_1</td>
<td>Unit selection: p0505</td>
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<tr>
<td>Min -2000000.00 [Nm]</td>
<td>Max 1000000.00 [Nm]</td>
<td>Factory setting 0.00 [Nm]</td>
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<td></td>
<td></td>
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<tr>
<td>p1522[0...n]</td>
<td><strong>CI: Torque limit upper / M_max upper</strong></td>
<td>Access level: 3</td>
<td>Sets the signal source for the upper torque limit.</td>
<td>Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.</td>
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<tr>
<td>Access level: 3</td>
<td>Calculated: -</td>
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<td>Func. diagram: 6630</td>
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<td>Unit selection: -</td>
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<tr>
<td>Min -</td>
<td>Max -</td>
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<tr>
<td>p1523[0...n]</td>
<td><strong>CI: Torque limit lower / M_max lower</strong></td>
<td>Access level: 3</td>
<td>Sets the signal source for the lower torque limit.</td>
<td></td>
<td></td>
</tr>
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<td>Calculated: -</td>
<td>Data type: U32 / FloatingPoint32</td>
<td>Dyn. index: CDS, p0170</td>
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<td>Scaling: p2003</td>
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<td>Unit selection: -</td>
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<tr>
<td>Min -</td>
<td>Max -</td>
<td>Factory setting 1521[0]</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Danger: Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

### p1524[0...n] CO: Torque limit upper/motoring scaling / M_max up/mot scal

- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min:** -2000.0 [%]
- **Max:** 2000.0 [%]
- **Factory setting:** 100.0 [%]

**Description:** Sets the scaling for the upper torque limit or the torque limit when motoring.

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Note:** This parameter can be freely interconnected.

### p1525[0...n] CO: Torque limit lower scaling / M_max lower scal

- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min:** -2000.0 [%]
- **Max:** 2000.0 [%]
- **Factory setting:** 100.0 [%]

**Description:** Sets the scaling for the lower torque limit.

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Note:** This parameter can be freely interconnected.

### r1526 CO: Torque limit upper without offset / M_max up w/o offs

- **Access level:** 3
- **Can be changed:** -
- **Units group:** 7_1
- **Min:** - [Nm]
- **Max:** - [Nm]
- **Factory setting:** - [Nm]

**Description:** Displays the upper torque limit of all torque limits without offset.

**Dependency:** Refer to: p1520, p1521, p1522, p1523

### r1527 CO: Torque limit lower without offset / M_max low w/o offs

- **Access level:** 3
- **Can be changed:** -
- **Units group:** 7_1
- **Min:** - [Nm]
- **Max:** - [Nm]
- **Factory setting:** - [Nm]

**Description:** Displays the lower torque limit of all torque limits without offset.

**Dependency:** Refer to: p1520, p1521, p1522, p1523

### p1530[0...n] Power limit motoring / P_max mot

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** 14_5
- **Min:** 0.00 [kW]
- **Max:** 100000.00 [kW]
- **Factory setting:** 0.00 [kW]

**Description:** Sets the power limit when motoring.

**Dependency:** Refer to: p0500, p1531

**Note:** The power limit is limited to 300% of the rated motor power.
p1531[0...n] | Power limit regenerative / P\_max gen
--- | ---
Access level: 2 | Calculated: p0340 = 1,3,5
Can be changed: U, T | Data type: FloatingPoint32
Units group: 14_5 | Dyn. index: DDS, p0180
Min | Unit selection: p0505
-100000.00 [kW] | Dyn. index: DDS, p0180
Max | Factory setting
-0.01 [kW] |

**Description:** Sets the regenerative power limit.

**Dependency:** Refer to: r0206, p0500, p1530

**Note:**
- The power limit is limited to 300% of the rated motor power.
- For power units without energy recovery capability, the regenerative power limit is preset to 30% of the power r0206[0]. For a braking resistor connected to the DC link (p0219 > 0), the power limit when generating is automatically adapted.
- For power units with energy recovery, the parameter is limited to the negative value of r0206[2].

r1533 | Current limit torque-generating total / I\_q\_max total
--- | ---
Access level: 4 | Calculated: -
Can be changed: - | Data type: FloatingPoint32
Units group: 6_2 | Dyn. index: -
Min | Unit selection: p0505
- [Arms] | Func. diagram: 5640, 5722, 6640
Max | - [Arms]

**Description:** Displays the maximum torque/force generating current as a result if all current limits.

r1538 | CO: Upper effective torque limit / M\_max upper eff
--- | ---
Access level: 2 | Calculated: -
Can be changed: - | Data type: FloatingPoint32
Units group: 7_1 | Dyn. index: -
Min | Unit selection: p0505
- [Nm] | Func. diagram: 1610, 1700, 5610, 5650, 6060, 6640
Max | - [Nm]

**Description:** Displays the currently effective upper torque limit.

**Note:**
- The effective upper torque limit is reduced with respect to the selected upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.
- This may be the case for rotating measurements (see p1960).
- The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

r1539 | CO: Lower effective torque limit / M\_max lower eff
--- | ---
Access level: 2 | Calculated: -
Can be changed: - | Data type: FloatingPoint32
Units group: 7_1 | Dyn. index: -
Min | Unit selection: p0505
- [Nm] | Func. diagram: 1610, 1700, 5610, 5650, 6060, 6640
Max | - [Nm]

**Description:** Displays the currently effective lower torque limit.

**Note:**
- The effective lower torque limit is reduced with respect to the selected lower torque limit p1521, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.
- This may be the case for rotating measurements (see p1960).
- The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.
## List of parameters

### r1547[0...1]  
**CO: Torque limit for speed controller output / M_max outp n_ctrl**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Displays the torque limit to limit the speed controller output.</td>
<td>[0] = Upper limit, [1] = Lower limit</td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>7_1</td>
<td></td>
</tr>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>U32 / FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
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<tr>
<td>Calculated</td>
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<tr>
<td>Dyn. index</td>
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<tr>
<td>Data type</td>
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<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
</tbody>
</table>

### p1552[0...n]  
**CI: Torque limit upper scaling without offset / M_max up w/o offs**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Sets the signal source for the scaling of the upper torque limiting to limit the speed controller output without taking into account the current and power limits.</td>
<td>[0] = Upper limit</td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td>[1] = Lower limit</td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>U32 / FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
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<tr>
<td>Data type</td>
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<tr>
<td>Calculated</td>
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</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
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<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
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</tr>
<tr>
<td>Calculated</td>
<td>-</td>
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<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
</tbody>
</table>

### p1553[0...n]  
**Stall limit scaling / Stall limit scal**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Sets the scaling of the stall limit for the start of field weakening.</td>
<td>80.0 [%] 130.0 [%] 100.0 [%]</td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Access level</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
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<td></td>
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<tr>
<td>Data type</td>
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<tr>
<td>Calculated</td>
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<td>Dyn. index</td>
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<td>Dyn. index</td>
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<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
</tbody>
</table>

### p1554[0...n]  
**CI: Torque limit lower scaling without offset / M_max low w/o offs**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Sets the signal source for the scaling of the lower torque limiting to limit the speed controller output without taking into account the current and power limits.</td>
<td>[-]</td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>U32 / FloatingPoint32</td>
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<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
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<td></td>
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<tr>
<td>Data type</td>
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<tr>
<td>Calculated</td>
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<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
</tbody>
</table>

### p1570[0...n]  
**CO: Flux setpoint / Flex setp**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Sets the flux setpoint referred to rated motor flux.</td>
<td>50.0 [%] 200.0 [%] 100.0 [%]</td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Dyn. index</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
</tbody>
</table>

**Notice:**
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

**Note:**
For p1570 > 100%, the flux setpoint increases as a function of the load from 100% (no-load operation) to the setting in p1570 (above rated motor torque), if p1580 > 0% has been set.
### p1580[0...n] Efficiency optimization / Efficiency opt.

**Access level:** 3  
**Can be changed:** U, T  
**Units group:**  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 [%]</td>
<td>100 [%]</td>
</tr>
</tbody>
</table>

**Data type:** FloatingPoint32  
**Dyn. index:** DDS, p0180  
**Func. diagram:** 6722

**Description:** Sets the efficiency optimization.

When optimizing the efficiency, the flux setpoint of the closed-loop control is adapted as a function of the load.

For p1580 = 100 %, under no-load operating conditions, the flux setpoint is reduced to 50 % of the rated motor flux.

**Note:**

It only makes sense to activate this function if the dynamic response requirements of the speed controller are low. In order to avoid oscillations, if required, the speed controller parameters should be adapted (increase Tn, reduce Kp).

Further, the smoothing time of the flux setpoint filter (p1582) should be increased.

### p1582[0...n] Flux setpoint smoothing time / Flux setp T_smth

**Access level:** 4  
**Can be changed:** U, T  
**Units group:**  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 [ms]</td>
<td>5000 [ms]</td>
</tr>
</tbody>
</table>

**Data type:** FloatingPoint32  
**Dyn. index:** DDS, p0180  
**Func. diagram:** 6722, 6724

**Description:** Sets the smoothing time for the flux setpoint.

### r1598 CO: Total flux setpoint / Flux setp total

**Access level:** 3  
**Can be changed:** -  
**Units group:**  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [%]</td>
<td>- [%]</td>
</tr>
</tbody>
</table>

**Data type:** FloatingPoint32  
**Dyn. index:** -  
**Func. diagram:** 6714, 6723, 6724, 6725, 6726, 8018

**Description:** Displays the effective flux setpoint. The value is referred to the rated motor flux.

### p1610[0...n] Torque setpoint static (SLVC) / M_set static

**Access level:** 2  
**Can be changed:** U, T  
**Units group:**  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-200.0 [%]</td>
<td>200.0 [%]</td>
</tr>
</tbody>
</table>

**Data type:** FloatingPoint32  
**Dyn. index:** DDS, p0180  
**Func. diagram:** 1710, 6721, 6722, 6726

**Description:** Sets the static torque setpoint for sensorless vector control (SLVC).

This parameter is entered as a percentage referred to the rated motor torque. For sensorless vector control, when the motor model is shut down, an absolute current is impressed. p1610 represents the maximum load that occurs at a constant setpoint speed.

**Notice:**

p1610 should always be set to at least 10 % higher than the maximum steady-state load that can occur.

**Note:**

For p1610 = 0%, a current setpoint is calculated that corresponds to the no-load case (ASM: rated magnetizing current).

For p1610 = 100 %, a current setpoint is calculated that corresponds to the rated motor torque. Negative values are converted into positive setpoints in the case of induction and permanent-magnet synchronous motors.
### p1611[0...n] Supplementary accelerating torque (SLVC) / M_suppl_accel

Access level: 2  
Can be changed: U, T  
Units group: -  
Accessed: p0340 = 1  
Scaling: -  
Unit selection: -  
Data type: FloatingPoint32  
Dyn. index: DDS, p0180  
Func. diagram: 1710, 6721, 6722, 6726

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 [%]</td>
<td>200.0 [%]</td>
<td>30.0 [%]</td>
</tr>
</tbody>
</table>

**Description:**
Enteres the dynamic torque setpoint for the low-speed range for sensorless vector control (SLVC). This parameter is entered as a percentage referred to the rated motor torque.

**Note:**
When accelerating and braking p1611 is added to p1610 and the resulting total torque is converted into an appropriate current setpoint and controlled.

For pure accelerating torques, it is always favorable to use the torque pre-control of the speed controller (p1496).

### r1614 EMF maximum / EMF max

Access level: 4  
Can be changed: -  
Units group: 5_1  
Min: - [Vrms]  
Max: - [Vrms]  
Factory setting: - [Vrms]  
Calculated: -  
Scaling: p2001  
Unit selection: p0505  
Data type: FloatingPoint32  
Dyn. index: -  
Func. diagram: 6725

**Description:**
Displays the actual maximum possible electromotive force (EMF) of the separately-excited synchronous motor.

**Dependency:**
The value is the basis for the flux setpoint. The maximum possible EMF depends on the following factors:
- Actual DC link voltage (r0070).
- Maximum modulation depth (p1803).
- Field-generating and torque-generating current setpoint.

### r1624 Field-generating current setpoint total / Id_setp total

Access level: 4  
Can be changed: -  
Units group: 6_2  
Min: - [Arms]  
Max: - [Arms]  
Factory setting: - [Arms]  
Calculated: -  
Scaling: p2002  
Unit selection: p0505  
Data type: FloatingPoint32  
Dyn. index: -  
Func. diagram: 6640, 6721, 6723, 6727

**Description:**
Displays the limited field-generating current setpoint (Id_set).

This value comprises the steady-state field-generating current setpoint and a dynamic component that is only set when changes are made to the flux setpoint.

### p1730[0...n] Isd controller integral component shutdown threshold / Isd_ctr I_compDeac

Access level: 4  
Can be changed: U, T  
Units group: -  
Min: 30 [%]  
Max: 150 [%]  
Factory setting: 30 [%]  
Calculated: p0340 = 1,3,4  
Scaling: -  
Unit selection: -  
Data type: FloatingPoint32  
Dyn. index: DDS, p0180  
Func. diagram: -

**Description:**
Sets the speed activation threshold (referred to the synchronous speed) for pure quadrature branch operation of the closed-loop current control.

The d current controller is only effective as P controller for speeds greater than the threshold value.

**Warning:**
For settings above 80%, the d current controller is active up to the field weakening limit. When operated at the voltage limit, this can result in an unstable behavior. In order to avoid this, the dynamic voltage reserve p1574 should be increased.

**Note:**
The parameter value is referred to the synchronous rated motor speed.
**Parameters**

**List of parameters**

---

**r1732[0...1]**

**CO: Direct-axis voltage setpoint / Direct U set**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Displays the direct-axis voltage setpoint Ud.</th>
</tr>
</thead>
</table>
| Index:       | [0] = Unsmoothed  
[1] = Smoothed with p0045 |

---

**r1733[0...1]**

**CO: Quadrature-axis voltage setpoint / Quad U set**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Displays the quadrature-axis component of voltage setpoint Uq.</th>
</tr>
</thead>
</table>
| Index:       | [0] = Unsmoothed  
[1] = Smoothed with p0045 |

---

**p1745[0...n]**

**Motor model error threshold stall detection / MotMod ThreshStall**

| Description: | Sets the fault threshold in order to detect a motor that has stalled.  
If the error signal (r1746) exceeds the parameterized error threshold, then status signal r1408.12 is set to 1.  
Dependency: | If a stalled drive is detected (r1408.12 = 1), fault F07902 is output after the delay time.  
Note: | Monitoring is only effective in the low speed range. |

---

**r1746**

**Motor model error signal stall detection / MotMod sig stall**

<table>
<thead>
<tr>
<th>Description:</th>
<th>Signal to initiate stall detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note:</td>
<td>The signal is not calculated while magnetizing and only calculated in the low speed range.</td>
</tr>
</tbody>
</table>

---

**p1749[0...n]**

**Motor model increase changeover speed encoderless operation / Incr n_chng no enc**

| Description: | Minimum operating frequency for rugged operation.  
If the minimum value is greater than the lower changeover limit parameterized with p1755 * (1 - 2 * p1756), then the difference is displayed using p1749 * p1755. The parameter value cannot be changed. |
|--------------|-------------------------------------------------|

---
### List of parameters

#### Dependency:
Refer to: p1755, p1756

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1755[0...n]</td>
<td>Motor model changeover speed encoderless operation / MotMod n_chgSnsorl</td>
<td>Sets the speed to change over the motor model to encoderless operation.</td>
<td>Refer to: p1749, p1756</td>
<td>The changeover speed represents the steady-state minimum speed up to which the motor model can be used in sensorless steady-state operation. If the stability is not adequate close to the changeover speed, it may make sense to increase the parameter value. On the other hand, very low changeover speeds can negatively impact the stability.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The changeover speed applies for the changeover between open-loop and closed-loop control mode.</td>
</tr>
<tr>
<td>p1756</td>
<td>Motor model changeover speed hysteresis encoderless operation / MotMod n_chgov hys</td>
<td>Sets the hysteresis for the changeover speed of the motor model for encoderless operation.</td>
<td></td>
<td>The parameter value refers to p1755. Extremely small hystereses can have a negative impact on the stability in the changeover speed range, and very high hystereses in the standstill range.</td>
</tr>
<tr>
<td>p1764[0...n]</td>
<td>Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp</td>
<td>Sets the proportional gain of the controller for speed adaptation without encoder.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1767[0...n]</td>
<td>Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn</td>
<td>Sets the integral time of the controller for speed adaptation without encoder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p1780[0...n]</td>
<td>Motor model adaptation configuration / MotMod adapt conf</td>
<td>Sets the configuration for the adaptation circuit of the motor model.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Induction motor (ASM): Rs, Lh, and offset compensation.
Permanent magnet synchronous motor (PEM): kT

**Dependency:**
In U/f characteristic operating mode only bit 7 is relevant.
For active motor model feedback (see p1784), the Lh adaptation is internally deactivated automatically.

**Note:**
ASM: Induction motor
PEM: Permanent magnet synchronous motor
When selecting the compensation of the valve interlocking via Rs (bit 7), the compensation in the gating unit is de-activated and is instead taken into account in the motor model.
In order that the correction values of the Rs, Lh and kT adaptation (selected using bit 0 ... bit 2) are correctly accepted when changing over the drive data set, a dedicated motor number must be entered for each different motor.

### p1784[0...n] Motor model feedback scaling / MotMod fdbk scal

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Select motor model ASM Rs adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Select motor model ASM Lh adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Select motor model PEM kT adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Select motor model offset adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Select pole position identification PEM</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Select T(valve) with Rs adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Filter time combination current like current ctrl integral time</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Dependency:**
In U/f characteristic operating mode only bit 7 is relevant.
For active motor model feedback (see p1784), the Lh adaptation is internally deactivated automatically.

**Note:**
ASM: Induction motor
PEM: Permanent magnet synchronous motor
When selecting the compensation of the valve interlocking via Rs (bit 7), the compensation in the gating unit is de-activated and is instead taken into account in the motor model.
In order that the correction values of the Rs, Lh and kT adaptation (selected using bit 0 ... bit 2) are correctly accepted when changing over the drive data set, a dedicated motor number must be entered for each different motor.

### r1787[0...n] Motor model Lh adaptation corrective value / MotMod Lh corr

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Select motor model ASM Rs adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Select motor model ASM Lh adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Select motor model PEM kT adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Select motor model offset adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Select pole position identification PEM</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Select T(valve) with Rs adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Filter time combination current like current ctrl integral time</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Dependency:**
In U/f characteristic operating mode only bit 7 is relevant.
For active motor model feedback (see p1784), the Lh adaptation is internally deactivated automatically.

**Note:**
ASM: Induction motor
PEM: Permanent magnet synchronous motor
When selecting the compensation of the valve interlocking via Rs (bit 7), the compensation in the gating unit is de-activated and is instead taken into account in the motor model.
In order that the correction values of the Rs, Lh and kT adaptation (selected using bit 0 ... bit 2) are correctly accepted when changing over the drive data set, a dedicated motor number must be entered for each different motor.

### p1800[0...n] Pulse frequency setpoint / Pulse freq setp

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Select motor model ASM Rs adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Select motor model ASM Lh adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Select motor model PEM kT adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Select motor model offset adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Select pole position identification PEM</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Select T(valve) with Rs adaptation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Filter time combination current like current ctrl integral time</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Dependency:**
In U/f characteristic operating mode only bit 7 is relevant.
For active motor model feedback (see p1784), the Lh adaptation is internally deactivated automatically.

**Note:**
ASM: Induction motor
PEM: Permanent magnet synchronous motor
When selecting the compensation of the valve interlocking via Rs (bit 7), the compensation in the gating unit is de-activated and is instead taken into account in the motor model.
In order that the correction values of the Rs, Lh and kT adaptation (selected using bit 0 ... bit 2) are correctly accepted when changing over the drive data set, a dedicated motor number must be entered for each different motor.

### p1784[0...n] Motor model feedback scaling / MotMod fdbk scal

- **Access level:** 4
- **Calculated:** p0340 = 1,3,4
- **Data type:** FloatingPoint32
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** -

**Min:** 0.0 [%]  
**Max:** 1000.0 [%]  
**Factory setting:** 0.0 [%]

**Description:**
Sets the scaling for model fault feedback.

**Note:**
Feeding back the measured model fault to the model states increases the control stability and makes the motor model rugged against parameter errors.
When feedback is selected (p1784 > 0), Lh adaptation is not effective.

### r1787[0...n] Motor model Lh adaptation corrective value / MotMod Lh corr

- **Can be changed:** -
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** -

**Min:** - [mH]  
**Max:** - [mH]  
**Factory setting:** - [mH]

**Description:**
Displays the corrective value for the Lh adaptation of the motor model for an induction motor (ASM).

**Dependency:**
Refer to: p0826, p1780

**Note:**
The adaptation result is reset if the magnetizing inductance of the induction motor is changed (p0360, r0382).

### p1800[0...n] Pulse frequency setpoint / Pulse freq setp

- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** DDS, p0180
- **Units group:** -
- **Unit selection:** -
- **Func. diagram:** -

**Min:** 2.000 [kHz]  
**Max:** 16.000 [kHz]  
**Factory setting:** 4.000 [kHz]

**Description:**
Sets the pulse frequency for the converter.
This parameter is pre-set to the rated converter value when the drive is first commissioned.

**Dependency:**
Refer to: p0230
Note: The maximum possible pulse frequency is also determined by the power unit being used.

When the pulse frequency is increased, depending on the particular power unit, the maximum output current can be reduced (derating, refer to r0067).

If a sine-wave filter is parameterized as output filter (p0230 = 3), then the pulse frequency cannot be set below the minimum value required for the filter.

For operation with output reactors, the pulse frequency is limited to 4 kHz (see p0230).

If p1800 is changed during commissioning (p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1800 have been changed by a parameter that was set when the drive was commissioned (e.g. p1082).

**r1801[0...1]**

CO: Pulse frequency / Pulse frequency

| Access level: | 2 |
| Calculated: | - |
| Can be changed: | - |
| Scaling: | p2000 |
| Units group: | - |
| Unit selection: | - |
| Min | kHz |
| Max | kHz |

**Description:**
Display and connector output for the actual converter switching frequency.

**Index:**

0 = Actual

1 = Modulator minimum value

**Note:**
The selected pulse frequency (p1800) may be reduced if the drive converter has an overload condition (p0290).

**p1802[0...n]**

Modulator mode / Modulator mode

| Access level: | 4 |
| Calculated: | p0340 = 1,3,5 |
| Can be changed: | T |
| Scaling: | - |
| Units group: | - |
| Unit selection: | - |
| Min | 0 |
| Max | 10 |

**Description:**
Sets the modulator mode.

**Value:**

0: Automatic changeover SVM/FLB

2: Space vector modulation (SVM)

3: SVM without overcontrol

4: SVM/FLB without overcontrol

10: SVM/FLB with modulation depth reduction

**Dependency:**
If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only space vector modulation without over-control can be selected as modulation type (p1802 = 3). This does not apply to power units PM260.

p1802 = 10 can only be set for power units PM230 and PM240 and for r0204.15 = 0.

Refer to: p0230, p0500

**Note:**
When modulation modes are enabled that could lead to overmodulation (p1802 = 0, 2, 10), the modulation depth must be limited using p1803 (default, p1803 < 100 %). The higher the overmodulation, the greater the current ripple and torque ripple.

When changing p1802[x], the values for all of the other existing indices are also changed.

**p1803[0...n]**

Maximum modulation depth / Modulat depth max

| Access level: | 4 |
| Calculated: | p0340 = 1,3,5 |
| Can be changed: | U, T |
| Scaling: | - |
| Units group: | - |
| Unit selection: | - |
| Min | 20.0 [%] |
| Max | 150.0 [%] |

**Description:**
Defines the maximum modulation depth.

**Dependency:**
Refer to: p0500

**Note:**
p1803 = 100% is the overcontrol limit for space vector modulation (for an ideal drive converter without any switching delay).
Parameters

List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p1806[0...n]</strong></td>
<td>Filter time constant Vdc correction / T_filt Vdc_corr</td>
<td>4</td>
<td>U, T</td>
<td>-</td>
<td>0.0 [ms]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10000.0 [ms]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0 [ms]</td>
</tr>
<tr>
<td><strong>p1820[0...n]</strong></td>
<td>Reverse the output phase sequence / Outp_ph_seq rev</td>
<td>2</td>
<td>C(2), T</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>p1822</strong></td>
<td>Power unit line phases monitoring tolerance time / PU ph monit t_tol</td>
<td>4</td>
<td>T</td>
<td>-</td>
<td>500 [ms]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>540000 [ms]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>500 [ms]</td>
</tr>
<tr>
<td><strong>p1900</strong></td>
<td>Motor data identification and rotating measurement / MotID and rot meas</td>
<td>2</td>
<td>C(1), T</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Description:**
Sets the filter time constant of the DC link voltage used to calculate the modulation depth.

**Description:**
Sets the phase sequence reversal for the motor without setpoint change.

**Value:**
0: OFF
1: ON

**Notice:**
This setting can only be changed when the pulses are inhibited.

**Description:**
Sets the tolerance time for line phase monitoring for blocksize power units.

**Dependency:**
Refer to: F30011

**Notice:**
When operating with a failed line phase, depending on the active power, values higher than the default value can either immediately damage the power unit or damage it over the long term.

**Note:**
For the setting p1822 = maximum value, line phase monitoring is deactivated.

**Description:**
Sets the motor data identification and speed controller optimization.

The motor identification should first be performed with the motor stationary (p1900 = 1, 2; also refer to p1910).

Based on this, additional motor and control parameters can be determined using the motor data identification with the motor rotating (p1900 = 1, 3; also refer to p1960).

p1900 = 0:
Function inhibited.

p1900 = 1:
Sets p1910 = 1 and p1960 = 0, 1 depending on p1300

When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.
With the following power-on command, a rotating motor data identification routine is carried out - and in addition, a speed controller optimization by making measurements at different motor speeds.

\[ p1900 = 2; \]

Sets \( p1910 = 1 \) and \( p1960 = 0 \)

When the drive enable signals are present, a motor data identification routine is carried out at standstill with the next power-on command. Current flows through the motor which means that it can align itself by up to a quarter of a revolution.

\[ p1900 = 3; \]

Sets \( p1960 = 0 \), 1 depending on \( p1300 \)

This setting should only be selected if the motor data identification was already carried out at standstill.

When the drive enable signals are present, with the next power-on command, a rotating motor data identification routine is carried out - and in addition, speed controller optimization by taking measurements at different motor speeds.

**Value:**

0: Inhibited
1: Identify motor data at standstill and with motor rotating
2: Identify motor data at standstill
3: Identify motor data with motor rotating

**Dependency:**

Refer to: \( p1300, p1910, p1960 \)

Refer to: \( A07980, A07981, F07983, F07984, F07985, F07986, F07988, F07990, A07991 \)

**Notice:**

\( p1900 = 3; \)

This setting should only be selected if the motor data identification was already carried out at standstill.

If there is a motor holding brake, it must be open \( (p1215 = 2) \).

To permanently accept the determined settings they must be saved in a non-volatile fashion \( (p0971) \).

During the rotating measurement it is not possible to save the parameter \( (p0971) \).

For \( p0014 = 1 \), 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 motor and control parameters are only optimally set when both measurements are carried out (initially at standstill, and then with the motor rotating).

An appropriate alarm is output when the parameter is set.

The power-on command must remain set during a measurement and after the measurement has been completed, the drive automatically resets it.

The duration of the measurements can lie between 0.3 s and several minutes. This time is, for example, influenced by the motor size and the mechanical conditions.

\( p1900 \) is automatically set to 0 after the motor data identification routine has been completed.

**p1901 Test pulse evaluation configuration / Test puls config**

**Access level:** 3

**Calculated:** \( p0340 = 1 \)

**Data type:** Unsigned32

**Can be changed:** T

**Scaling:** -

**Dyn. index:** -

**Units group:** -

**Unit selection:** -

**Func. diagram:** -

**Min**

**Max**

**Factory setting**

-    -    0000 bin

**Description:**

Sets the configuration for the test pulse evaluation.

Bit 00: Check for conductor-to-conductor short circuit once/always when the pulses are enabled.

Bit 01: Check for ground fault once/always when the pulses are enabled.

Bit 02: Activation of the tests selected using bit 00 and/or bit 01 each time the pulses are enabled

**Bit field:**

<table>
<thead>
<tr>
<th>Bit</th>
<th>Signal name</th>
<th>f signal</th>
<th>o signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Phase short-circuit test pulse active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Ground fault detection test pulse active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Test pulse at each pulse enable</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:**

Refer to: \( p0287 \)

**Note:**

Re bit 02=0:

If the test was successful once after POWER ON (see \( r1902.0 \)), it is not repeated.
Re bit 02=1:
The test is not only performed after POWER ON, but also each time the pulses are enabled.
If a conductor-to-conductor short-circuit is detected during the test, this is displayed in r1902.1.
If a ground fault is detected during the test, this is displayed in r1902.2.

### p1909[0...n] Motor data identification control word / MotID STW

<table>
<thead>
<tr>
<th>Bit field</th>
<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>Stator inductance estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Rotor time constant estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Leakage inductance estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Determine Tr and Lsig evaluation in the time range</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Activate vibration damping</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>De-activate vibration detection</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>De-activate pulse measurement Lq Ld</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>De-activate rotor resistance Rr measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>De-activate valve interlocking time measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Determine only stator resistance, valve voltage fault, dead time</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Short motor identification (lower quality)</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Measurement without control parameter calculation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

#### Note:
The following applies to permanent-magnet synchronous motors:
Without de-selection in bit 11, in the closed-loop control mode, the direct inductance LD and the quadrature inductance Lq are measured at a low current.
When de-selecting with bit 11 or in the U/f mode, the stator inductance is measured at half the rated motor current.
If the stator is inductance is not measured but is to be estimated, then bit 0 should be set and bit 11 should be de-selected.

### p1910 Motor data identification selection / MotID selection

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>0350</th>
<th>0354</th>
<th>0356</th>
<th>0357</th>
<th>0358</th>
<th>0360</th>
<th>0370</th>
<th>0371</th>
<th>0372</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Stator inductance estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rotor time constant estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Leakage inductance estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Determine Tr and Lsig evaluation in the time range</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Activate vibration damping</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>De-activate vibration detection</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>De-activate pulse measurement Lq Ld</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>De-activate rotor resistance Rr measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>De-activate valve interlocking time measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Determine only stator resistance, valve voltage fault, dead time</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Short motor identification (lower quality)</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Measurement without control parameter calculation</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Description:
Sets the motor data identification routine.
The motor data identification routine is carried out after the next power-on command.

**p1910 = 1:**
All motor data and the drive converter characteristics are identified and then transferred to the following parameters:
p0350, p0354, p0356, p0357, p0358, p0360.
After this, the control parameter p0340 = 3 is automatically calculated.

**p1910 = 20:**
Only for internal SIEMENS use.
**Value:**

- **0:** Inhibited
- **1:** Complete identification (ID) and acceptance of motor data
- **2:** Complete identification (ID) of motor data without acceptance
- **20:** Voltage vector input
- **21:** Voltage vector input without filter
- **22:** Rectangular voltage vector input without filter
- **23:** Triangular voltage vector input without filter
- **24:** Rectangular voltage vector input with filter
- **25:** Triangular voltage vector input with filter
- **26:** Enter voltage vector with DTC correction

**Dependency:**

"Quick commissioning" must be carried out (p0010 = 1, p3900 > 0) before executing the motor data identification routine!

When selecting the motor data identification routine, the drive data set changeover is suppressed.

Refer to: p1900

Refer to: F07990, A07991

**Caution:**

After the motor data identification (p1910 > 0) has been selected, alarm A07991 is output and a motor data identification routine is carried out as follows at the next power-on command:

- Current flows through the motor and a voltage is present at the drive converter output terminals.
- During the identification routine, the motor shaft can rotate through a maximum of half a revolution.
- However, no torque is generated.

**Notice:**

If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971).

**Note:**

When setting p1910, the following should be observed:

1. "With acceptance" means:
   - The parameters specified in the description are overwritten with the identified values and therefore have an influence on the controller setting.
2. "Without acceptance" means:
   - The identified parameters are only displayed in the service parameter range. The controller settings remain unchanged.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Inhibited</td>
</tr>
<tr>
<td>1</td>
<td>Complete identification (ID) and acceptance of motor data</td>
</tr>
<tr>
<td>2</td>
<td>Complete identification (ID) of motor data without acceptance</td>
</tr>
<tr>
<td>20</td>
<td>Voltage vector input</td>
</tr>
<tr>
<td>21</td>
<td>Voltage vector input without filter</td>
</tr>
<tr>
<td>22</td>
<td>Rectangular voltage vector input without filter</td>
</tr>
<tr>
<td>23</td>
<td>Triangular voltage vector input without filter</td>
</tr>
<tr>
<td>24</td>
<td>Rectangular voltage vector input with filter</td>
</tr>
<tr>
<td>25</td>
<td>Triangular voltage vector input with filter</td>
</tr>
<tr>
<td>26</td>
<td>Enter voltage vector with DTC correction</td>
</tr>
</tbody>
</table>

**Dependency:**

"Quick commissioning" must be carried out (p0010 = 1, p3900 > 0) before executing the motor data identification routine!

When selecting the motor data identification routine, the drive data set changeover is suppressed.

Refer to: p1900

Refer to: F07990, A07991

**Caution:**

After the motor data identification (p1910 > 0) has been selected, alarm A07991 is output and a motor data identification routine is carried out as follows at the next power-on command:

- Current flows through the motor and a voltage is present at the drive converter output terminals.
- During the identification routine, the motor shaft can rotate through a maximum of half a revolution.
- However, no torque is generated.

**Notice:**

If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971).

**Note:**

When setting p1910, the following should be observed:

1. "With acceptance" means:
   - The parameters specified in the description are overwritten with the identified values and therefore have an influence on the controller setting.
2. "Without acceptance" means:
   - The identified parameters are only displayed in the service parameter range. The controller settings remain unchanged.

**p1959[0...n]**

Rotating measurement configuration / Rot meas config

**Access level:** 3

**Calculated:** p0340 = 1

**Data type:** Unsigned16

**Can be changed:** T

**Scaling:** -

**Units group:** -

**Dyn. index:** DDS, p0180

**Unit selection:** -

**Func. diagram:** -

**Min**

**Max**

**Factory setting**

0001 1110 bin

**Description:**

Sets the configuration of the rotating measurement.

**Bit field:**

<table>
<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>01</td>
<td>Saturation characteristic identification</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Moment of inertia identification</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Re-calculates the speed controller parameters</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Speed controller optimization (vibration test)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Dependency:**

Refer to: F07988

**Note:**

The following parameters are influenced for the individual optimization steps:

- Bit 01: p0320, p0360, p0362 ... p0369
- Bit 02: p0341, p0342
- Bit 03: p1470, p1472, p1496
- Bit 04: Dependent on p1960

p1960 = 1, 3: p1470, p1472, p1496
### p1960 Rotating measurement selection / Rot meas sel

| Access level: | 3 |
| Can be changed: | T |
| Calculated: | - |
| Units group: | - |
| Data type: | Integer16 |
| Scaling: | - |
| Unit selection: | - |
| Dyn. index: | - |
| Func. diagram: | - |

#### Description:
Sets the rotating measurement.

The rotating measurement is carried out after the next power-on command.

The setting possibilities of the parameter depend on the open-loop/closed-loop control mode (p1300).

- **p1300 < 20** (U/f open-loop control):
  - It is not possible to select rotating measurement or speed controller optimization.
- **p1300 = 20, 22** (encoderless operation):
  - Only rotating measurement or speed controller optimization can be selected in the encoderless mode.

#### Value:
- 0: **Inhibited**
- 1: Rotating measurement in encoderless operation
- 3: Speed controller optimization in encoderless operation

#### Dependency:
- Before the rotating measurement is carried out, the motor data identification routine (p1900, p1910, r3925) should have already been done.
- When selecting the rotating measurement, the drive data set changeover is suppressed.
- Refer to: p1300, p1900, p1959

#### Danger:
For drives with a mechanical system that limits the distance moved, it must be ensured that this is not reached during the rotating measurement. If this is not the case, then it is not permissible that the measurement is carried out.

#### Notice:
If there is a motor holding brake, it must be open (p1215 = 2).

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971).

During the rotating measurement it is not possible to save the parameter (p0971).

#### Note:
When the rotating measurement is activated, it is not possible to save the parameters (p0971).

Parameter changes are automatically made for the rotating measurement (e.g. p1120); this is the reason that up to the end of the measurement, and if no faults are present, no manual changes should be made.

The ramp-up and ramp-down times (p1120, p1121) are limited, for the rotating measurement, to 900 s.

### p1961 Saturation characteristic speed to determine / Sat_char n determ

| Access level: | 3 |
| Can be changed: | U, T |
| Calculated: | - |
| Units group: | - |
| Data type: | FloatingPoint32 |
| Scaling: | - |
| Unit selection: | - |
| Dyn. index: | - |
| Func. diagram: | - |

#### Description:
Sets the speed to determine the saturation characteristic.

The percentage value is referred to p0310 (rated motor frequency).

#### Dependency:
- Refer to: p0310, p1959
- Refer to: F07983

#### Note:
The saturation characteristics should be determined at an operating point with the lowest possible load.

### p1965 Speed_ctrl_opt speed / n_opt speed

| Access level: | 3 |
| Can be changed: | U, T |
| Calculated: | - |
| Units group: | - |
| Data type: | FloatingPoint32 |
| Scaling: | - |
| Unit selection: | - |
| Dyn. index: | - |
| Func. diagram: | - |

#### Description:
Sets the speed for the identification of the moment of inertia and the vibration test.
Induction motor:
The percentage value is referred to p0310 (rated motor frequency).

Synchronous motor:
The percentage value is referred to the minimum from p0310 (rated motor frequency) and p1082 (maximum speed).

Dependency:
Refer to: p0310, p1959
Refer to: F07984, F07985

Note:
In order to calculate the inertia, sudden speed changes are carried out - the specified value corresponds to the lower speed setpoint. This value is increased by 20 % for the upper speed value.
The q leakage inductance (refer to p1959.5) is determined at zero speed and at 50 % of p1965 - however, with a maximum output frequency of 15 Hz and at a minimum of 10% of the rated motor speed.

**Description:**
Sets the dynamic response factor for speed controller optimization.

**Dependency:**
Refer to: p1959
Refer to: F07985

Note:
For a rotating measurement, this parameter can be used to optimize the speed controller.
p1967 = 100 % --> speed controller optimization according to a symmetric optimum.
p1967 > 100 % --> optimization with a higher dynamic response (Kp higher, Tn lower).

**Description:**
Displays the dynamic factor which is actually achieved for the vibration test

**Dependency:**
Refer to: p1959, p1967
Refer to: F07985

Note:
This dynamic factor only refers to the control mode of the speed controller set in p1960.
Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example 1:
The signal of an analog input (e.g. r0755[0]) is connected to a speed setpoint (e.g. p1070[0]). The actual percentage input value is cyclically converted into the absolute speed setpoint using the reference speed (p2000).

Example 2:
The setpoint from PROFIBUS (r2050[1]) is connected to a speed setpoint (e.g. p1070[0]). The actual input value is cyclically converted into a percentage value via the pre-specified scaling 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2001</td>
<td>Reference voltage / Reference voltage</td>
<td>3</td>
<td>p0340 = 1</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>1000000.00</td>
<td>100 [Vrms]</td>
</tr>
</tbody>
</table>

Dependency: p2001 is only updated during automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning has been carried out first for drive data set zero and as a result overwriting of the parameter has not been blocked by setting p0573 = 1.

Notice: When the reference voltage is changed, short-term communication interruptions may occur.

Note: If various DDS are used with different motor data, then the reference quantities remain the same as these are not changed over with the DDS. The resulting conversion factor must be taken into account.

Example:
p2002 = 100 A
Reference quantity 100 A corresponds to 100 %
List of parameters

Parameters

p0305[0] = 100 A  
Rated motor current 100 A for MDS0 in DDS0 --> 100 % corresponds to 100 % of the rated motor current  
p0305[1] = 50 A  
Rated motor current 50 A for MDS1 in DDS1 --> 100 % corresponds to 200 % of the rated motor current  

Note:  
Preassigned value is p0640.  
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 rated line current, which is obtained from the rated power and parameterized rated line supply voltage (p2002 = r0206 / p0210 / 1.73) is pre-assigned as the reference quantity.  
Example:  
The actual value of a phase current (r0069[0]) is connected to a test socket (e.g. p0771[0]). The actual current value is cyclically converted into a percentage of the reference current (p2002) and output according to the parameterized scaling.

p2003 Reference torque / M_ref  

| Access level: | 3 | Calculated: | p0340 = 1 | Data type: Floatin| 
| Can be changed: | T | Scaling: | - | Dyn. index: | - | 
| Units group: | 7_2 | Unit selection: | p0505 | Func. diagram: | - | 
| Min | 0.01 [Nm] | Max | 20000000.00 [Nm] | Factory setting | 1.00 [Nm] |

Description:  
Sets the reference quantity for torque.  
All torques 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).  
Dependency:  
This parameter is only updated during the automatic calculation (p0340 = 1, p3900 > 0) if motor commissioning was carried out beforehand for drive data set zero. This means that the parameter is not locked against overwriting using p0573 = 1.  
Refer to: r3996  
Notice:  
When the reference torque is changed, short-term communication interruptions may occur.  
Note:  
Preassigned value is 2 * p0333.  
If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.  
Example:  
The actual value of the total torque (r0079) is connected to a test socket (e.g. p0771[0]). The actual torque is cyclically converted into a percentage of the reference torque (p2003) and output according to the parameterized scaling.

r2004 Reference power / P_ref  

| Access level: | 3 | Calculated: | - | Data type: Floatin| 
| Can be changed: | - | Scaling: | - | Dyn. index: | - | 
| Units group: | 14_10 | Unit selection: | p0505 | Func. diagram: | - | 
| Min | - [kW] | Max | - [kW] | Factory setting | - [kW] |

Description:  
Displays the reference quantity for power.  
All power ratings 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).  
Dependency:  
This value is calculated as follows:  
Infeed: Calculated from voltage times current.  
Closed-loop control: Calculated from torque times speed.  
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:
- \( 2 \times \pi \times \text{reference speed} / 60 \times \text{reference torque (motor)} \)
- \( \text{reference voltage} \times \text{reference current} \times \sqrt{3} \) (infeed)

### p2006 Reference temp / Ref temp

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Data type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2006</td>
<td>3</td>
<td>T</td>
<td>-</td>
<td>p0340 = 1</td>
<td>FloatingPoint32</td>
<td></td>
</tr>
</tbody>
</table>

**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).

**Value:**
- 4: 50.00 \(^{\circ}\)C
- 5: 60.00 \(^{\circ}\)C
- 6: 70.00 \(^{\circ}\)C
- 7: 80.00 \(^{\circ}\)C
- 8: 90.00 \(^{\circ}\)C
- 9: 100.00 \(^{\circ}\)C
- 10: 110.00 \(^{\circ}\)C
- 11: 120.00 \(^{\circ}\)C
- 12: 130.00 \(^{\circ}\)C

**Note:**
- COMM-IF: Commissioning interface
- The parameter is not influenced by setting the factory setting.

### p2010 Comm IF baud rate / Comm baud

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Data type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2010</td>
<td>3</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>Integer16</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Sets the baud rate for the commissioning interface (USS, RS232).

**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

**Note:**
- COMM-IF: Commissioning interface
- The parameter is not influenced by setting the factory setting.

### p2011 Comm IF address / Comm add

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Data type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2011</td>
<td>3</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>Unsigned16</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Sets the address for the commissioning interface (USS, RS232).

**Note:**
- The parameter is not influenced by setting the factory setting.

### p2016[0...3] CI: Comm IF USS PZD send word / Comm USS send word

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Data type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2016[0...3]</td>
<td>3</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>U32 / Integer16</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Selects the PZD (actual values) to be sent via the commissioning interface USS.
The actual values are displayed on an intelligent operator panel (IOP).
Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4

**p2020**  
Field bus interface baud rate / Field bus baud

<table>
<thead>
<tr>
<th>G120C_USS</th>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Min**  
4  

**Max**  
13  

**Factory setting**  
8

**Description:**  
Sets the baud rate for the field bus interface (RS485).

**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

**Notice:**  
For p0014 = 1, 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.

For p0014 = 0, the following applies:
Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set p0971 = 1 or p0014 = 1.

**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.
When p2030 = 1 (USS), the following applies:
Min./max./factory setting: 4/13/8
When p2030 = 2 (MODBUS), the following applies:
Min./max./factory setting: 5/13/7

**p2021**  
Field bus interface address / Field bus address

<table>
<thead>
<tr>
<th>G120C_USS</th>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Min**  
0

**Max**  
247

**Factory setting**  
0

**Description:**  
Displays or sets the address for the fieldbus interface (RS485).
The address can be set as follows:
1) Using the address switch on the Control Unit.
   --> p2021 displays the address setting.
   --> A change only becomes effective after a POWER ON.
2) Using p2021
   --> Only if an address of 0 or an address which is invalid for the fieldbus selected in p2030 has been set using the address switch.
   --> 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.

**Dependency:**  
Refer to: p2030
Notice:
For p0014 = 1, 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.
For p0014 = 0, the following applies:
Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set p0971 = 1 or p0014 = 1.

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.
When p2030 = 1 (USS), the following applies:
Min./max./factory setting: 0/30/0
When p2030 = 2 (MODBUS), the following applies:
Min./max./factory setting: 1/247/1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2022</td>
<td>Field bus int USS PZD no. / Field bus USS PZD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Access level: 2</td>
<td>Calculated: -</td>
<td>Data type: Unsigned16</td>
<td></td>
</tr>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p2023</td>
<td>Field bus int USS PKW no. / Field bus USS PKW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Access level: 2</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
<td></td>
</tr>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
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<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>127</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p2024[0...2]</td>
<td>Fieldbus interface times / Fieldbus times</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>0 [ms]</td>
<td>Max</td>
<td>10000 [ms]</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>[0] 1000 [ms]</td>
<td>[1] 0 [ms]</td>
<td>[2] 0 [ms]</td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>Sets the time values for the fieldbus interface.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The following applies for MODBUS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
p2024[0]: Maximum permissible telegram processing time of the MODBUS slave in which a reply is sent back to the MODBUS master.
p2024[1]: Not relevant.
p2024[2]: Telegram pause time (pause time between two telegrams). | | | | |
**Parameters**

**List of parameters**

**Index:**
- [0] = Max. processing time
- [1] = Character delay time
- [2] = Telegram pause time

**Dependency:**
Refer to: p2020, p2030

**Note:**
If the field bus baud rate is changed (p2020), the default time setting is restored.
The default setting corresponds to a time of 3.5 characters (dependent on the baud rate that has been set).

### r2029[0...7]
**Field bus int error statistics / Field bus error**

<table>
<thead>
<tr>
<th>G120C_USS</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Displays the receive errors on the field bus interface (RS485).

**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**

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>Access level: 1</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
<tr>
<td>Min 0</td>
<td>Max 4</td>
<td>Factory setting</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Sets the communication protocol for the field bus interface.

**Value:**
0: No protocol
4: CAN

**Notice:**
For p0014 = 1, 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:**
Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.

### p2030
**Field bus int protocol selection / Field bus protocol**

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>Access level: 1</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
<tr>
<td>Min 0</td>
<td>Max 3</td>
<td>Factory setting</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Sets the communication protocol for the field bus interface.

**Value:**
0: No protocol
3: PROFIBUS

**Notice:**
For p0014 = 1, 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:**
Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Notice</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p2030</strong></td>
<td>Field bus int protocol selection / Field bus protocol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Access level: 1</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
<td></td>
</tr>
<tr>
<td>Can be changed: T</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>10</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
<td>For p0014 = 1, the following applies:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Changes only become effective after POWER ON.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The parameter is not influenced by setting the factory setting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>p2030</strong></td>
<td>Field bus int protocol selection / Field bus protocol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Access level: 1</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
<td></td>
</tr>
<tr>
<td>Can be changed: T</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
<td>For p0014 = 1, the following applies:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Changes only become effective after POWER ON.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The parameter is not influenced by setting the factory setting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>r2032</strong></td>
<td>Master control control word effective / PcCtrl STW eff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: Unsigned16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Displays the effective control word 1 (STW1) of the drive for the master control.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bit field:</strong></td>
<td>Bit</td>
<td>Signal name</td>
<td>1 signal</td>
<td>0 signal</td>
</tr>
<tr>
<td></td>
<td>00</td>
<td>ON/OFF1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>01</td>
<td>OC / OFF2</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>OC / OFF3</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>Operation enable</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>04</td>
<td>Ramp-function generator enable</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>05</td>
<td>Start ramp-function generator</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>06</td>
<td>Speed setpoint enable</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>07</td>
<td>Acknowledge fault</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>08</td>
<td>Jog bit 0</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>09</td>
<td>Jog bit 1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Master ctrl by PLC</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Notice:</strong></td>
<td>The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>OC: Operating condition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p2037</strong></td>
<td>PROFIdrive STW1.10 = 0 mode / PD STW1.10=0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_DP</td>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong>:</td>
<td>Sets the processing mode for PROFIdrive STW1.10 &quot;master control by PLC&quot;. 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value</strong>:</td>
<td>0: Freeze setpoints and continue to process sign-of-life</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: Freeze setpoints and sign-of-life</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2: Do not freeze setpoints</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>:</td>
<td>If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 &quot;master control by PLC&quot;), then p2037 should be set to 2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>p2038</strong></th>
<th>PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong>:</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value</strong>:</td>
<td>0: SINAMICS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2: VIK-NAMUR</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dependency</strong>:</td>
<td>Refer to: p0922, p2079</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notice</strong>:</td>
<td>The parameter may be protected as a result of p0922 or p2079 and cannot be changed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>:</td>
<td>- For p0922 (p2079) = 1, 350 ... 999, p2038 is automatically set to 0.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- For p0922 (p2079) = 20, p2038 is automatically set to 2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>It is not then possible to change p2038.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>p2039</strong></th>
<th>Select debug monitor interface / Debug monit select</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Access level: 4</td>
<td>Calculated: -</td>
<td>Data type: Unsigned16</td>
</tr>
<tr>
<td></td>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong>:</td>
<td>The serial interface for the debug monitor is COM1 (commissioning interface, RS232) or COM2 (fieldbus interface, RS485).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value</strong>:</td>
<td>0: De-activated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: COM1, commissioning protocol is de-activated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2: COM2, field bus is de-activated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3: Reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>:</td>
<td>Value = 2 is only possible for Control Units with RS485 as a field bus interface.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Parameters

**List of parameters**

#### p2040 Fieldbus interface monitoring time / Fieldbus t_monit

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Sets the monitoring time to monitor the process data received via the fieldbus interface.</td>
<td>3</td>
<td>U, T</td>
<td>-</td>
<td>0 [ms]</td>
<td>1999999 [ms]</td>
<td>100 [ms]</td>
</tr>
</tbody>
</table>

**Dependency:**

No process data is received within this time, then an appropriate message is output.

**Note:**

Refer to: F01910

0: The monitoring is de-activated.

#### p2042 PROFIBUS Ident Number / PB Ident No.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>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. PROFlidebar VIK-NAMUR with Ident Number 3AA0 hex).</td>
<td>3</td>
<td>T</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Value:**

0: SINAMICS

1: VIK-NAMUR

**Notice:**

For p0014 = 1, 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:**

Every change only becomes effective after a POWER ON.

#### r2043.0...2 BO: PROFIdrive PZD state / PD PZD state

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>Displays the PROFIdrive PZD state.</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**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 PROFIdrive fault delay / PD fault delay

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>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 is is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).</td>
<td>3</td>
<td>U, T</td>
<td>-</td>
<td>0 [s]</td>
<td>100 [s]</td>
<td>0 [s]</td>
</tr>
</tbody>
</table>
Dependency: Refer to: r2043
Refer to: F01910

**p2047**

**PROFIBUS additional monitoring time / PB suppl t_monit**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 2410</td>
</tr>
</tbody>
</table>

**Description:**
Sets the additional monitoring time to monitor the process data received via PROFIBUS.
The additional monitoring time enables short bus faults to be compensated.
If no process data is received within this time, then an appropriate message is output.

**Dependency:**
Refer to: F01910

**Note:**
For controller STOP, the additional monitoring time is not effective.

**r2050[0...11]**

**CO: PROFIBUS PZD receive word / PZD recv word**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: 4000H</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**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

**p2051[0...13]**

**CI: PROFIdrive PZD send word / PZD send word**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: U32 / Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: 4000H</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**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
- [12] = PZD 13
- [13] = PZD 14
Parameters
List of parameters

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

**p2051[0...13]**  
CI: PROFIdrive PZD send word / PZD send word

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td><strong>Access level:</strong> 3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> U, T</td>
<td><strong>Can be changed:</strong> -</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
<td><strong>Units group:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Data type:** U32 / Integer16  
**Dyn. index:** -  
**Func. diagram:** -

**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  
- [12] = PZD 13  
- [13] = PZD 14

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

**r2053[0...13]**  
PROFIdrive diagnostics send PZD word / Diag send word

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td><strong>Access level:</strong> 3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> -</td>
<td><strong>Can be changed:</strong> -</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
<td><strong>Units group:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Data type:** Unsigned16  
**Dyn. index:** -  
**Func. diagram:** -

**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  
- [12] = PZD 13  
- [13] = PZD 14

**Bit field:**

<table>
<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>0</td>
<td>Bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Bit 1</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Bit 2</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Bit 4</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Bit 5</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Bit 6</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Bit 7</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Bit 8</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter ID</th>
<th>Description</th>
<th>Index</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>r2054</td>
<td>PROFIBUS status / PB status</td>
<td>0...2</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2410</td>
<td>0</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

#### 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

<table>
<thead>
<tr>
<th>Parameter ID</th>
<th>Description</th>
<th>Index</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>r2055[0...2]</td>
<td>PROFIBUS diagnostics standard / PB diag standard</td>
<td>0...2</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2410</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Description:
Diagnostics display for the PROFIBUS interface.

#### Index:
- [0] = Master bus address
- [1] = Master input total length bytes
- [2] = Master output total length bytes

<table>
<thead>
<tr>
<th>Parameter ID</th>
<th>Description</th>
<th>Index</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>r2057</td>
<td>PROFIBUS address switch diagnostics / PB addr_sw diag</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2410</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Description:
Displays the setting of the PROFIBUS address switch "DP ADDRESS" on the Control Unit.

#### Dependency:
Refer to: p0918

<table>
<thead>
<tr>
<th>Parameter ID</th>
<th>Description</th>
<th>Index</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>r2060[0...10]</td>
<td>CO: PROFIdrive PZD receive double word / PZD recv DW</td>
<td>0...10</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4000H</td>
<td>-</td>
<td>2440, 2468</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### 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
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0] = PZD 1 + 2</td>
<td>Selects the PZD (actual values) with double word format to be sent to the fieldbus controller.</td>
</tr>
<tr>
<td>[1] = PZD 2 + 3</td>
<td></td>
</tr>
<tr>
<td>[2] = PZD 3 + 4</td>
<td></td>
</tr>
<tr>
<td>[3] = PZD 4 + 5</td>
<td></td>
</tr>
<tr>
<td>[4] = PZD 5 + 6</td>
<td></td>
</tr>
<tr>
<td>[5] = PZD 6 + 7</td>
<td></td>
</tr>
<tr>
<td>[6] = PZD 7 + 8</td>
<td></td>
</tr>
<tr>
<td>[7] = PZD 8 + 9</td>
<td></td>
</tr>
<tr>
<td>[8] = PZD 9 + 10</td>
<td></td>
</tr>
<tr>
<td>[9] = PZD 10 + 11</td>
<td></td>
</tr>
<tr>
<td>[10] = PZD 11 + 12</td>
<td></td>
</tr>
<tr>
<td>[12] = PZD 13 + 14</td>
<td></td>
</tr>
</tbody>
</table>

#### 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.

---

p2061[0...12] CI: PROFIBUS PZD send double word / PZD send DW

| Access level: | 3 |
| Can be changed: | U, T |
| Calculated: | - |
| Data type: | U32 / Integer32 |
| Units group: | - |
| Unit selection: | - |
| Min | - |
| Max | 0 |
| Factory setting | - |

#### 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
- [12] = PZD 13 + 14

#### 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.

---

r2063[0...12] PROFlndrive diagnostics PZD send double word / Diag send DW

| Access level: | 3 |
| Can be changed: | - |
| Calculated: | - |
| Data type: | Unsigned32 |
| Units group: | - |
| Unit selection: | - |
| 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
- [12] = PZD 13 + 14
### List of parameters

<table>
<thead>
<tr>
<th>Bit field:</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00</td>
<td>Bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>01</td>
<td>Bit 1</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>02</td>
<td>Bit 2</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>Bit 3</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>04</td>
<td>Bit 4</td>
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</tr>
<tr>
<td></td>
<td>06</td>
<td>Bit 6</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>07</td>
<td>Bit 7</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>08</td>
<td>Bit 8</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>09</td>
<td>Bit 9</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
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<td></td>
<td>10</td>
<td>Bit 10</td>
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<td>Bit 11</td>
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</tr>
<tr>
<td></td>
<td>16</td>
<td>Bit 16</td>
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<td>-</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Bit 17</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
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<td>Bit 18</td>
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<td>Bit 19</td>
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<tr>
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<td>Bit 28</td>
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<td></td>
<td>29</td>
<td>Bit 29</td>
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<td>-</td>
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<tr>
<td></td>
<td>30</td>
<td>Bit 30</td>
<td>ON</td>
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<td>-</td>
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<tr>
<td></td>
<td>31</td>
<td>Bit 31</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
</tbody>
</table>

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

### r2067[0...1]

**PZD maximum interconnected / PZDmaxIntercon**

| Access level: | 3 |
| Can be changed: | - |
| Units group: | - |

**Description:**
Display for the maximum interconnected PZD in the receive/send direction

- **Index 0:** receive (r2050, r2060)
- **Index 1:** send (p2051, p2061)

### r2074[0...11]

**PROFIdrive diagnostics bus address PZD receive / Diag addr recv**

| Access level: | 3 |
| Can be changed: | - |
| Units group: | - |

**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
## Parameters

### List of parameters

- \([6] = \text{PZD 7}\)
- \([7] = \text{PZD 8}\)
- \([8] = \text{PZD 9}\)
- \([9] = \text{PZD 10}\)
- \([10] = \text{PZD 11}\)
- \([11] = \text{PZD 12}\)

**Note:**
- **Value range:** 0 - 125: Bus address of the sender
- 65535: not assigned

### PROFIdrive diagnostics telegram offset PZD receive / Diag offs recv

**r2075[0...11]**

<table>
<thead>
<tr>
<th><strong>G120C_DP</strong></th>
<th><strong>Access level:</strong> 3</th>
<th><strong>Calculated:</strong> -</th>
<th><strong>Data type:</strong> Unsigned16</th>
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</thead>
<tbody>
<tr>
<td><strong>Can be changed:</strong> -</td>
<td><strong>Scaling:</strong> -</td>
<td><strong>Dyn. index:</strong> -</td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
<td><strong>Unit selection:</strong> -</td>
<td><strong>Func. diagram:</strong> -</td>
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</tr>
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<table>
<thead>
<tr>
<th><strong>Min</strong></th>
<th><strong>Max</strong></th>
<th><strong>Factory setting</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

**Index:**
- \([0] = \text{PZD 1}\)
- \([1] = \text{PZD 2}\)
- \([2] = \text{PZD 3}\)
- \([3] = \text{PZD 4}\)
- \([4] = \text{PZD 5}\)
- \([5] = \text{PZD 6}\)
- \([6] = \text{PZD 7}\)
- \([7] = \text{PZD 8}\)
- \([8] = \text{PZD 9}\)
- \([9] = \text{PZD 10}\)
- \([10] = \text{PZD 11}\)
- \([11] = \text{PZD 12}\)

**Note:**
- **Value range:** 0 - 242: Byte offset
- 65535: not assigned

### PROFIdrive diagnostics telegram offset PZD send / Diag offs send

**r2076[0...13]**

<table>
<thead>
<tr>
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<th><strong>Access level:</strong> 3</th>
<th><strong>Calculated:</strong> -</th>
<th><strong>Data type:</strong> Unsigned16</th>
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</thead>
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<td><strong>Scaling:</strong> -</td>
<td><strong>Dyn. index:</strong> -</td>
<td></td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
<td><strong>Unit selection:</strong> -</td>
<td><strong>Func. diagram:</strong> -</td>
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</table>

<table>
<thead>
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<th><strong>Max</strong></th>
<th><strong>Factory setting</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

**Index:**
- \([0] = \text{PZD 1}\)
- \([1] = \text{PZD 2}\)
- \([2] = \text{PZD 3}\)
- \([3] = \text{PZD 4}\)
- \([4] = \text{PZD 5}\)
- \([5] = \text{PZD 6}\)
- \([6] = \text{PZD 7}\)
- \([7] = \text{PZD 8}\)
- \([8] = \text{PZD 9}\)
- \([9] = \text{PZD 10}\)
- \([10] = \text{PZD 11}\)
- \([11] = \text{PZD 12}\)
- \([12] = \text{PZD 13}\)
- \([13] = \text{PZD 14}\)

**Note:**
- **Value range:** 0 - 242: Byte offset
- 65535: not assigned
### List of parameters

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

<table>
<thead>
<tr>
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<th>Calculated:</th>
<th>Data type:</th>
</tr>
</thead>
<tbody>
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<td>Unsigned8</td>
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</tbody>
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<table>
<thead>
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<th>Scaling:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group:</th>
<th>Unit selection:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
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<th>Calculated:</th>
<th>Data type:</th>
</tr>
</thead>
<tbody>
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<td>-</td>
<td>Integer16</td>
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<table>
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<th>Scaling:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
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<tbody>
<tr>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group:</th>
<th>Unit selection:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>999</td>
<td>1</td>
</tr>
</tbody>
</table>

**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
20: Standard telegram 20, PZD-2/6
352: SIEMENS telegram 352, PZD-6/6
353: SIEMENS telegram 353, PZD-2/2, PKW-4/4
354: SIEMENS telegram 354, PZD-6/6, PKW-4/4
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**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>U32 / Binary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed:</th>
<th>Scaling:</th>
<th>Dyn. index:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>2472</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Unit selection:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

**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
[12] = Bit 12
[13] = Bit 13
### List of parameters

#### p2080[0...15]

**BI: Binector-connector converter status word 1 / Bin/con ZSW1**

- **G120C_DP**
- **G120C_PN**
- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min**
- **Max**
- **Factory setting**
  - [0] 899.0
  - [1] 899.1
  - [2] 899.2
  - [3] 2139.3
  - [4] 899.4
  - [5] 899.5
  - [6] 899.6
  - [7] 2139.7
  - [8] 2197.7
  - [9] 899.9
  - [10] 2199.1
  - [12] 899.12
  - [13] 2135.14
  - [14] 2197.3
  - [15] 2135.15
- **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
  - [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.

#### p2088[0...4]

**Invert binector-connector converter status word / Bin/con ZSW inv**

- **G120C_CAN**
- **G120C_USS**
- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min**
- **Max**
- **Factory setting**
  - 0000 0000 0000 0000 bin
- **Description:** Setting to invert the individual binector inputs of the binector connector converter.
### List of parameters

**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:**

<table>
<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>Bit 0</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Bit 1</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Bit 2</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Bit 4</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Bit 5</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Bit 6</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Bit 7</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Bit 8</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Bit 9</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Bit 10</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Bit 11</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Bit 12</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Bit 13</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Bit 14</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Bit 15</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: p2080, r2089

---

### p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

<table>
<thead>
<tr>
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<th>Access level:</th>
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<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned16</th>
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</thead>
<tbody>
<tr>
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<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting**
--- | --- | ---
- | - | [0] 1010 1000 0000 0000 bin
| [1...4] 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:**

<table>
<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>Bit 0</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Bit 1</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Bit 2</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Bit 4</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Bit 5</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
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<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Bit 7</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Bit 8</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Bit 9</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Bit 10</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Bit 11</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Bit 12</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Bit 13</td>
<td>Inverted</td>
<td>Not inverted</td>
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<td>Bit 14</td>
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</tr>
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<td>15</td>
<td>Bit 15</td>
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**Dependency:** Refer to: p2080, r2089
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Dependency</th>
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<td>CO: Send binector-connector converter status word / Bin/con ZSW send</td>
<td></td>
<td>Refer to: p2051, p2080</td>
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**Access level:** 3  
**Calculated:** -  
**Data type:** Unsigned16  
**Can be changed:** -  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** 2472  
**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:**

<table>
<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>Bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Bit 1</td>
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<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Bit 2</td>
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<tr>
<td>03</td>
<td>Bit 3</td>
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<td>04</td>
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<td>05</td>
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</tr>
<tr>
<td>06</td>
<td>Bit 6</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Bit 7</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
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<td>Bit 9</td>
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<td>10</td>
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</tr>
<tr>
<td>15</td>
<td>Bit 15</td>
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<table>
<thead>
<tr>
<th>r2090.0...15</th>
<th>BO: PROFIdrive PZD1 receive bit-serial / PZD1 recv bitw</th>
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**Access level:** 3  
**Calculated:** -  
**Data type:** Unsigned16  
**Can be changed:** -  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** 2468  
**Min**  
**Max**  
**Factory setting** -

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

**Bit field:**

<table>
<thead>
<tr>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
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<td>ON</td>
<td>OFF</td>
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</tr>
<tr>
<td>01</td>
<td>Bit 1</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
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<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
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<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
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</tr>
<tr>
<td>05</td>
<td>Bit 5</td>
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<td>OFF</td>
<td>-</td>
</tr>
<tr>
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</tr>
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<td>07</td>
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<td>OFF</td>
<td>-</td>
</tr>
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<td>OFF</td>
<td>-</td>
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<tr>
<td>10</td>
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<td>15</td>
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</table>
### List of parameters

#### Parameter r2091.0...15

**BO: PROFIdrive PZD2 receive bit-serial / PZD2 recv bitw**

<table>
<thead>
<tr>
<th>Bit</th>
<th>Signal name</th>
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<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
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<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
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<td>OFF</td>
<td>-</td>
</tr>
<tr>
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</tr>
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<td>Bit 14</td>
<td>ON</td>
<td>OFF</td>
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</tr>
<tr>
<td>15</td>
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<td>-</td>
</tr>
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</table>

**Description:**
Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

#### Parameter r2092.0...15

**BO: PROFIdrive PZD3 receive bit-serial / PZD3 recv bitw**

<table>
<thead>
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<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
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<tr>
<td>02</td>
<td>Bit 2</td>
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<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>ON</td>
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<td>-</td>
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<tr>
<td>04</td>
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<tr>
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<td>13</td>
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</tr>
<tr>
<td>14</td>
<td>Bit 14</td>
<td>ON</td>
<td>OFF</td>
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</tr>
<tr>
<td>15</td>
<td>Bit 15</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.
### r2093.0...15 BO: PROFldrive PZD4 receive bit-serial / PZD4 recv bitw

**Access level:** 3  
**Calculated:** -  
**Data type:** Unsigned16  
**Can be changed:** -  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** 2468

**Description:**  
Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFldrive controller.

<table>
<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>Bit 0</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
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<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Bit 2</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
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<tr>
<td>04</td>
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<td>07</td>
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<td>08</td>
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<td>09</td>
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<tr>
<td>15</td>
<td>Bit 15</td>
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<td>-</td>
</tr>
</tbody>
</table>

### r2094.0...15 BO: Connector-binector converter binector output / Con/bin outp

**Access level:** 3  
**Calculated:** -  
**Data type:** Unsigned16  
**Can be changed:** -  
**Scaling:** -  
**Dyn. index:** -  
**Units group:** -  
**Unit selection:** -  
**Func. diagram:** 2468

**Description:**  
Binector output for bit-serial onward interconnection of a PZD word received from the PROFldrive controller. The PZD is selected via p2099[0].

<table>
<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>Bit 0</td>
<td>ON</td>
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<td>-</td>
</tr>
<tr>
<td>01</td>
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<tr>
<td>02</td>
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<tr>
<td>03</td>
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<tr>
<td>05</td>
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<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Bit 6</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Bit 7</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
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<tr>
<td>08</td>
<td>Bit 8</td>
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<td>09</td>
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<td>10</td>
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<tr>
<td>11</td>
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<tr>
<td>15</td>
<td>Bit 15</td>
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</table>

**Dependency:**  
Refer to: p2099
**List of parameters**

### r2095.0...15

**BO: Connector-binector converter binector output / Con/bin outp**

Description:
Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[1].

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
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<tbody>
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<td>00</td>
<td>Bit 0</td>
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<td>01</td>
<td>Bit 1</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Bit 2</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Bit 4</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
<td></td>
</tr>
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<td>05</td>
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</tr>
<tr>
<td>06</td>
<td>Bit 6</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Bit 7</td>
<td>ON</td>
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<td>-</td>
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<tr>
<td>08</td>
<td>Bit 8</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
<td></td>
</tr>
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<tr>
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<td>Bit 15</td>
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</tr>
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</table>

Dependency:
Refer to: p2099

### p2098[0...1]

**Inverter connector-binector converter binector output / Con/bin outp inv**

Description:
Setting to invert the individual binector outputs of the connector-binector converter.

Using p2098[0], the signals of CI: p2099[0] are influenced.
Using p2098[1], the signals of CI: p2099[1] are influenced.

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
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<td>Bit 0</td>
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<td>Not inverted</td>
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<td></td>
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<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Bit 3</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Bit 4</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Bit 5</td>
<td>Inverted</td>
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<td>Not inverted</td>
<td>-</td>
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</tr>
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<td>08</td>
<td>Bit 8</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
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<td>09</td>
<td>Bit 9</td>
<td>Inverted</td>
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<td>Not inverted</td>
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</tr>
<tr>
<td>11</td>
<td>Bit 11</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
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<td>12</td>
<td>Bit 12</td>
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</tr>
<tr>
<td>15</td>
<td>Bit 15</td>
<td>Inverted</td>
<td>Not inverted</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Dependency:
Refer to: r2094, r2095, p2099
### p2099[0...1] Connector-binector converter signal source / Con/bin S_src

| 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 |

| Access level | 3 | Calculated: | - |
| Can be changed: | U, T | Scaling: | - |
| Units group: | - | Unit selection: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

### p2100[0...19] Setting the fault number for fault response / F_no F response

| 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 |
| Notice | For the following cases, it is not possible to re-parameterize the fault response to a fault: - if there is no existing fault number. - the message type is not "fault" (F). |
| Note | Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved. |

| Access level | 3 | Calculated: | - |
| Can be changed: | U, T | Scaling: | - |
| Units group: | - | Unit selection: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>65535</td>
<td>0</td>
</tr>
</tbody>
</table>

### p2101[0...19] Setting the fault response / Fault response

| Description | Sets the fault response for the selected fault. |
| Dependency | The fault is selected and the required response is set under the same index. Refer to: p2100 |
| 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. Example: F12345 and fault response = NONE (OFF1, OFF2) --> The fault response NONE can be changed to OFF1 or OFF2. |

| Access level | 3 | Calculated: | - |
| Can be changed: | U, T | Scaling: | - |
| Units group: | - | Unit selection: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>
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.
Re value = 5 (STOP2):
n_set = 0
Re value = 6 (armature short-circuit, internal/DC braking):
This value can only be set for all drive data sets when p1231 = 4.
a) DC braking is not possible for synchronous motors.
b) DC braking is possible for induction motors.

<table>
<thead>
<tr>
<th>p2103[0...n]</th>
<th>BI: 1. Acknowledge faults / 1. Acknowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Access level: 3</td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Can be changed: U, T</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>[0] 722.2</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>p2103[0...n]</th>
<th>BI: 1. Acknowledge faults / 1. Acknowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td>Access level: 3</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Can be changed: U, T</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>[0] 2090.7</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>p2104[0...n]</th>
<th>BI: 2. Acknowledge faults / 2. Acknowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Access level: 3</td>
</tr>
<tr>
<td>G120C_USS</td>
<td>Can be changed: U, T</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Description: Sets the second signal source to acknowledge faults.
Note: A fault acknowledgement is triggered with a 0/1 signal.
### Parameters

**List of parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>p2104[0...n]</strong></td>
<td>BI: 2. Acknowledge faults / 2. Acknowledge</td>
<td>Access level: 3, Can be changed: U, T, Units group: -</td>
</tr>
<tr>
<td>G120C_DP</td>
<td><strong>Description:</strong> Sets the second signal source to acknowledge faults.</td>
<td><strong>Note:</strong> A fault acknowledgement is triggered with a 0/1 signal.</td>
</tr>
<tr>
<td>G120C_PN</td>
<td><strong>Data type:</strong> U32 / Binary, <strong>Dyn. index:</strong> CDS, p0170, <strong>Func. diagram:</strong> 2546, 8060, <strong>Factory setting</strong> [0] 722.2, [1] 0</td>
<td></td>
</tr>
<tr>
<td><strong>p2106[0...n]</strong></td>
<td>BI: External fault 1 / External fault 1</td>
<td>Access level: 3, Can be changed: U, T, Units group: -</td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Sets the signal source for external fault 1.</td>
<td><strong>Dependency:</strong> Refer to: F07860, <strong>Note:</strong> An external fault is triggered with a 1/0 signal.</td>
</tr>
<tr>
<td></td>
<td><strong>Data type:</strong> U32 / Binary, <strong>Dyn. index:</strong> CDS, p0170, <strong>Func. diagram:</strong> 2546, <strong>Factory setting</strong> 1</td>
<td></td>
</tr>
<tr>
<td><strong>r2109[0...63]</strong></td>
<td>Fault time removed in milliseconds / t_flt resolved ms</td>
<td>Access level: 4, Can be changed: -</td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Displays the system runtime in milliseconds when the fault was removed.</td>
<td><strong>Dependency:</strong> Refer to: r0945, r0947, r0948, r0949, r2130, r2133, r2136, <strong>Notice:</strong> 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.</td>
</tr>
<tr>
<td></td>
<td><strong>Data type:</strong> Unsigned32, <strong>Dyn. index:</strong> -, <strong>Func. diagram:</strong> 1750, 8060, <strong>Factory setting</strong> - [ms] - [ms] - [ms]</td>
<td></td>
</tr>
<tr>
<td><strong>r2110[0...63]</strong></td>
<td>Alarm number / Alarm number</td>
<td>Access level: 2, Can be changed: -</td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> This parameter is identical to r2122.</td>
<td><strong>Data type:</strong> Unsigned16, <strong>Dyn. index:</strong> -, <strong>Func. diagram:</strong> 8065, <strong>Factory setting</strong></td>
</tr>
<tr>
<td><strong>p2111</strong></td>
<td>Alarm counter / Alarm counter</td>
<td>Access level: 3, Can be changed: U, T, Units group: -</td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong> Number of alarms that have occurred after the last reset.</td>
<td><strong>Data type:</strong> Unsigned16, <strong>Dyn. index:</strong> -, <strong>Func. diagram:</strong> 1750, 8065, <strong>Factory setting</strong> 0, 65535</td>
</tr>
</tbody>
</table>
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[0...n]
**BI: External alarm 1 / External alarm 1**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: U32 / Binary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: CDS, p0170</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 2546</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Sets the signal source for external alarm 1.

**Dependency:** Refer to: A07850

**Note:** An external alarm is triggered with a 1/0 signal.

### r2120
**CO: Sum of fault and alarm buffer changes / Sum buffer changed**

<table>
<thead>
<tr>
<th>Access level: 4</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 8065</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the sum of all of the fault and alarm buffer changes in the drive unit.

**Dependency:** Refer to: r0944

### r2122[0...63]
**Alarm code / Alarm code**

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 1750, 8065</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the number of alarms that have occurred.

**Dependency:** Refer to: r2110, r2123, r2124, r2125, r2134

**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 recv ms**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 1750, 8065</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the system runtime in milliseconds when the alarm occurred.
**Parameters**

**List of parameters**

**Dependency:**
Refer to: r2110, r2122, r2124, r2125, r2134

**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 r2212.

**r2124[0...63] Alarm value / Alarm value**

| Access level: | 3 | Calculated: | - | Data type: Integer32 |
| Units group: | - | Unit selection: | - | |
| Min | Max | Factory setting |

**Description:**
Displays additional information about the active alarm (as integer number).

**Dependency:**
Refer to: r2110, r2122, r2123, r2125, r2134

**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**

| Access level: | 3 | Calculated: | - | Data type: Unsigned32 |
| Units group: | - | Unit selection: | - | |
| Min | Max | Factory setting |

**Description:**
Displays the system runtime in milliseconds when the alarm was cleared.

**Dependency:**
Refer to: r2110, r2122, r2123, r2124, r2134

**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] Setting fault number for acknowledge mode / Fault_no ackn_mode**

| Access level: | 3 | Calculated: | - | Data type: Unsigned16 |
| Units group: | - | Unit selection: | - | |
| Min | Max | Factory setting |

**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

**Notice:**
It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:
- Fault number does not exist.
- Message type is not "fault" (F).

**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] Sets acknowledgement mode / Acknowledge mode**

| Access level: | 3 | Calculated: | - | Data type: Integer16 |
| Units group: | - | Unit selection: | - | |
| Min | Max | Factory setting |

**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

**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 of a fault in the following cases:
- if there is no existing fault number.
- the message type is not "fault" (F).

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)

Example:
The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

**p2128[0...15]** Selecting fault/alarm code for trigger / Message trigger

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
<th>Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>Unit selection:</td>
<td>Func. diagram:</td>
<td>1750, 8070</td>
</tr>
</tbody>
</table>

**Description:**
Selects faults or alarms which can be used as trigger.

**Dependency:**
Refer to: r2129

**r2129.0...15** CO/BO: Trigger word for faults and alarms / Trigger word

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
<th>Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>Unit selection:</td>
<td>Func. diagram:</td>
<td>1530, 8070</td>
</tr>
</tbody>
</table>

**Description:**
Trigger signal for the selected faults and alarms

**Bit field:**

<table>
<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>Trigger signal p2128[0]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Trigger signal p2128[1]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Trigger signal p2128[2]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Trigger signal p2128[3]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Trigger signal p2128[4]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Trigger signal p2128[5]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Trigger signal p2128[6]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>Trigger signal p2128[7]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Trigger signal p2128[8]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Trigger signal p2128[9]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Trigger signal p2128[10]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Trigger signal p2128[11]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Trigger signal p2128[12]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Trigger signal p2128[13]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Trigger signal p2128[14]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Trigger signal p2128[15]</td>
<td>ON</td>
<td>OFF</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:**
If one of the faults or alarms selected in p2128[n] occurs, then the particular bit of this binector output 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.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>r2130[0...63]</code></td>
<td>Fault time received in days / t_fault_recv days</td>
<td>Displays the system runtime in days when the fault occurred.</td>
<td>Refer to: r0945, r0947, r0948, r0949, r2109, r2133, r2136</td>
<td>The time comprises <code>r2130</code> (days) and <code>r0948</code> (milliseconds).&lt;br&gt;The value displayed in <code>p2130</code> refers to 01.01.1970.</td>
</tr>
<tr>
<td><code>r2131</code></td>
<td>CO: Actual fault code / Actual fault code</td>
<td>Displays the code of the oldest active fault.</td>
<td>0: No fault present.</td>
<td></td>
</tr>
<tr>
<td><code>r2132</code></td>
<td>CO: Actual alarm code / Actual alarm code</td>
<td>Displays the code of the last alarm that occurred.</td>
<td>0: No alarm present.</td>
<td></td>
</tr>
<tr>
<td><code>r2133[0...63]</code></td>
<td>Fault value for float values / Fault val float</td>
<td>Displays additional information about the fault that occurred for float values.</td>
<td>Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136</td>
<td>The buffer parameters are cyclically updated in the background (refer to status signal in <code>r2139</code>).</td>
</tr>
<tr>
<td><code>r2134[0...63]</code></td>
<td>Alarm value for float values / Alarm value float</td>
<td>Displays additional information about the active alarm for float values.</td>
<td>Refer to: r2110, r2122, r2123, r2124, r2125</td>
<td>The buffer parameters are cyclically updated in the background (refer to status signal in <code>r2139</code>).</td>
</tr>
</tbody>
</table>
List of parameters

**r2135.12...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2**

Access level: 2  
Can be changed: -  
Units group: -  
Min Max  

Description: Displays the second status word of faults and alarms.

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Fault motor overtemperature</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Fault power unit thermal overload</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Alarm motor overtemperature</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Alarm power unit thermal overload</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**r2136[0...63] Fault time removed in days / t_flt resolv. days**

Access level: 3  
Can be changed: -  
Units group: -  
Min Max  

Description: Displays the system runtime in days when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133

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**

Access level: 2  
Can be changed: -  
Units group: -  
Min Max  

Description: Displays the control word of the faults and alarms.

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>07</td>
<td>Acknowledge fault</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>External alarm 1 (A07850) effective</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>External alarm 2 (A07851) effective</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>External alarm 3 (A07852) effective</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>External fault 1 (F07860) effective</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>External fault 2 (F07861) effective</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>External fault 3 (F07862) effective</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Dependency: Refer to: p2103, p2104, p2106, p2112

**r2139.0...12 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1**

Access level: 2  
Can be changed: -  
Units group: -  
Min Max  

Description: Displays the first status word of faults and alarms.

<table>
<thead>
<tr>
<th>Bit field</th>
<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>Being acknowledged</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Acknowledgment required</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Fault present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
Parameters

List of parameters

<table>
<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>[n_act] &lt;= n_min p1080</td>
<td>Yes</td>
<td>No</td>
<td>8020</td>
</tr>
<tr>
<td>01</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>[n_act] &gt;= 0</td>
<td>Yes</td>
<td>No</td>
<td>8011</td>
</tr>
<tr>
<td>04</td>
<td>[n_act] &gt;= n_set</td>
<td>Yes</td>
<td>No</td>
<td>8020</td>
</tr>
<tr>
<td>05</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>[n_act] &gt; n_max</td>
<td>Yes</td>
<td>No</td>
<td>8010</td>
</tr>
<tr>
<td>07</td>
<td>Speed setp - act val deviation in tolerance t_off</td>
<td>Yes</td>
<td>No</td>
<td>8011</td>
</tr>
<tr>
<td>08</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Output load is not present</td>
<td>Yes</td>
<td>No</td>
<td>8020</td>
</tr>
<tr>
<td>12</td>
<td>[n_act] &gt; n_max (delayed)</td>
<td>Yes</td>
<td>No</td>
<td>8021</td>
</tr>
<tr>
<td>13</td>
<td>[n_act] &gt; n_max (F07901)</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

Notice:
Re bit 06:
When the overspeed is reached, this bit is set and F07901 output immediately following this. The bit is canceled again as soon as the next pulse inhibit is present.

Note:
Re bit 00:
The threshold value is set in p1080.
Re bit 03:
1 signal direction of rotation positive.
0 signal: direction of rotation negative.
Re bit 04:
The threshold value is set in r1119.
Re bit 13:
Only for internal Siemens use.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
</tr>
</thead>
<tbody>
<tr>
<td>r2198.0...13 CO/BO: Status word monitoring 2 / ZSW monitor 2</td>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Description</td>
<td>Displays the second status word for monitoring functions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bit field</td>
<td>Bit</td>
<td>Signal name</td>
<td>1 signal</td>
<td>0 signal</td>
<td>FP</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>------</td>
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<td>----------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>No</td>
<td>-</td>
<td></td>
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<td>-</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>n_set &gt; 0</td>
<td>Yes</td>
<td>No</td>
<td>8011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Motor blocked</td>
<td>Yes</td>
<td>No</td>
<td>8012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Motor stalled</td>
<td>Yes</td>
<td>No</td>
<td>8012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3 | 3 | - | Unsigned16 | - | - | - | - | - | - |
| Description | Displays the third status word for monitoring functions. | | | | | | | | |</p>
<table>
<thead>
<tr>
<th>Bit field</th>
<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>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>f or n comparison value reached or exceeded</td>
<td>Yes</td>
<td>No</td>
<td>8010</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Speed setp - act val deviation in tolerance t_on</td>
<td>Yes</td>
<td>No</td>
<td>8011</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Ramp-up/ramp-down completed</td>
<td>Yes</td>
<td>No</td>
<td>8011</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

| p2200[0...n] BI: Technology controller enable / Tec_ctrl enable | 2 | - | U32 / Binary | T | - | CDS, p0170 | - | - | 7958 |
| Description | Sets the signal source to switch in/switch out the technology controller. The technology controller is switched in with a 1 signal. | | | | | | | | | |
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2201[0...n]</td>
<td>Sets the value for fixed value 1 of the technology controller.</td>
<td>Refer to: p2220, p2221, p2222, p2223, r2224, r2229</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
</tr>
<tr>
<td>p2202[0...n]</td>
<td>Sets the value for fixed value 2 of the technology controller.</td>
<td>Refer to: p2220, p2221, p2222, p2223, r2224, r2229</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
</tr>
<tr>
<td>p2203[0...n]</td>
<td>Sets the value for fixed value 3 of the technology controller.</td>
<td>Refer to: p2220, p2221, p2222, p2223, r2224, r2229</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
</tr>
<tr>
<td>p2204[0...n]</td>
<td>Sets the value for fixed value 4 of the technology controller.</td>
<td>Refer to: p2220, p2221, p2222, p2223, r2224, r2229</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
</tr>
<tr>
<td>p2205[0...n]</td>
<td>Sets the value for fixed value 5 of the technology controller.</td>
<td>Refer to: p2220, p2221, p2222, p2223, r2224, r2229</td>
<td>A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.</td>
</tr>
</tbody>
</table>
### List of Parameters

#### p2206[0...n] CO: Technology controller fixed value 6 / Tec_ctr fix val 6

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>PERCENT</td>
<td>DDS, p0180</td>
<td>7950</td>
<td>9_1</td>
<td>p0595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td></td>
<td>Max</td>
<td>200.00 [%]</td>
<td>60.00 [%]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the value for fixed value 6 of the technology controller.

**Dependency:** Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

---

#### p2207[0...n] CO: Technology controller fixed value 7 / Tec_ctr fix val 7

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>PERCENT</td>
<td>DDS, p0180</td>
<td>7950</td>
<td>9_1</td>
<td>p0595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td></td>
<td>Max</td>
<td>200.00 [%]</td>
<td>70.00 [%]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the value for fixed value 7 of the technology controller.

**Dependency:** Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

---

#### p2208[0...n] CO: Technology controller fixed value 8 / Tec_ctr fix val 8

<table>
<thead>
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<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>PERCENT</td>
<td>DDS, p0180</td>
<td>7950</td>
<td>9_1</td>
<td>p0595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td></td>
<td>Max</td>
<td>200.00 [%]</td>
<td>80.00 [%]</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the value for fixed value 8 of the technology controller.

**Dependency:** Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

---

#### p2209[0...n] CO: Technology controller fixed value 9 / Tec_ctr fix val 9

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>PERCENT</td>
<td>DDS, p0180</td>
<td>7950</td>
<td>9_1</td>
<td>p0595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td></td>
<td>Max</td>
<td>200.00 [%]</td>
<td>90.00 [%]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the value for fixed value 9 of the technology controller.

**Dependency:** Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

---

#### p2210[0...n] CO: Technology controller fixed value 10 / Tec_ctr fix val 10

<table>
<thead>
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<th>Data type</th>
<th>Can be changed</th>
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<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Units group</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Factory setting</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>U, T</td>
<td>PERCENT</td>
<td>DDS, p0180</td>
<td>7950</td>
<td>9_1</td>
<td>p0595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td></td>
<td>Max</td>
<td>200.00 [%]</td>
<td>100.00 [%]</td>
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<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the value for fixed value 10 of the technology controller.

**Dependency:** Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**Notice:** A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2211[0...n]</td>
<td>CO: Technology controller fixed value 11 / Tec_ctr fix val 11</td>
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<td></td>
<td>U, T</td>
<td>9_1</td>
<td>-200.00 [%]</td>
<td>200.00 [%]</td>
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<td>CO: Technology controller fixed value 12 / Tec_ctr fix val 12</td>
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<td></td>
<td>U, T</td>
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<td>CO: Technology controller fixed value 13 / Tec_ctr fix val 13</td>
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<td></td>
<td>U, T</td>
<td>9_1</td>
<td>-200.00 [%]</td>
<td>200.00 [%]</td>
<td>130.00 [%]</td>
</tr>
<tr>
<td>p2214[0...n]</td>
<td>CO: Technology controller fixed value 14 / Tec_ctr fix val 14</td>
<td></td>
<td></td>
<td>U, T</td>
<td>9_1</td>
<td>-200.00 [%]</td>
<td>200.00 [%]</td>
<td>140.00 [%]</td>
</tr>
<tr>
<td>p2215[0...n]</td>
<td>CO: Technology controller fixed value 15 / Tec_ctr fix val 15</td>
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<td></td>
<td>U, T</td>
<td>9_1</td>
<td>-200.00 [%]</td>
<td>200.00 [%]</td>
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</table>

**Description:**
- Sets the value for fixed value 11 of the technology controller.
- Sets the value for fixed value 12 of the technology controller.
- Sets the value for fixed value 13 of the technology controller.
- Sets the value for fixed value 14 of the technology controller.
- Sets the value for fixed value 15 of the technology controller.

**Dependency:**
- Refer to: p2220, p2221, p2222, p2223, r2224, r2229

**Notice:**
- A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2216[0...n]</td>
<td>Technology controller fixed value selection method / Tec_ctr FixVal sel</td>
<td>2</td>
<td>-</td>
<td>T</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>p2220[0...n]</td>
<td>BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0</td>
<td>3</td>
<td>-</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>p2221[0...n]</td>
<td>BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1</td>
<td>3</td>
<td>-</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>p2222[0...n]</td>
<td>BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2</td>
<td>3</td>
<td>-</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>p2223[0...n]</td>
<td>BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3</td>
<td>3</td>
<td>-</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

**Description:** Sets the method to select the fixed setpoints.

**Value:**
- 1: Direct selection
- 2: Binary selection

**Dependency:**
- Refer to: p2221, p2222, p2223

**Description:**
Sets the signal source to select the fixed value of the technology controller.

**Dependency:**
- Refer to: p2220, p2222, p2223

**Description:**
Sets the signal source to select the fixed value of the technology controller.

**Dependency:**
- Refer to: p2220, p2221, p2223

**Description:**
Sets the signal source to select the fixed value of the technology controller.

**Dependency:**
- Refer to: p2220, p2221, p2222

**Description:**
Sets the signal source to select the fixed value of the technology controller.

**Dependency:**
- Refer to: p2220, p2221, p2222
### List of parameters

**r2224**

**CO: Technology controller fixed value effective / Tec_ctr FixVal eff**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** 9_1
- **Min:** - [%]  
- **Max:** - [%]  
- **Factory setting:** - [%]

**Description:** Displays the selected and effective fixed value of the technology controller.

**Dependency:** Refer to: r2229

**r2225.0**

**CO/BO: Technology controller fixed value selection status word / Tec_ctr FixVal ZSW**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Max:** -

**Description:** Displays the status word for the fixed value selection of the technology controller.

<table>
<thead>
<tr>
<th>Bit field</th>
<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>Technology controller fixed value selected</td>
<td>Yes</td>
<td>No</td>
<td>7950, 7951</td>
<td></td>
</tr>
</tbody>
</table>

**r2229**

**Technology controller number actual / Tec_ctrl No. act**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Max:** -

**Dependency:** Refer to: r2224

**p2230[0...n]**

**Technology controller motorized potentiometer configuration / Tec_ctr mop config**

- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min:** -
- **Max:** -

**Description:** Sets the configuration for the motorized potentiometer of the technology controller.

<table>
<thead>
<tr>
<th>Bit field</th>
<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>Data save active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Initial rounding-off active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Non-volatile data save active for p2230.0 = 1</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Ramp-function generator always active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: r2231, p2240

**Notice:**  
For p0014 = 1, 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:**  
Re bit 00:  
0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p2240.  
1: The setpoint for the motorized potentiometer is saved and after ON is entered using r2231. In order to save in a non-volatile fashion, bit 03 should be set to 1.
Re bit 02:
0: Without initial rounding-off
1: With initial rounding-off.
The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed). The jerk for initial rounding is independent of the ramp-up time and only depends on the selected maximum value (p2237). It is calculated as follows:
\[ r = 0.0001 \times \max(p2237, |p2238|) \times \% / 0.13^2 \]  
The jerk is effective until the maximum acceleration is reached (\(a_{\max} = p2237 \% / p2247 \) or \(a_{\max} = p2238 \% / p2248 \)), after which the drive continues to run linearly with constant acceleration.
The higher the maximum acceleration (the lower that p2247 is), the longer the ramp-up time increases with respect to the set ramp-up time.
Re bit 03:
0: Non-volatile data save de-activated.
1. The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for p2230.0 = 1).
Re bit 04:
When the bit is set, the ramp-function generator is computed independent of the pulse enable. The actual output value of the motorized potentiometer is always in r2250.

### r2231 Technology controller motorized potentiometer setpoint memory / Tec_ctrl mop mem

| Access level: 3 | Calculated: - | Data type: FloatingPoint32 |
| Can be changed: - | Scaling: - | Dyn. index: - |
| Units group: 9_1 | Unit selection: p0595 | Func. diagram: 7954 |
| Min | Max | Factory setting |
| - [%] | - [%] | - [%] |

**Description:**
Displays the setpoint memory for the motorized potentiometer of the technology controller.

**Dependency:**
Refer to: p2230

### p2235[0...n] BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise

| Access level: 3 | Calculated: - | Data type: U32 / Binary |
| Can be changed: T | Scaling: - | Dyn. index: CDS, p0170 |
| Units group: - | Unit selection: - | Func. diagram: 7954 |
| Min | Max | Factory setting |
| - | - | 0 |

**Description:**
Sets the signal source to continually increase the setpoint for the motorized potentiometer of the technology controller.
The setpoint change (CO: r2250) depends on the set ramp-up time (p2247) and the duration of the signal that is present (BI: p2235).

**Dependency:**
Refer to: p2236

### p2236[0...n] BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower

| Access level: 3 | Calculated: - | Data type: U32 / Binary |
| Can be changed: T | Scaling: - | Dyn. index: CDS, p0170 |
| Units group: - | Unit selection: - | Func. diagram: 7954 |
| Min | Max | Factory setting |
| - | - | 0 |

**Description:**
Sets the signal source to continually reduce the setpoint for the motorized potentiometer of the technology controller.
The setpoint change (CO: r2250) depends on the set ramp-down time (p2248) and the duration of the signal that is present (BI: p2236).

**Dependency:**
Refer to: p2235
### List of parameters

#### p2237[0...n]  
**Technology controller motorized potentiometer maximum value / Tec_ctrl mop max**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>9_1</td>
<td>Unit selection:</td>
<td>p0595</td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td>Max</td>
<td>200.00 [%]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>100.00 [%]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the maximum value for the motorized potentiometer of the technology controller.

**Dependency:** Refer to: p2238

#### p2238[0...n]  
**Technology controller motorized potentiometer minimum value / Tec_ctrl mop min**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>9_1</td>
<td>Unit selection:</td>
<td>p0595</td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td>Max</td>
<td>200.00 [%]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>-100.00 [%]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the minimum value for the motorized potentiometer of the technology controller.

**Dependency:** Refer to: p2237

#### p2240[0...n]  
**Technology controller motorized potentiometer starting value / Tec_ctrl mop start**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>9_1</td>
<td>Unit selection:</td>
<td>p0595</td>
</tr>
<tr>
<td>Min</td>
<td>-200.00 [%]</td>
<td>Max</td>
<td>200.00 [%]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>0.00 [%]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the starting value for the motorized potentiometer of the technology controller.

**Dependency:** Refer to: p2240

#### p2247[0...n]  
**Technology controller motorized potentiometer ramp-up time / Tec_ctrl mop t_r-up**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>2</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0.0 [s]</td>
<td>Max</td>
<td>1000.0 [s]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>10.0 [s]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer of the technology controller.

**Dependency:** Refer to: p2248

**Note:**

The time is referred to 100 %.

When the initial rounding-off is activated (p2230.2 = 1) the ramp-up is correspondingly extended.
### List of parameters

#### Description:
Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer of the technology controller.

#### Dependency:
Refer to: p2247

#### Note:
The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-down is correspondingly extended.

#### Parameters

<table>
<thead>
<tr>
<th>p2248[0...n]</th>
<th>Technology controller motorized potentiometer ramp-down time / Tec_ctrMop_t_rdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>2</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0.0 [s]</td>
</tr>
<tr>
<td>Max</td>
<td>1000.0 [s]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>10.0 [s]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>r2250</th>
<th>CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>2</td>
</tr>
<tr>
<td>Can be changed:</td>
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</tr>
<tr>
<td>Units group:</td>
<td>9_1</td>
</tr>
<tr>
<td>Min</td>
<td>- [%]</td>
</tr>
<tr>
<td>Max</td>
<td>- [%]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>- [%]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>p2251</th>
<th>Technology controller mode / Tec_ctrl mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>T</td>
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<tr>
<td>Units group:</td>
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<tr>
<td>Min</td>
<td>0</td>
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<tr>
<td>Max</td>
<td>1</td>
</tr>
<tr>
<td>Factory setting</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>p2253[0...n]</th>
<th>CI: Technology controller setpoint 1 / Tec_ctrl setp 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
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</tr>
<tr>
<td>Can be changed:</td>
<td>U, T</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
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<tr>
<td>Min</td>
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</tr>
<tr>
<td>Max</td>
<td>-</td>
</tr>
<tr>
<td>Factory setting</td>
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</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Calculated</th>
<th>Scaling</th>
<th>Unit selection</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2254</td>
<td>CI: Technology controller setpoint 2 / Tec_ctrl setp 2</td>
<td>3</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>PERCENT</td>
<td>-</td>
<td>-</td>
<td>7958</td>
<td></td>
</tr>
<tr>
<td>p2255</td>
<td>Technology controller setpoint 1 scaling / Tec_ctrl set1 scal</td>
<td>3</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7958</td>
<td></td>
</tr>
<tr>
<td>p2256</td>
<td>Technology controller setpoint 2 scaling / Tec_ctrl set2 scal</td>
<td>3</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7958</td>
<td></td>
</tr>
<tr>
<td>p2257</td>
<td>Technology controller ramp-up time / Tec_ctrl t_ramp-up</td>
<td>2</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7958</td>
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</tr>
<tr>
<td>p2258</td>
<td>Technology controller ramp-down time / Tec_ctrl t_ramp-dn</td>
<td>2</td>
<td>U, T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7958</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
The ramp-up and ramp-down times are referred to 100%. The ramp-up time is referred to 100%. The ramp-down time is referred to 100%.
List of parameters

**r2260**  
**CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG**

- **Description:** Sets the setpoint after the ramp-function generator of the technology controller.
- **Value:**
  - Min: - [%]
  - Max: - [%]
- **Access level:** 2
- **Calculated:** -
- **Scaling:** PERCENT
- **Units group:** 9_1
- **Unit selection:** p0595
- **Data type:** FloatingPoint32
- **Dyn. index:** 7958
- **Factory setting:** - [%]

**p2261**  
**Technology controller setpoint filter time constant / Tec_ctrl set T**

- **Description:** Sets the time constant for the setpoint filter (PT1) of the technology controller.
- **Min:** 0.000 [s]
- **Max:** 60.000 [s]
- **Factory setting:** 0.000 [s]
- **Access level:** 3
- **Calculated:** -
- **Scaling:** -
- **Units group:** -
- **Unit selection:** -
- **Data type:** FloatingPoint32
- **Dyn. index:** 7958
- **Func. diagram:** 7958
- **Can be changed:** U, T

**p2263**  
**Technology controller type / Tec_ctrl type**

- **Description:** Sets the technology controller type.
- **Min:** 0
- **Max:** 1
- **Factory setting:** 0
- **Access level:** 3
- **Calculated:** -
- **Scaling:** -
- **Units group:** -
- **Unit selection:** -
- **Data type:** Integer16
- **Dyn. index:** 7958
- **Func. diagram:** 7958
- **Can be changed:** T

**p2264[0...n]**  
**CI: Technology controller actual value / Tec_ctrl act val**

- **Description:** Sets the signal source for the actual value of the technology controller.
- **Min:** -
- **Max:** -
- **Factory setting:** 0
- **Access level:** 2
- **Calculated:** -
- **Scaling:** PERCENT
- **Units group:** -
- **Unit selection:** -
- **Data type:** U32 / FloatingPoint32
- **Dyn. index:** CDS, p0170
- **Func. diagram:** 7958
- **Can be changed:** U, T

**p2265**  
**Technology controller actual value filter time constant / Tec_ctrl act T**

- **Description:** Sets the time constant for the actual value filter (PT1) of the technology controller.
- **Min:** 0.000 [s]
- **Max:** 60.000 [s]
- **Factory setting:** 0.000 [s]
- **Access level:** 2
- **Calculated:** -
- **Scaling:** -
- **Units group:** -
- **Unit selection:** -
- **Data type:** FloatingPoint32
- **Dyn. index:** 7958
- **Func. diagram:** 7958
- **Can be changed:** U, T

**r2266**  
**CO: Technology controller actual value after filter / Tec_ctr act aftFlt**

- **Description:** Displays the smoothed actual value after the filter (PT1) of the technology controller.
- **Min:** - [%]
- **Max:** - [%]
- **Access level:** 3
- **Calculated:** -
- **Scaling:** PERCENT
- **Units group:** 9_1
- **Unit selection:** p0595
- **Data type:** FloatingPoint32
- **Dyn. index:** 7958
- **Func. diagram:** 7958
- **Factory setting:** - [%]
Description:
Sets the upper limit for the actual value signal of the technology controller.

Dependency:
Refer to: p2264, p2265, p2271
Refer to: F07426

Notice:
If the actual value exceeds this upper limit, this results in fault F07426.

p2268 Technology controller lower limit actual value / Tec_ctrl l_lim act

Access level: 3
Can be changed: U, T
Units group: 9_1
Min: -200.00 [%]
Max: 200.00 [%]
Notice:
If the actual value falls below this lower limit, this results in fault F07426.

p2269 Technology controller gain actual value / Tech_ctrl gain act

Access level: 3
Can be changed: U, T
Units group: -
Min: 0.00 [%]
Max: 500.00 [%]
Note:
For 100%, the actual value is not changed.

p2270 Technology controller actual value function / Tec_ctr ActVal fct

Access level: 3
Can be changed: U, T
Units group: -
Min: 0
Max: 3
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
### 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).

### Description:
Displays the scaled actual value signal of the technology controller.

**Dependency:**
Refer to: p2264, p2265, r2266, p2267, p2268, p2269, p2270, p2271

### Description:
Displays the error (system deviation) between the setpoint and actual value of the technology controller.

**Dependency:**
Refer to: p2263

### Description:
Sets the time constant for the differentiation (D component) of the technology controller.

**Note:**
p2274 = 0: Differentiation is disabled.
### Parameters

#### List of parameters

**p2280**

**Technology controller proportional gain / Tec_ctrl Kp**

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** -
- **Min:** 0.000
- **Max:** 100.000

**Description:**
Sets the proportional gain (P component) of the technology controller.

**Note:**
p2280 = 0: The proportional gain is disabled.

**p2285**

**Technology controller integral time / Tec_ctrl Tn**

- **Access level:** 2
- **Can be changed:** U, T
- **Units group:** -
- **Min:** 0.000 [s]
- **Max:** 10000.000 [s]

**Description:**
Sets the integral time (I component, integrating time constant) of the technology controller.

**Notice:**
The following applies for p2251 = 0:
If the output of the technology controller lies within the range of a suppression (skip) bandwidth (p1091 ... p1092, p1101) or below the minimum speed (p1080), the integral component of the controller is held so that the controller temporarily works as a P controller. This is necessary in order to prevent the controller from behaving in an unstable manner, as the ramp-function generator switches to the parameterized up and down ramps (p1120, p1121) at the same time in order to avoid setpoint steps. This state can be exited or avoided by changing the controller setpoint or by using the start speed (= minimum speed).

**Note:**
When the controller output reaches the limit, the I component of the controller is held.
p2285 = 0:
The integral time is disabled and the I component of the controller is reset.

**p2286[0...n]**

**BI: Hold technology controller integrator / Tec_ctr integ stop**

- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** -
- **Max:** -

**Description:**
Sets the signal source to hold the integrator for the technology controller.

**p2289[0...n]**

**CI: Technology controller pre-control signal / Tec_ctrl prectrl**

- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min:** -
- **Max:** -

**Description:**
Sets the signal source for the pre-control signal of the technology controller.

**p2291**

**CO: Technology controller maximum limiting / Tec_ctrl max_lim**

- **Access level:** 3
- **Can be changed:** U, T
- **Units group:** -
- **Min:** -200.00 [%]
- **Max:** 200.00 [%]

**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).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2292</td>
<td>CO: Technology controller minimum limiting / Tec_ctrl min_lim</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>7958</td>
<td>-200.00 [%]</td>
<td>200.00 [%]</td>
<td>0.00 [%]</td>
</tr>
<tr>
<td></td>
<td>Sets the minimum limit of the technology controller.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>Refer to: p2291</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caution: The maximum limit must always be greater than the minimum limit (p2291 &gt; p2292).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>p2293</td>
<td>Technology controller ramp-up/ramp-down time / Tec_ctr ramp up/dn</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>7958</td>
<td>0.00 [s]</td>
<td>100.00 [s]</td>
<td>1.00 [s]</td>
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<tr>
<td></td>
<td>Sets the ramping time for the output signal of the technology controller.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>Refer to: p2291, p2292</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r2294</td>
<td>CO: Technology controller output signal / Tec_ctr outpSig</td>
<td>2</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>7958</td>
<td>- [%]</td>
<td>- [%]</td>
<td>- [%]</td>
</tr>
<tr>
<td></td>
<td>Displays the output signal of the technology controller.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refer to: p2295</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p2295</td>
<td>CO: Technology controller output scaling / Tec_ctr outpScal</td>
<td>3</td>
<td>-</td>
<td>FloatingPoint32</td>
<td>-</td>
<td>7958</td>
<td>-100.00 [%]</td>
<td>100.00 [%]</td>
<td>100.00 [%]</td>
</tr>
<tr>
<td></td>
<td>Sets the scaling for the output signal of the technology controller.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p2296[0...n]</td>
<td>CI: Technology controller output scaling / Tec_ctrl outp scal</td>
<td>3</td>
<td>-</td>
<td>U32 / FloatingPoint32</td>
<td>-</td>
<td>7958</td>
<td>-</td>
<td>-</td>
<td>2295[0]</td>
</tr>
<tr>
<td></td>
<td>Sets the signal source for the scaling value of the technology controller.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Parameters

List of parameters

Dependency: Refer to: p2295

**p2297[0...n]**  
CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src

| Access level: | 3 |
| Can be changed: | U, T |
| Units group: | - |
| Min | Max |

Data type: U32 / FloatingPoint32  
Calculated: -  
Scaling: PERCENT  
Dyn. index: CDS, p0170  
Func. diagram: 7958  
Factory setting: 1084[0]

Description: Sets the signal source for the maximum limiting of the technology controller.

Dependency: Refer to: p2291

Note: In order that the output of the technology controller does not exceed the maximum speed limit, its upper limit p2297 should be connected to the actual maximum speed r1084. In mode p2251 = 1, p2299 must also be connected to the output of the ramp-function generator r1150.

**p2298[0...n]**  
CI: Technology controller minimum limit signal source / Tec_ctrl min_l_s_s

| Access level: | 3 |
| Can be changed: | U, T |
| Units group: | - |
| Min | Max |

Data type: U32 / FloatingPoint32  
Calculated: -  
Scaling: PERCENT  
Dyn. index: CDS, p0170  
Func. diagram: 7958  
Factory setting: 1087[0]

Description: Sets the signal source for the minimum limiting of the technology controller.

Dependency: Refer to: p2292

Note: If the technology controller is rotated in a negative direction in mode p2251 = 0, its lower limit p2298 should be connected to the actual minimum speed r1087. In mode p2251 = 1, p2299 must also be connected to the output of the ramp-function generator r1150.

**p2299[0...n]**  
CI: Technology controller limit offset / Tech_ctrl lim offs

| Access level: | 3 |
| Can be changed: | U, T |
| Units group: | - |
| Min | Max |

Data type: U32 / FloatingPoint32  
Calculated: -  
Scaling: PERCENT  
Dyn. index: CDS, p0170  
Func. diagram: 7958  
Factory setting: 0

Description: Sets the signal source for the offset of the output limiting of the technology controller.

Note: In mode p2251 = 1, p2299 must be connected to the output of the ramp-function generator r1150 so that the technology controller stops when the speed limits are reached (see also p2297, p2298).

**p2302**  
Technology controller output signal starting value / Tec_ctr start val

| Access level: | 3 |
| Can be changed: | U, T |
| Units group: | - |

Min: 0.00 [%]  
Max: 200.00 [%]

Data type: FloatingPoint32  
Calculated: -  
Scaling: -  
Dyn. index: -  
Func. diagram: 7958  
Factory setting: 0.00 [%]

Description: Sets the start value for the output of the technology controller.

If the drive is switched on and the technology controller is already enabled (see p2200, r0056.3), then it's output signal r2294 first goes to the start value p2302, before the controller starts to operate.

Dependency: The starting value is only effective in the mode "technology controller as main speed setpoint" (p2251 = 0).

Note: If the technology controller is first enabled when the drive is switched on, a start speed remains ineffective, and the controller output starts with the actual setpoint speed of the ramp-function generator.

If the technology controller operates on the speed/setpoint channel (p2251 = 0), then the starting value is interpreted as the starting speed and when operation is enabled, is connected to the output of the technology controller (r2294).
If fault F07426 "technology controller actual value limited" occurs while ramping up to the starting value and if the associated reaction has been set to "NONE" (see p2100, p2101), the starting value is kept as the speed setpoint instead of a switch to closed-loop control operation.

<table>
<thead>
<tr>
<th><strong>p2306 Technology controller fault signal inversion / Tec_ctrl fault inv</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> T</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

**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).

<table>
<thead>
<tr>
<th><strong>r2344 CO: Technology controller last speed setpoint (smoothed) / Tec_ctrl n_setp_sm</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> -</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
</tr>
<tr>
<td>- [%]</td>
</tr>
</tbody>
</table>

**Description:**
Displays the smoothed speed setpoint of the technology controller prior to switching to operation with fault response (see p2345).

**Dependency:** Refer to: p2345

**Note:**
Smoothing time = 10 s

<table>
<thead>
<tr>
<th><strong>p2345 Technology controller fault response / Tech_ctrl flt resp</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> U, T</td>
</tr>
<tr>
<td><strong>Units group:</strong> -</td>
</tr>
<tr>
<td><strong>Min</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

**Description:**
Sets the response of the technology controller to the occurrence of fault F07426 (technology controller actual value limited).

The fault response is executed if status bit 8 or 9 in the technology controller status word r2349 is set. If both status bits are zero, a switch back to technology controller operation will follow.

**Value:**
- 0: Function inhibited
- 1: On fault: Changeover to r2344 (or p2302)
- 2: On fault: Changeover to p2215
Parameters

List of parameters

Dependency:
The parameterized fault response is only effective if the technology controller mode is set to p2251 = 0 (technology controller as main setpoint).
Refer to: p2267, p2268, r2344
Refer to: F07426

Notice:
Dependent upon the application, the changing over of the setpoint when fault F07426 occurs can lead to the fault condition disappearing and the re-activation of the technology controller. This can repeat itself and cause limit oscillations. In this case, a different fault response or a different fixed setpoint 15 for the fault response p2345 = 2 should be selected.

Refer to: p2267, p2268, r2344
Refer to: F07426

Notice:
Dependent upon the application, the changing over of the setpoint when fault F07426 occurs can lead to the fault condition disappearing and the re-activation of the technology controller. This can repeat itself and cause limit oscillations. In this case, a different fault response or a different fixed setpoint 15 for the fault response p2345 = 2 should be selected.

Refer to: F07426

Notice:
Dependent upon the application, the changing over of the setpoint when fault F07426 occurs can lead to the fault condition disappearing and the re-activation of the technology controller. This can repeat itself and cause limit oscillations. In this case, a different fault response or a different fixed setpoint 15 for the fault response p2345 = 2 should be selected.

Refer to: F07426

Notice:
Dependent upon the application, the changing over of the setpoint when fault F07426 occurs can lead to the fault condition disappearing and the re-activation of the technology controller. This can repeat itself and cause limit oscillations. In this case, a different fault response or a different fixed setpoint 15 for the fault response p2345 = 2 should be selected.

Refer to: F07426

Note:
The parameterized fault response can only by achieved if the default fault response of the technology controller fault F07426 is set to "NONE" (see p2100, p2101). If a fault response other than "NONE" is entered in p2101 for F07426, p2345 must be set to zero.

If the fault occurs during ramping up to the starting setpoint p2302, this starting setpoint is retained as the final value (there is no changeover to the fault response setpoint).

r2349.0...12 CO/BO: Technology controller status word / Tec_ctrl status

Access level: 3
Calculated: -
Data type: Unsigned32
Can be changed: -
Scaling: -
Dyn. index: -
Units group: -
Unit selection: -
Func. diagram: 7958
Min -
Max -
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 -
04 Technology controller speed setpoint total in setpoint channel Yes No -
05 Technology controller RFG bypassed in the setpoint channel Yes No -
06 Technology controller starting value at the current limit No Yes -
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 -
12 Fault response active Yes No -

p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]

Access level: 3
Calculated: -
Data type: FloatingPoint32
Can be changed: U, T
Scaling: PERCENT
Dyn. index: DDS, p0180
Units group: -
Unit selection: -
Func. diagram: 1021
Min -10000.00 [%]
Max 10000.00 [%]
Factory setting 0.00 [%]

Description:
Sets a fixed percentage.

Dependency:
Refer to: p2901, 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 [%]**

<table>
<thead>
<tr>
<th>Description</th>
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<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: U, T</td>
<td>Can be changed: -</td>
<td>Can be changed: -</td>
<td>Can be changed: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Units group: -</td>
<td>Units group: -</td>
<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-10000.00 [%]</td>
<td>10000.00 [%]</td>
<td>0.00 [%]</td>
<td>0.00 [%]</td>
</tr>
</tbody>
</table>

**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 [%]**

<table>
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<tr>
<th>Description</th>
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<tbody>
<tr>
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<td>Max</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>- [%]</td>
<td>- [%]</td>
<td>- [%]</td>
<td>- [%]</td>
</tr>
</tbody>
</table>

**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]**

<table>
<thead>
<tr>
<th>Description</th>
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<th>Data type: FloatingPoint32</th>
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</thead>
<tbody>
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<td>Can be changed: -</td>
<td>Can be changed: -</td>
<td>Can be changed: -</td>
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<td>Units group: -</td>
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<td>Units group: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-100000.00 [Nm]</td>
<td>100000.00 [Nm]</td>
<td>0.00 [Nm]</td>
<td>0.00 [Nm]</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: p2900, p2901

**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.
List of parameters

**r3113.0...15**  
**CO/BO: NAMUR message bit bar / NAMUR bit bar**

<table>
<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>Network fault</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>DC link overvoltage</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Fault drive converter power electronics</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Drive converter overtemperature</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
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<tr>
<td>04</td>
<td>Ground fault</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Motor overload</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Bus error</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>07</td>
<td>External safety-relevant shutdown</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>08</td>
<td>Error communication internal</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Fault infeed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Other faults</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**p3117**  
**Change safety message type / Ch. SI mess type**

<table>
<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>Fault converter information electronics/SW_error</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Network fault</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>DC link overvoltage</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Fault drive converter power electronics</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Drive converter overtemperature</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>05</td>
<td>Ground fault</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>06</td>
<td>Motor overload</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
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<tr>
<td>07</td>
<td>Bus error</td>
<td>Yes</td>
<td>No</td>
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</tr>
<tr>
<td>08</td>
<td>External safety-relevant shutdown</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>09</td>
<td>Error communication internal</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Fault infeed</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Other faults</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**p3320[0...n]**  
**Fluid flow machine power point 1 / Fluid_mach P1**

<table>
<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>Fluid flow machine power point 1 / Fluid_mach P1</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
- Displays the status of NAMUR signal bit bar.
- The faults or alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.

**Dependency:**
- Refer to: r0041, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329

**Description:**
- Sets the re-parameterization of all safety messages for faults and alarms.
- The relevant message type during changeover is selected by the firmware.
- 0: Safety messages are not re-parameterized
- 1: Safety messages are re-parameterized

**Note:**
- A change only becomes effective after a POWER ON.

**Description:**
- For the energy-saving display of a fluid-flow machine, a typical flow characteristic \( P = f(n) \) with 5 points along the characteristic is required.
- This parameter specifies the power (P) of point 1 as a [%].
- The characteristic comprises the following value pairs:
  - Power (P) / speed (n)
  - \( p3320 / p3321 \) --> point 1 (P1 / n1)
  - \( p3322 / p3323 \) --> point 2 (P2 / n2)
  - \( p3324 / p3325 \) --> point 3 (P3 / n3)
  - \( p3326 / p3327 \) --> point 4 (P4 / n4)
  - \( p3328 / p3329 \) --> point 5 (P5 / n5)

**Dependency:**
- Refer to: r0041, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329
Note: The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

### p3321[0...n] Fluid flow machine speed point 1 / Fluid_mach n1

| Access level: | 2 |
| Calculated: | - |
| Can be changed: | U, T |
| Scaling: | - |
| Units group: | - |
| Dyn. index: | DDS, p0180 |
| Unit selection: | - |
| Dyn. index: | DDS, p0180 |

| Min | 0.00 |
| Max | 100.00 |

**Units group:** -

**Dependency:** Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329

**Note:** The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

**Description:** For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the speed (n) of point 1 as a [%].

The characteristic comprises the following value pairs:

- $P = f(n)$
- $p3320 / p3321 \rightarrow$ point 1 ($P_1 / n_1$)
- $p3322 / p3323 \rightarrow$ point 2 ($P_2 / n_2$)
- $p3324 / p3325 \rightarrow$ point 3 ($P_3 / n_3$)
- $p3326 / p3327 \rightarrow$ point 4 ($P_4 / n_4$)
- $p3328 / p3329 \rightarrow$ point 5 ($P_5 / n_5$)

**Dependency:** Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3328, p3329

**Note:** The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

### p3322[0...n] Fluid flow machine power point 2 / Fluid_mach P2

| Access level: | 2 |
| Calculated: | - |
| Can be changed: | U, T |
| Scaling: | - |
| Units group: | - |
| Dyn. index: | DDS, p0180 |
| Unit selection: | - |
| Func. diagram: | - |

| Min | 0.00 |
| Max | 100.00 |

**Units group:** -

**Dependency:** Refer to: r0041, p3320, p3321, p3323, p3324, p3325, p3326, p3327, p3328, p3329

**Note:** The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

**Description:** For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the power (P) of point 2 as a [%].

### p3323[0...n] Fluid flow machine speed point 2 / Fluid_mach n2

| Access level: | 2 |
| Calculated: | - |
| Can be changed: | U, T |
| Scaling: | - |
| Units group: | - |
| Dyn. index: | DDS, p0180 |
| Unit selection: | - |
| Func. diagram: | - |

| Min | 0.00 |
| Max | 100.00 |

**Units group:** -

**Dependency:** Refer to: r0041, p3320, p3321, p3322, p3324, p3325, p3326, p3327, p3328, p3329

**Note:** The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

**Description:** For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the speed (n) of point 2 as a [%].
### Parameters

**List of parameters**

#### p3324[0...n]

**Fluid flow machine power point 3 / Fluid_mach P3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>2</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>Max</td>
<td>100.00</td>
</tr>
<tr>
<td>Factory setting</td>
<td>77.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the power ($P$) of point 3 as a [%].

**Dependency:**
Refer to: r0041, p3320, p3321, p3322, p3323, p3325, p3326, p3327, p3328, p3329

**Note:**
The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

#### p3325[0...n]

**Fluid flow machine speed point 3 / Fluid_mach n3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>2</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>Max</td>
<td>100.00</td>
</tr>
<tr>
<td>Factory setting</td>
<td>50.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the speed ($n$) of point 3 as a [%].

**Dependency:**
Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3326, p3327, p3328, p3329

**Note:**
The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

#### p3326[0...n]

**Fluid flow machine power point 4 / Fluid_mach P4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>2</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>Max</td>
<td>100.00</td>
</tr>
<tr>
<td>Factory setting</td>
<td>92.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the power ($P$) of point 4 as a [%].

**Dependency:**
Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3327, p3328, p3329

**Note:**
The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.

#### p3327[0...n]

**Fluid flow machine speed point 4 / Fluid_mach n4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>2</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: DDS, p0180</td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>Max</td>
<td>100.00</td>
</tr>
<tr>
<td>Factory setting</td>
<td>75.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
For the energy-saving display of a fluid-flow machine, a typical flow characteristic $P = f(n)$ with 5 points along the characteristic is required. This parameter specifies the speed ($n$) of point 4 as a [%].

**Dependency:**
Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3328, p3329

**Note:**
The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.
### List of parameters

#### p3328[0...n] Fluid flow machine power point 5 / Fluid_mach P5

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 2</td>
<td>For the energy-saving display of a fluid-flow machine, a typical flow characteristic ( P = f(n) ) with 5 points along the characteristic is required.</td>
<td>Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3329</td>
<td>The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.</td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>This parameter specifies the power (P) of point 5 as a [%].</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data type: FloatingPoint32</td>
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<td></td>
</tr>
<tr>
<td>Scaling: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyn. index: DDS, p0180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit selection: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Func. diagram: -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### p3329[0...n] Fluid flow machine speed point 5 / Fluid_mach n5

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 2</td>
<td>For the energy-saving display of a fluid-flow machine, a typical flow characteristic ( P = f(n) ) with 5 points along the characteristic is required.</td>
<td>Refer to: r0041, p3320, p3321, p3322, p3323, p3324, p3325, p3326, p3327, p3329</td>
<td>The reference value for power and speed is the rated power/rated speed. The energy saved is displayed in r0041.</td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td>This parameter specifies the speed (n) of point 5 as a [%].</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>0.00</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data type: FloatingPoint32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaling: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyn. index: DDS, p0180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit selection: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Func. diagram: -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### p3330[0...n] BI: 2/3 wire control command 1 / 2/3 wire cmd 1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Sets the signal source for command 1 for the two-wire control/three-wire control.</td>
<td>Refer to: p0015, p3331, p3332, r3333, p3334</td>
<td>The mode of operation of this bincotor input is dependent on the wire control set in p0015.</td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data type: U32 / Binary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaling: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyn. index: CDS, p0170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit selection: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Func. diagram: -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### p3331[0...n] BI: 2/3 wire control command 2 / 2/3 wire cmd 2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Sets the signal source for command 2 for the two-wire control/three-wire control.</td>
<td>Refer to: p0015, p3330, r3333, p3334</td>
<td>The mode of operation of this bincotor input is dependent on the wire control set in p0015.</td>
</tr>
<tr>
<td>Can be changed: U, T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data type: U32 / Binary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaling: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyn. index: CDS, p0170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit selection: -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Func. diagram: -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**p3332[0...n]**  
**BI: 2/3 wire control command 3 / 2/3 wire cmd 3**

- **Access level:** 3  
- **Can be changed:** U, T  
- **Units group:** -  
- **Dependency:** Refer to: p0015, p3330, p3331, r3333, p3334

**Description:**
Sets the signal source for command 3 for the two-wire control/three-wire control.

**Note:**
The mode of operation of this binector input is dependent on the wire control set in p0015.

**Value:**
- 0: No wire control  
- 1: Two wire control clockwise/counterclockwise  
- 2: Two wire control clockwise/counterclockwise  
- 3: Three wire control enable clockwise/counterclockwise  
- 4: Three wire control enable ON/reversing

**Dependency:**
Refer to: p0015, p3330, p3331, p3332, r3333

**Bit field:**

<table>
<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>ON</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Reversing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>ON/inverting</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Reversing/inverting</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**r3333.0...3**  
**CO/BO: 2/3 wire control control word / 2/3 wire STW**

- **Access level:** 3  
- **Can be changed:** -  
- **Units group:** -  
- **Dependency:** Refer to: p0015, p3330, p3331, p3332, r3333

**Description:**
Displays the control word for the two wire control/three wire control.
The control signals are dependent on the wire control set in p0015 and the signal states at the digital inputs.

**Dependency:**
Refer to: p0015, p3330, p3331, p3332, p3334

**Bit field:**

<table>
<thead>
<tr>
<th>Bit field</th>
<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>ON</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Reversing</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>ON/inverting</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Reversing/inverting</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**p3334**  
**2/3 wire control selection / 2/3 wire select**

- **Access level:** 4  
- **Can be changed:** U, T  
- **Units group:** -  
- **Dependency:** Refer to: p0015, p3330, p3331, p3332, r3333

**Description:**
Sets the two wire control/three wire control.

**Value:**
- 0: No wire control  
- 1: Two wire control clockwise/counterclockwise  
- 2: Two wire control clockwise/counterclockwise  
- 3: Three wire control enable clockwise/counterclockwise  
- 4: Three wire control enable ON/reversing

**Dependency:**
Refer to: p0015, p3330, p3331, p3332, r3333

**Note:**
This value depends on the wire control set in p0015.

**p3856[0...n]**  
**Compound braking current / Compound l_brake**

- **Access level:** 3  
- **Can be changed:** U, T  
- **Units group:** -  
- **Dependency:** Refer to: p0015

**Description:**
Compound braking current is used to define the amount of DC current that is produced on stopping the motor during U/f operation to further increase the DC brake function.

**Dependency:**
Compound braking is a superimposition of the DC brake function with regenerative braking (net braking along the ramp) after OFF1 or OFF3. This permits braking with controlled motor frequency and minimum power input into the motor. Effective braking without using additional hardware components is obtained by optimizing the ramp down time and compound braking.

**Value:**
- Min: 0.00 [%]  
- Max: 250.00 [%]

**Dependency:**
This parameter is used to define the amount of DC current that is produced on stopping the motor during U/f operation to further increase the DC brake function.
### Dependency:
The compound braking current is only activated if the DC link voltage exceeds the threshold value in r1282.

Compound braking does not operate:
- when DC braking is active (refer to p1230, r1239)
- as long as the motor is not magnetized (e.g. for flying restart)
- for vector control (p1300 >= 20)
- for synchronous motors (p0300 = 2xx)

### Caution:
Generally, increasing the braking current improves the braking effect when stopping the motor. However, if the value is set too high, then the drive can be tripped (shut down) as a result of overcurrent or ground fault.

Recommendation: p3856 < 100 % x (r0209 - r0331) / p0305 / 2

Compound braking generates a current in the motor with a ripple manifesting the rotational frequency. The higher the braking current is set, the higher the resulting ripple, especially when the Vdc(max) control is simultaneously active (refer to to p1280).

### Note:
The parameter value is entered relative to the rated motor current (p0305). Compound braking is deactivated with p3856 = 0%.

### r3859.0
**CO/BO: Compound braking status word / Compound Br ZSW**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
</tr>
<tr>
<td>Factory setting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays the status word of the compound braking.

**Bit field:**
- Bit 00: Compound braking active
  - 1 signal: Yes
  - 0 signal: No
  - FP: -

**Dependency:** Refer to: p3856

### p3900
**Completion of quick commissioning / Compl quick_comm**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>1</th>
<th>Calculated:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(1)</td>
<td>Scaling:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>Max</td>
<td>3</td>
</tr>
<tr>
<td>Factory setting</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning.

The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p15 and p1500 are re-established and all of the dependent motor, open-loop and control-loop control parameters are calculated (corresponding to p0340 = 1).

p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p15 and p1500 and the calculations corresponding to p0340 = 1.

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
- 1: Quick parameterization after parameter reset
- 2: Quick parameterization (only) for BICO and motor parameters
- 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.

When calculating motor, open-loop and closed-loop control parameters (such as for p0340 = 1) parameters associated with a selected Siemens catalog motor are not overwritten.
If a catalog motor has not been selected (p0300), then the following parameters are reset with p3900 > 0 in order to restore the situation that applied when commissioning the drive for the first time:

- induction motor: p0320, p0352, p0362 ... p0369, p0604, p0605
- synchronous motor: p0352, p0604, p0605

<table>
<thead>
<tr>
<th>r3925[0...n]</th>
<th>Identification final display / Ident final_disp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Calculated: p0340 = 1</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:** Displays the commissioning steps that have been carried out.

**Note:** The individual bits are only set if the appropriate action has been initiated and successfully completed. When motor rating plate parameters are changed, the final display is reset. When setting the individual bits, all of the most significant bits are reset.

<table>
<thead>
<tr>
<th>r3926[0...n]</th>
<th>Voltage generation alternating base voltage amplitude / U_gen altern base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 4</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>- [V]</td>
<td>- [V]</td>
</tr>
</tbody>
</table>

**Description:** Displays the base voltage for the alternating voltage in the context of motor data identification.

- 0: No alternating voltages. The function is de-activated.
- <0: Automatic determination of the base voltage and wobbulation / self-setting based on the converter and the connected motor.
- Otherwise: Base voltage for alternating current generation in volts (wobbulation active).

<table>
<thead>
<tr>
<th>r3927[0...n]</th>
<th>Motor data identification control word / MotID STW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 4</td>
<td>Calculated: p0340 = 1</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:** Successfully completed component of the last motor data identification carried out.

**Bit field:**

<table>
<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>Stator inductance estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Rotor time constant estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Leakage inductance estimate no measurement</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

**Dependency:** Refer to: r3925

**Note:** The parameter is a copy of p1909.

<table>
<thead>
<tr>
<th>r3928[0...n]</th>
<th>Rotating measurement configuration / Rot meas config</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 4</td>
<td>Calculated: p0340 = 1</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scrolling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>01 Saturation characteristic identification</td>
<td>Yes</td>
</tr>
<tr>
<td>02 Moment of inertia identification</td>
<td>Yes</td>
</tr>
<tr>
<td>03 Re-calculates the speed controller parameters</td>
<td>Yes</td>
</tr>
<tr>
<td>04 Speed controller optimization (vibration test)</td>
<td>Yes</td>
</tr>
<tr>
<td>05 q leakage inductance ident. (for current controller adaptation)</td>
<td>Yes</td>
</tr>
<tr>
<td>11 Do not change the controller parameters during the measurement</td>
<td>Yes</td>
</tr>
<tr>
<td>12 Measurement shortened</td>
<td>Yes</td>
</tr>
<tr>
<td>13 After measurement: direct transition into operation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: r3925

**Note:** The parameter is a copy of p1959.

<table>
<thead>
<tr>
<th>r3929[0...n]</th>
<th>Motor data identification modulated voltage generation / MotID U_gen mod</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 4</td>
<td>Calculated: p0340 = 1</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scrolling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>00 Wobble U_generate to determine dead-time correction</td>
<td>Yes</td>
</tr>
<tr>
<td>01 Wobble U_generate to determine stator resistance</td>
<td>Yes</td>
</tr>
<tr>
<td>02 Wobble U_generation to determine rotor time constant</td>
<td>Yes</td>
</tr>
<tr>
<td>03 Wobble U_generation to determine leakage inductance</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Access level</th>
<th>Calculation</th>
<th>Data type</th>
<th>Can be changed</th>
<th>Can be scaled</th>
<th>Dyn. index</th>
<th>Unit group</th>
<th>Units selection</th>
<th>Func. diagram</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>p3950</td>
<td>Service parameter / Serv. par.</td>
<td></td>
<td>3</td>
<td>Calculated:</td>
<td>Unsigned16</td>
<td>C, U, T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p3981</td>
<td>Faults acknowledge drive object / Faults ackn DO</td>
<td></td>
<td>3</td>
<td>Calculated:</td>
<td>Unsigned8</td>
<td>U, T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>p3985</td>
<td>Master control mode selection / PcCtrl mode select</td>
<td></td>
<td>3</td>
<td>Calculated:</td>
<td>Integer16</td>
<td>U, T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### p3950
Access level: 3
Data type: Unsigned16
Can be changed: C, U, T
Scaling: -
Unit selection: -
Dyn. index: -
Func. diagram: -
Min: -
Max: -
Factory setting: -

**Description:**
For service personnel only.

### p3981
Access level: 3
Data type: Unsigned8
Can be changed: U, T
Scaling: -
Unit selection: -
Dyn. index: -
Func. diagram: 8060
Min: 0
Max: 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
Access level: 3
Data type: Integer16
Can be changed: U, T
Scaling: -
Unit selection: -
Dyn. index: -
Func. diagram: -
Min: 0
Max: 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.
<table>
<thead>
<tr>
<th>Parameter write inhibit status / Par_write inhib st</th>
<th>Description: Displays whether writing to parameters is inhibited.</th>
</tr>
</thead>
<tbody>
<tr>
<td>r3996[0...1]</td>
<td>Access level: 3, Calculated: -, Data type: Unsigned8</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Description:</td>
<td>Displays whether writing to parameters is inhibited.</td>
</tr>
<tr>
<td>r3996[0] = 0:</td>
<td>Parameter write not inhibited.</td>
</tr>
<tr>
<td>0 &lt; r3996[0] &lt; 100:</td>
<td>Parameter write inhibited. The value shows how the calculations are progressing.</td>
</tr>
<tr>
<td>Index:</td>
<td>[0] = Progress calculations</td>
</tr>
<tr>
<td></td>
<td>[1] = Cause</td>
</tr>
<tr>
<td>Note:</td>
<td>Re index 1:</td>
</tr>
<tr>
<td></td>
<td>Only for internal Siemens troubleshooting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pe energy saving mode ID / Pe mode ID</th>
<th>Description: Displays the PROFEnenergy mode ID of the effective energy saving mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>r5600</td>
<td>G120C_PN, Access level: 3, Calculated: -, Data type: Integer16</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>0</td>
<td>255</td>
</tr>
<tr>
<td>Description:</td>
<td>Displays the PROFEnenergy mode ID of the effective energy saving mode.</td>
</tr>
<tr>
<td>Value:</td>
<td>0: POWER OFF</td>
</tr>
<tr>
<td></td>
<td>2: Energy-saving mode 2</td>
</tr>
<tr>
<td></td>
<td>255: Ready</td>
</tr>
<tr>
<td>Note:</td>
<td>Pe: PROFEnenergy profiles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pe energy-saving mode pause time minimal / Pe mod t_pause min</th>
<th>Description: Sets the minimum possible pause time for the energy-saving mode. The value is the sum of the following times:</th>
</tr>
</thead>
<tbody>
<tr>
<td>p5602[0...1]</td>
<td>G120C_PN, Access level: 3, Calculated: -, Data type: Unsigned32</td>
</tr>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>300000 [ms]</td>
<td>4294967295 [ms]</td>
</tr>
<tr>
<td>[0] 300000 [ms]</td>
<td>[1] 480000 [ms]</td>
</tr>
<tr>
<td>Description:</td>
<td>Sets the minimum possible pause time for the energy-saving mode. The value is the sum of the following times:</td>
</tr>
<tr>
<td></td>
<td>Energy-saving mode transition time</td>
</tr>
<tr>
<td></td>
<td>Operating state transition time</td>
</tr>
<tr>
<td></td>
<td>Energy-saving mode, dwell time minimal</td>
</tr>
<tr>
<td>Index:</td>
<td>[0] = Reserved</td>
</tr>
<tr>
<td></td>
<td>[1] = Mode 2</td>
</tr>
<tr>
<td>Note:</td>
<td>It is not permissible that the value is less than the sum of the &quot;energy-saving mode transition time&quot; and the &quot;operat-</td>
</tr>
<tr>
<td></td>
<td>ing state transition time&quot; (system properties).</td>
</tr>
<tr>
<td></td>
<td>Pe: PROFEnenergy profiles</td>
</tr>
</tbody>
</table>
### List of parameters

#### p5606[0...1]  
**Pe energy-saving mode dwell time maximum / Pe t_dwell max**

<table>
<thead>
<tr>
<th>G120C_PN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 [ms]</td>
<td>4294967295 [ms]</td>
</tr>
</tbody>
</table>

**Description:** Sets the maximum dwell time for the energy-saving mode.

**Index:**
- [0] = Reserved
- [1] = Mode 2

**Note:** Pe: PROFIenergy profiles

#### p5611

**Pe energy-saving properties general / Pe properties gen**

<table>
<thead>
<tr>
<th>G120C_PN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the general properties for energy-saving.

**Bit field:**

<table>
<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>Inhibit PROFIenergy</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Drive initiates OFF1</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Trans into energy-saving mode from PROFIdrive state S4 poss</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:** Pe: PROFIenergy profiles

#### p5612[0...1]  
**Pe energy-saving properties mode-dependent / Pe properties mod**

<table>
<thead>
<tr>
<th>G120C_PN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:** Sets the mode-dependent properties for energy-saving.

**Index:**
- [0] = Reserved
- [1] = Mode 2

**Bit field:**

<table>
<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>Reserved</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:** Pe: PROFIenergy profiles

#### r5613.0...1  
**CO/BO: Pe energy-saving active/inactive / Pe save act/inact**

<table>
<thead>
<tr>
<th>G120C_PN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Display and binaector output for the state display PROFIenergy energy saving active or inactive.

**Bit field:**

<table>
<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>Pe active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Pe inactive</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:** Bit 0 and bit 1 are inverse of one another.

Pe: PROFIenergy profiles
## List of parameters

### p5614  
**BI: P e set switch-on inhibit signal source / Pe sw on_inh s_src**  
<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: U32 / Binary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

**Description:** Sets the signal source to set in the PROFIdrive state S1 "switching-on inhibit".

**Dependency:** Refer to: r5613

**Note:** Pe: PROFIenergy profiles

### r7758[0...19]  
**KHP Control Unit serial number / KHP CU ser_no**  
<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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**  
<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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 FS 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**  
<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:** Displays the status for the write protection and know-how protection.

**Bit field:**

<table>
<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>Write protection active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Know-how protection active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Know-how protection temporarily withdrawn</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
Parameters

List of parameters

<table>
<thead>
<tr>
<th></th>
<th>Parameter Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>Know-how protection cannot be deactivated</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>04</td>
<td>Memory card copy protection active</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong></td>
<td>Refer to: p7761, p7765, p7766, p7767, p7768</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong></td>
<td>KHP: Know-How Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Re bit 00:</strong></td>
<td>Write protection can be activated/deactivated via p7761 on the Control Unit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Re bit 01:</strong></td>
<td>The know-how protection can be activated by entering a password (p7766 ... p7768).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Re bit 02:</strong></td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Re bit 03:</strong></td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Re bit 04:</strong></td>
<td>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 p7765 = 1.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>p7761 Write protection / Write protection</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Min:</strong></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Max:</strong></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Factory setting:</strong></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Calculated:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Data type:</strong></td>
<td>Integer16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Scaling:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dyn. index:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Unit selection:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Func. diagram:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong></td>
<td>Setting for activating/de-activating the write protection for adjustable parameters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Value:</strong></td>
<td>0: Deactivate write protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1: Activate write protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong></td>
<td>Refer to: r7760</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong></td>
<td>Parameters with the &quot;WRITE_NO_LOCK&quot; attributes are excluded from the write protection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A product-specific list of these parameters is also available in the corresponding List Manual.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>p7762 Write protection multi-master fieldbus system access behavior / Fieldbus acc_behav</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Min:</strong></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Max:</strong></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Factory setting:</strong></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Calculated:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Data type:</strong></td>
<td>Integer16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Scaling:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dyn. index:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Unit selection:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Func. diagram:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong></td>
<td>Sets the behavior for write protection when accessing via multi-master fieldbus systems (e.g. CAN, BACnet).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Value:</strong></td>
<td>0: Write access independent of p7761</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1: Write access dependent on p7761</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong></td>
<td>Refer to: r7760, p7761</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>p7763 KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Can be changed:</strong></td>
<td>U, T</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Units group:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Min:</strong></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Max:</strong></td>
<td>500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Factory setting:</strong></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Calculated:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Data type:</strong></td>
<td>Unsigned16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Scaling:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dyn. index:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Unit selection:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Func. diagram:</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Description:</strong></td>
<td>Sets the number of parameters for the OEM exception list (p7764[0...n]). p7764[0...n], with n = p7763 - 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dependency:</strong></td>
<td>Refer to: p7764</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Parameters**

**List of parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>KHP OEM exception list / KHP OEM excep list</td>
<td>OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection. p7764[0...n], with n = p7763 - 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KHP memory card copy protection / KHP copy protect</td>
<td>Setting for activating/de-activating copy protection for the memory card. 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.</td>
<td>0: Deactivating protection 1: Activating protection</td>
<td>Refer to: p7766, p7767, p7768</td>
<td></td>
</tr>
<tr>
<td>KHP password input / KHP passw input</td>
<td>Sets the password for know-how protection. Example of a password: 123aBc = 49 50 51 97 66 99 dec (ASCII characters)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**

KHP: Know-How Protection

Even if know-how protection is set, parameters in this list can be read and written to.

---

**Parameters**

**List of parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>p7764[0...n]</td>
<td>OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection. p7764[0...n], with n = p7763 - 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p7765</td>
<td>Setting for activating/de-activating copy protection for the memory card. 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.</td>
<td>0: Deactivating protection 1: Activating protection</td>
<td>Refer to: p7766, p7767, p7768</td>
<td></td>
</tr>
<tr>
<td>p7766[0...29]</td>
<td>Sets the password for know-how protection. Example of a password: 123aBc = 49 50 51 97 66 99 dec (ASCII characters)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**

KHP: Know-How Protection

Even if know-how protection is set, parameters in this list can be read and written to.
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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>Unsigned16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

### p7768[0...29] KHP password confirmation / KHP passw confirm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data type</td>
<td>Unsigned16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

### p7769[0...20] KHP memory card reference serial number / KHP mem ref ser_no

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Max</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td>Data type</td>
<td>Unsigned8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.
### p7775 NVRAM data backup/import/delete / NVRAM backup

**Access level:** 3  
**Can be changed:** C, U, T  
**Units group:** -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>17</td>
<td>0</td>
</tr>
</tbody>
</table>

**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).

### r7843[0...20] Memory card serial number / Mem_card ser.no

**Access level:** 1  
**Can be changed:** -  
**Units group:** -  

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

**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
Parameters
List of parameters

r8570[0...39]  Macro drive object / Macro DO

<table>
<thead>
<tr>
<th>Description</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the macro file saved in the appropriate directory on the memory card/device memory.</td>
<td>Refer to: p0015</td>
<td>For a value = 9999999, the following applies: The read operation is still running.</td>
</tr>
</tbody>
</table>

r8600  CAN device type / Device type

<table>
<thead>
<tr>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays all of the devices connected to the CAN bus after run-up.</td>
<td></td>
</tr>
<tr>
<td>r8600 = 00000000 hex: No drive recognized.</td>
<td></td>
</tr>
<tr>
<td>= 02010192 hex: 1 Vector drive</td>
<td></td>
</tr>
<tr>
<td>Corresponds to the CANopen object 1000 hex.</td>
<td></td>
</tr>
<tr>
<td>For each detected drive, the device type is displayed in object 67FF hex.</td>
<td></td>
</tr>
</tbody>
</table>

r8601  CAN error register / Error register

<table>
<thead>
<tr>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays the error register for CANopen.</td>
<td></td>
</tr>
<tr>
<td>Bit 0: Generic error</td>
<td></td>
</tr>
<tr>
<td>0 signal: No error present.</td>
<td></td>
</tr>
<tr>
<td>1 signal: Generic error present.</td>
<td></td>
</tr>
<tr>
<td>Bit 1 ... 3: Not supported (always a 0 signal)</td>
<td></td>
</tr>
<tr>
<td>Bit 4: Communications error</td>
<td></td>
</tr>
<tr>
<td>0 signal: There is no message in the range 8700 ... 8799.</td>
<td></td>
</tr>
<tr>
<td>1 signal: There is at least one message (fault or alarm) in the range 8700 ... 8799.</td>
<td></td>
</tr>
<tr>
<td>Bit 5 ... 6: Not supported (always a 0 signal)</td>
<td></td>
</tr>
<tr>
<td>Bit 7: Fault outside the range 8700 ... 8799</td>
<td></td>
</tr>
<tr>
<td>0 signal: There is no fault outside the range 8700 ... 8799.</td>
<td></td>
</tr>
<tr>
<td>1 signal: There is at least one fault outside the range 8700 ... 8799.</td>
<td></td>
</tr>
<tr>
<td>Corresponds to the CANopen object 1001 hex.</td>
<td></td>
</tr>
</tbody>
</table>
### p8602 CAN SYNC object / SYNC object

<table>
<thead>
<tr>
<th>Description:</th>
<th>Sets the SYNC object parameter for the following CANopen objects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note:</td>
<td>SINAMICS operates as SYNC load. COB-ID: CAN object identification</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
<td>0080 hex</td>
</tr>
</tbody>
</table>

### p8603 CAN COB-ID Emergency Message / COB-ID EMCY Msg

<table>
<thead>
<tr>
<th>Description:</th>
<th>Sets the COB-ID for the emergency message (error telegram). It corresponds to the CANopen objects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note:</td>
<td>If, when downloading, the pre-set value 0 is downloaded, then the CANopen pre-set value 80 hex + Node-ID is automatically set. Online, the value 0 is rejected as, according to the CANopen Standard, COB-ID 0 is not permitted here. The changeover of the node ID using the hardware switch at the Control Unit or per software has no effect on the COB-ID EMCY. The saved value remains effective.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
<td>0000 hex</td>
</tr>
</tbody>
</table>

### p8604[0...1] CAN life guarding / Life guarding

<table>
<thead>
<tr>
<th>Description:</th>
<th>Sets the life guarding parameter for the following CANopen objects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index:</td>
<td>[0] = Time interval [ms] for the life time</td>
</tr>
<tr>
<td>Dependency:</td>
<td>Refer to: p8806</td>
</tr>
<tr>
<td>Note:</td>
<td>For p8604[0] = 0 and/or p8604[1] = 0, the life guarding event service (monitoring the node guarding, fault F08700 with fault value = 2) is deactivated. The node guarding protocol is active without the life guarding event service, if the heartbeat protocol is deactivated (p8606 = 0).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>65535</td>
<td>0</td>
</tr>
</tbody>
</table>
### Parameters

#### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p8606 CAN Producer Heartbeat Time / Prod Heartb Time</td>
<td>Sets the time [ms] to cyclically send heartbeat telegrams. The smallest cycle is 100 ms. For p8606 = 0, heartbeat telegrams are not sent.</td>
<td></td>
<td>Corresponds to the CANopen object 1017 hex. Activating the heartbeat protocol automatically deactivates the node guarding.</td>
</tr>
<tr>
<td>r8607[0...3] CAN Identity Object / Identity object</td>
<td>General device information display.</td>
<td></td>
<td>Corresponds to the CANopen object 1018 hex.</td>
</tr>
<tr>
<td>p8608[0...1] CAN Clear Bus Off Error / Clear bus off err</td>
<td>As a result of a Bus Off error, the CAN controller is set into the initialization state.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### p8606 CAN Producer Heartbeat Time / Prod Heartb Time

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>0 [ms]</td>
<td>65535 [ms]</td>
<td>0 [ms]</td>
</tr>
</tbody>
</table>

#### r8607[0...3] CAN Identity Object / Identity object

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### p8608[0...1] CAN Clear Bus Off Error / Clear bus off err

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Parameters

List of parameters

Value:  
0: Inactive  
1: Start CAN controller

Index:  
[0] = Manual controller start function  
[1] = Activating the automatic controller start function

Note:  
Re index 0:  
This parameter is automatically reset to 0 after start.

**p8609[0...1]** CAN Error Behavior / Error behavior

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Description: Sets the behavior of the CAN node referred to the communications error or equipment fault.

Value:  
0: Pre-operational  
1: No change  
2: Stopped

Index:  
[0] = Behavior for communication errors  
[1] = Behavior for device faults

Note:  
Corresponds to the CANopen object 1029 hex.

**r8610[0...1]** CAN First Server SDO / First server SDO

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Description: Displays the identifier (client/server and server/client) of the SDO channel.

Index:  
[0] = COB-ID from the client to the server  
[1] = COB-ID from the server to the client

Note:  
Corresponds to the CANopen object 1200 hex.  
SDO: Service Data Object

**p8611[0...82]** CAN Pre-defined Error Field / Pre_def err field

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
<td>FFFF 1000 hex</td>
<td>0000 hex</td>
</tr>
</tbody>
</table>

Description: Displays the Pre-defined Error Field of the CAN node.

It includes the number of all errors that have occurred, the number of errors that have occurred for each drive and the errors according to their history.

The first 16 bits represent the CANopen error code and the second 16 bits the SINAMICS error code.

Index 1 has the same structure - however, the drive object ID is in the second 16 bits instead of the SINAMICS error code.

CANopen error code:  
0000 hex: No error present  
8110 hex: Alarm A08751 present  
8120 hex: Alarm A08752 present  
8130 hex: Alarm A08700(F) with alarm value = 2 present  
1000 hex: Generic error 1 present (there is at least one fault outside the range 8700 ... 8799)  
1001 hex: Generic error 2 present (there is at least one alarm in the range 8700 ... 8799 with the exception of A08751, A08752, A08700)
All drive objects are acknowledged by writing the value 0 to the index 0. As soon as a fault has been acknowledged or an alarm cleared, then it is also cleared from the fault list.

Index:
- \([0]\) = Number of all faults in the drive unit
- \([1]\) = Most recent drive number / fault number
- \([2]\) = Number of faults drive 1
- \([3]\) = Fault 1/ drive 1
- \([4]\) = Fault 2/ drive 1
- \([5]\) = Fault 3/ drive 1
- \([6]\) = Fault 4/ drive 1
- \([7]\) = Fault 5/ drive 1
- \([8]\) = Fault 6/ drive 1

Note: Corresponds to the CANopen object 1003 hex.

### p8620 CAN Node-ID / Node ID

**G120C_CAN**

- **Access level:** 2
- **Can be changed:** T
- **Units group:** -
- **Min:** 1
- **Max:** 127
- **Data type:** Unsigned8
- **Calculated:** -
- **Scaling:** -
- **Dyn. index:** -
- **Unit selection:** -
- **Func. diagram:** -

**Description:** Display or setting of the CANopen Node ID.

The Node ID can be set as follows:
1) Using the address switch on the Control Unit.
   --> p8620 can then only be read and displays the selected Node ID.
   --> A change only becomes effective after a POWER ON.
   --> CANopen Node ID and PROFIBUS address are identical.
2) Using p8620
   --> Only if address 0 is set using the address switch.
   --> the Node ID is set as standard to 126.
   --> A change only becomes effective after save and POWER ON.

**Dependency:** Refer to: r8621

**Notice:** For \(p0014 = 1\), 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.

For \(p0014 = 0\), the following applies:

Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set \(p0971 = 1\) or \(p0014 = 1\).

**Note:**
- Every node ID change only becomes effective after a POWER ON.
- The active node ID is displayed in r8621.
- The parameter is not influenced by setting the factory setting.
- It is only possible to independently set CANopen node ID and the PROFIBUS address using \(p0918\) and \(p8620\) (pre-requisite: the address 0 is set for the address switch).

### r8621 CAN Node-ID active / Node ID active

**G120C_CAN**

- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Max:** -
- **Data type:** Unsigned8
- **Calculated:** -
- **Scaling:** -
- **Dyn. index:** -
- **Unit selection:** -
- **Func. diagram:** -
- **Factory setting**

**Description:** Displays the active CANopen Node ID.

**Dependency:** Refer to: p8620
### p8622 CAN bit rate / Bit rate

**Description:** Setting the bit rate for the CAN bus.

The appropriate bit timings are selected that are defined in p8623 in the associated sub-index.

Example:

Bit rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6].

**Value:**

- 0: 1 Mbit/s
- 1: 800 kbit/s
- 2: 500 kbit/s
- 3: 250 kbit/s
- 4: 125 kbit/s
- 5: 50 kbit/s
- 6: 20 kbit/s
- 7: 10 kbit/s

**Dependency:** Refer to: p8623

**Notice:**

For p0014 = 1, 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.

For p0014 = 0, the following applies:

Before a changed setting becomes permanently effective, a non-volatile RAM to ROM data save is required. To do this, set p0971 = 1 or p0014 = 1.

**Note:** The parameter is not influenced by setting the factory setting.

### p8623[0...7] CAN Bit Timing selection / Bit timing select

**Description:**

Sets the bit timing for the C_CAN controller to the associated and selected bit rate (p8622).

Bits are distributed to the following parameters of the C_CAN controller in p8623[0...7]:

- Bit 0 ... 5: BRP (Baud Rate Prescaler)
- Bit 6 ... 7: SJW (Synchronization Jump Width)
- Bit 8 ... 11: TSEG1 (Time Segment 1, before the sampling point)
- Bit 12 ... 14: TSEG2 (Time Segment 2, after the sampling point)
- Bit 15: Reserved
- Bit 16 ... 19: BRPE (Baud Rate Prescaler Extension)
- Bit 20 ... 31: Reserved

Example:

Bit rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6] --> 0001 2FB6
### Parameters

**List of parameters**

#### Index:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 Mbit/s</td>
</tr>
<tr>
<td>1</td>
<td>800 kbit/s</td>
</tr>
<tr>
<td>2</td>
<td>500 kbit/s</td>
</tr>
<tr>
<td>3</td>
<td>250 kbit/s</td>
</tr>
<tr>
<td>4</td>
<td>125 kbit/s</td>
</tr>
<tr>
<td>5</td>
<td>50 kbit/s</td>
</tr>
<tr>
<td>6</td>
<td>20 kbit/s</td>
</tr>
<tr>
<td>7</td>
<td>10 kbit/s</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: p8622

**Note:** The parameter is not influenced by setting the factory setting.

#### p8630[0...2]

**CAN virtual objects / Virtual objects**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G120C_CAN</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Access level:** 3  
**Can be changed:** U, T  
**Units group:** -  
**Min** 0  
**Max** 65535  
**Factory setting** 0

**Description:** Activating access to parameters via manufacturer-specific CANopen objects and setting for the subindex area (index 1) and the parameter area (index 2) when using virtual objects.  
This means that it is possible to access all SINAMICS parameters via CAN.  
Index 0:  
0: Not possible to access virtual CANopen objects  
1: Possible to access virtual CANopen objects  
Index 1 (sub-index area):  
0: 0 ... 255  
1: 256 ... 511  
2: 512 ... 767  
3: 768 ... 1023  
Index 2 (parameter area):  
0: 1 ... 9999  
1: 10000 ... 19999  
2: 20000 ... 29999  
3: 30000 ... 39999

**Index:**  
[0] = Drive object number  
[1] = Sub-index range  
[2] = Parameter range

#### p8641

**CAN Abort Connection Option Code / Abort con opt code**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G120C_CAN</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Access level:** 3  
**Can be changed:** T  
**Units group:** -  
**Min** 0  
**Max** 3  
**Factory setting** 3

**Description:** Sets the drive behavior if a CAN communication error occurs.  
**Value:**  
0: No response  
1: OFF1  
2: OFF2  
3: OFF3

**Dependency:** Refer to: F08700
### List of parameters

#### r8680[0...36] CAN Diagnosis Hardware / Diagnostics HW

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting** |
--- | --- | --- |
- | - | - |

**Description:**
Displays the register of the CAN controller C_CAN: Register, Message Interface Register and Message Handler Register - referred to the CAN protocol.

**Index:**
- [0] = Control register
- [1] = Status register
- [2] = Error counter
- [3] = Bit timing register
- [4] = Interrupt register
- [5] = Test register
- [6] = Baud rate prescaler extension register
- [7] = Interface 1 command request register
- [8] = Interface 1 command mask register

**Note:**
A description of the individual registers of the C_CAN controller can be taken from "C_CAN User's Manual".

#### p8684 CAN NMT state after booting / NMT state aft boot

<table>
<thead>
<tr>
<th>G120C_CAN</th>
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<th>Calculated: -</th>
<th>Data type: Integer16</th>
</tr>
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<tbody>
<tr>
<td>Can be changed: T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting** |
--- | --- | --- |
4 | 127 | 127 |

**Description:**
Sets the CANopen NMT state that is effective after booting.

**Value:**
- 4: Stopped
- 5: Operational
- 127: Pre-operational

**Dependency:**
Refer to: p8685

**Note:**
Booting in the NMT state pre-operational corresponds to the CANopen standard

#### p8685 CAN NMT states / NMT states

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
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</thead>
<tbody>
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<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
</tbody>
</table>

**Min** | **Max** | **Factory setting** |
--- | --- | --- |
0 | 129 | 129 |

**Description:**
Sets and displays the CANopen NMT state.

**Value:**
- 0: Initializing
- 4: Stopped
- 5: Operational
- 127: Pre-operational
- 128: Reset node
- 129: Reset Communication

**Note:**
The value 0 (initialization) is only displayed and cannot be set.
## List of parameters

### p8699 CAN: RPDO monitoring time / RPDO t_monit

| Description | Sets the monitoring time for the process data received via the CAN bus. A value that is not a multiple integer of the CANopen sampling time is rounded-off. If no process data is received within this time, then fault F08702 is output. |
| Dependency | Refer to: F08702 |
| Note | Value = 0: Monitoring is de-activated. p2048: CANopen sampling time |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level: 3</th>
<th>Calculated:</th>
<th>Data type: FloatingPoint32</th>
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</thead>
<tbody>
<tr>
<td>Values</td>
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<td>Min</td>
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<td>Unit selection:</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Max</td>
<td>0 [ms]</td>
<td>65535000 [ms]</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

### p8700[0...1] CAN Receive PDO 1 / Receive PDO 1

| Description | Sets the communication parameters for CANopen Receive Process Data Object 1 (RPDO 1). |
| Index | [0] = PDO COB-ID [1] = PDO transmission type |
| Dependency | A valid COB-ID can only be set for the available (existing) channel. |
| Note | Corresponds to the CANopen object 1400 hex. Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level: 3</th>
<th>Calculated:</th>
<th>Data type: Unsigned32</th>
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</thead>
<tbody>
<tr>
<td>Values</td>
<td>Can be changed: C(3), T</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
</tr>
<tr>
<td>Min</td>
<td>Units group: -</td>
<td>Unit selection:</td>
<td>Func. diagram:</td>
</tr>
<tr>
<td>Max</td>
<td>0000 hex</td>
<td>8000 06DF hex</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

### p8701[0...1] CAN Receive PDO 2 / Receive PDO 2

| Description | Sets the communication parameters for CANopen Receive Process Data Object 2 (RPDO 2). |
| Index | [0] = PDO COB-ID [1] = PDO transmission type |
| Dependency | A valid COB-ID can only be set for the available (existing) channel. |
| Note | Corresponds to the CANopen object 1401 hex. Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level: 3</th>
<th>Calculated:</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values</td>
<td>Can be changed: C(3), T</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
</tr>
<tr>
<td>Min</td>
<td>Units group: -</td>
<td>Unit selection:</td>
<td>Func. diagram:</td>
</tr>
<tr>
<td>Max</td>
<td>0000 hex</td>
<td>8000 06DF hex</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

### p8702[0...1] CAN Receive PDO 3 / Receive PDO 3

| Description | Sets the communication parameters for CANopen Receive Process Data Object 3 (RPDO 3). |

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Access level: 3</th>
<th>Calculated:</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values</td>
<td>Can be changed: C(3), T</td>
<td>Scaling:</td>
<td>Dyn. index:</td>
</tr>
<tr>
<td>Min</td>
<td>Units group: -</td>
<td>Unit selection:</td>
<td>Func. diagram:</td>
</tr>
<tr>
<td>Max</td>
<td>0000 hex</td>
<td>8000 06DF hex</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>
### List of parameters

#### Index:
- [0] = PDO COB-ID
- [1] = PDO transmission type

#### Dependency:
A valid COB-ID can only be set for the available (existing) channel.

#### Note:
Corresponds to the CANopen object 1402 hex. Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object

**p8703[0...1]**  CAN Receive PDO 4 / Receive PDO 4  
**G120C_CAN**  
**Access level:** 3  
**Can be changed:** C(3), T  
**Units group:** -  
**Min:** 0000 hex  
**Max:** 8000 06DF hex  
**Data type:** Unsigned32  
**Dyn. index:** -  
**Func. diagram:** 9204, 9206  
**Description:** Sets the communication parameters for CANopen Receive Process Data Object 4 (RPDO 4).

**Index:**  
- [0] = PDO COB-ID  
- [1] = PDO transmission type

**Dependency:**  
A valid COB-ID can only be set for the available (existing) channel.

**Note:**  
Corresponds to the CANopen object 1403 hex. Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object

**p8704[0...1]**  CAN Receive PDO 5 / Receive PDO 5  
**G120C_CAN**  
**Access level:** 3  
**Can be changed:** C(3), T  
**Units group:** -  
**Min:** 0000 hex  
**Max:** 8000 06DF hex  
**Data type:** Unsigned32  
**Dyn. index:** -  
**Func. diagram:** 9204  
**Description:** Sets the communication parameters for CANopen Receive Process Data Object 5 (RPDO 5).

**Index:**  
- [0] = PDO COB-ID  
- [1] = PDO transmission type

**Dependency:**  
A valid COB-ID can only be set for the available (existing) channel.

**Note:**  
Corresponds to the CANopen object 1404 hex. Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object

**p8705[0...1]**  CAN Receive PDO 6 / Receive PDO 6  
**G120C_CAN**  
**Access level:** 3  
**Can be changed:** C(3), T  
**Units group:** -  
**Min:** 0000 hex  
**Max:** 8000 06DF hex  
**Data type:** Unsigned32  
**Dyn. index:** -  
**Func. diagram:** 9204  
**Description:** Sets the communication parameters for CANopen Receive Process Data Object 6 (RPDO 6).

**Index:**  
- [0] = PDO COB-ID  
- [1] = PDO transmission type

**Dependency:**  
A valid COB-ID can only be set for the available (existing) channel.

**Note:**  
Corresponds to the CANopen object 1405 hex. Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object
**Parameters**

**List of parameters**

---

### p8706[0...1] CAN Receive PDO 7 / Receive PDO 7

**G120C_CAN**

<table>
<thead>
<tr>
<th>Description</th>
<th>CAN Receive PDO 7 / Receive PDO 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index:</strong></td>
<td>[0] = PDO COB-ID</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td>A valid COB-ID can only be set for the available (existing) channel.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Corresponds to the CANopen object 1406 hex.</td>
</tr>
<tr>
<td>Transmission types 0, FE and FF can be set.</td>
<td></td>
</tr>
<tr>
<td>PDO: Process Data Object</td>
<td></td>
</tr>
</tbody>
</table>

| Access level: 3 | Calculated: - | Data type: Unsigned32 |
| Can be changed: C(3), T | Scaling: - | Dyn. index: - |
| Units group: - | Unit selection: - | Func. diagram: 9204 |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
<td>8000 06DF hex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0] 8000 06DF hex</td>
</tr>
<tr>
<td>[1] 00FE hex</td>
</tr>
</tbody>
</table>

### p8707[0...1] CAN Receive PDO 8 / Receive PDO 8

**G120C_CAN**

<table>
<thead>
<tr>
<th>Description</th>
<th>CAN Receive PDO 8 / Receive PDO 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index:</strong></td>
<td>[0] = PDO COB-ID</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td>A valid COB-ID can only be set for the available (existing) channel.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Corresponds to the CANopen object 1407 hex.</td>
</tr>
<tr>
<td>Transmission types 0, 1, FE and FF can be set.</td>
<td></td>
</tr>
<tr>
<td>PDO: Process Data Object</td>
<td></td>
</tr>
</tbody>
</table>

| Access level: 3 | Calculated: - | Data type: Unsigned32 |
| Can be changed: C(3), T | Scaling: - | Dyn. index: - |
| Units group: - | Unit selection: - | Func. diagram: 9204 |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
<td>8000 06DF hex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0] 8000 06DF hex</td>
</tr>
<tr>
<td>[1] 00FE hex</td>
</tr>
</tbody>
</table>

### p8710[0...3] CAN Receive Mapping for RPDO 1 / Mapping RPDO 1

**G120C_CAN**

<table>
<thead>
<tr>
<th>Description</th>
<th>CAN Receive Mapping for RPDO 1 / Mapping RPDO 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index:</strong></td>
<td>[0] = Mapped object 1</td>
</tr>
<tr>
<td><strong>Dependency:</strong></td>
<td>A valid COB-ID can only be set for the available (existing) channel.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Corresponds to the CANopen object 1600 hex.</td>
</tr>
<tr>
<td>Dummy mapping not supported.</td>
<td></td>
</tr>
<tr>
<td>The parameter can only be written online when the associated COB ID in p870x is set as invalid.</td>
<td></td>
</tr>
</tbody>
</table>

| Access level: 3 | Calculated: - | Data type: Unsigned32 |
| Can be changed: C(3), T | Scaling: - | Dyn. index: - |
| Units group: - | Unit selection: - | Func. diagram: 9204, 9206 |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 hex</td>
</tr>
</tbody>
</table>
### List of parameters

#### p8711[0...3] CAN Receive Mapping for RPDO 2 / Mapping RPDO 2

| Access level: | 3 |
| Calculated: | - |
| Can be changed: | C(3), T |
| Units group: | - |
| Min | 0000 hex |
| Max | FFFF FFFF hex |

| Data type: | Unsigned32 |
| Dyn. index: | - |
| Func. diagram: | 9204, 9206 |

**Description:**
Sets the mapping parameters for CANopen Receive Process Data Object 2 (RPDO 2).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
- Corresponds to the CANopen object 1601 hex.
- Dummy mapping not supported.
- The parameter can only be written online when the associated COB ID in p870x is set as invalid.

#### p8712[0...3] CAN Receive Mapping for RPDO 3 / Mapping RPDO 3

| Access level: | 3 |
| Calculated: | - |
| Can be changed: | C(3), T |
| Units group: | - |
| Min | 0000 hex |
| Max | FFFF FFFF hex |

| Data type: | Unsigned32 |
| Dyn. index: | - |
| Func. diagram: | 9204, 9206 |

**Description:**
Sets the mapping parameters for CANopen Receive Process Data Object 3 (RPDO 3).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
- Corresponds to the CANopen object 1602 hex.
- Dummy mapping not supported.
- The parameter can only be written online when the associated COB ID in p870x is set as invalid.

#### p8713[0...3] CAN Receive Mapping for RPDO 4 / Mapping RPDO 4

| Access level: | 3 |
| Calculated: | - |
| Can be changed: | C(3), T |
| Units group: | - |
| Min | 0000 hex |
| Max | FFFF FFFF hex |

| Data type: | Unsigned32 |
| Dyn. index: | - |
| Func. diagram: | 9204, 9206 |

**Description:**
Sets the mapping parameters for CANopen Receive Process Data Object 4 (RPDO 4).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
- Corresponds to the CANopen object 1603 hex.
- Dummy mapping not supported.
- The parameter can only be written online when the associated COB ID in p870x is set as invalid.

#### p8714[0...3] CAN Receive Mapping for RPDO 5 / Mapping RPDO 5

| Access level: | 3 |
| Calculated: | - |
| Can be changed: | C(3), T |
| Units group: | - |
| Min | 0000 hex |
| Max | FFFF FFFF hex |

| Data type: | Unsigned32 |
| Dyn. index: | - |
| Func. diagram: | 9204 |

**Description:**
Sets the mapping parameters for CANopen Receive Process Data Object 5 (RPDO 5).
### List of parameters

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1604 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

### Description:

Sets the mapping parameters for CANopen Receive Process Data Object 6 (RPDO 6).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1605 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

### Description:

Sets the mapping parameters for CANopen Receive Process Data Object 7 (RPDO 7).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1606 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

### Description:

Sets the mapping parameters for CANopen Receive Process Data Object 8 (RPDO 8).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1607 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

---

**p8715[0...3]** CAN Receive Mapping for RPDO 6 / Mapping RPDO 6

<table>
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<tr>
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<th>Access level: 3</th>
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<th>Data type: Unsigned32</th>
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<tbody>
<tr>
<td>Can be changed: C(3), T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td>Func. diagram: 9204</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
<td>0000 hex</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**

Sets the mapping parameters for CANopen Receive Process Data Object 6 (RPDO 6).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1604 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

---

**p8716[0...3]** CAN Receive Mapping for RPDO 7 / Mapping RPDO 7

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>Access level: 3</th>
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<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(3), T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td>Func. diagram: 9204</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
<td>0000 hex</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**

Sets the mapping parameters for CANopen Receive Process Data Object 7 (RPDO 7).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1605 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.

---

**p8717[0...3]** CAN Receive Mapping for RPDO 8 / Mapping RPDO 8

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: C(3), T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td>Func. diagram: 9204</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
</tr>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
<td>0000 hex</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**

Sets the mapping parameters for CANopen Receive Process Data Object 8 (RPDO 8).

**Index:**

- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**

Corresponds to the CANopen object 1606 hex.

Dummy mapping not supported.

The parameter can only be written online when the associated COB ID in p870x is set as invalid.
**Parameters**

**List of parameters**

---

**p8720[0...4]**  
**CAN Transmit PDO 1 / Transmit PDO 1**  
**G120C_CAN**

**Access level:** 3  
**Can be changed:** C(3), T  
**Units group:** -  

**Index:**
- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.

**Notice:**
For inhibit time and even timer, the following apply:
A value that is not a multiple integer of the CANopen sampling time is rounded-off.

**Note:**
Corresponds to the CANopen object 1800 hex.
Transmission types 0, 1 ... F0, FE and FF can be set.
P2048: CANopen sampling time
PDO: Process Data Object

**Factory setting**
- [0] = C000 06DF hex
- [1] = 00FE hex
- [2] = 0000 hex
- [3] = 0000 hex
- [4] = 0000 hex

---

**p8721[0...4]**  
**CAN Transmit PDO 2 / Transmit PDO 2**  
**G120C_CAN**

**Access level:** 3  
**Can be changed:** C(3), T  
**Units group:** -

**Index:**
- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.

**Notice:**
For inhibit time and even timer, the following apply:
A value that is not a multiple integer of the CANopen sampling time is rounded-off.

**Note:**
Corresponds to the CANopen object 1801 hex.
Transmission types 0, 1 ... F0, FE and FF can be set.
P2048: CANopen sampling time
PDO: Process Data Object

**Factory setting**
- [0] = C000 06DF hex
- [1] = 00FE hex
- [2] = 0000 hex
- [3] = 0000 hex
- [4] = 0000 hex

---

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### List of parameters

#### p8722[0...4] CAN Transmit PDO 3 / Transmit PDO 3

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Dependency</th>
<th>Notice</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G120C_CAN</strong></td>
<td>Sets the communication parameters for CANopen Transmit Process Data Object 3 (TPDO 3).</td>
<td></td>
<td>A valid COB-ID can only be set for the available (existing) channel.</td>
<td>A value that is not a multiple integer of the CANopen sampling time is rounded-off.</td>
<td>Corresponds to the CANopen object 1802 hex.</td>
</tr>
<tr>
<td><strong>Access level:</strong></td>
<td>3</td>
<td></td>
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<td></td>
<td></td>
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<td><strong>Min</strong></td>
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<tr>
<td><strong>Max</strong></td>
<td>0000 hex</td>
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<tr>
<td><strong>Func. diagram:</strong></td>
<td>9208, 9210</td>
<td></td>
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<tr>
<td><strong>Index:</strong></td>
<td>[0] PDO COB-ID</td>
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<td>[1] PDO transmission type</td>
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<td></td>
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<tr>
<td></td>
<td>[2] Inhibit time (in 100 µs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>[3] Reserved</td>
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<td>[4] Event timer (in ms)</td>
<td></td>
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<td><strong>Factory setting:</strong></td>
<td>[0] C000 06DF hex</td>
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#### p8723[0...4] CAN Transmit PDO 4 / Transmit PDO 4

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<th>Description</th>
<th>Index</th>
<th>Dependency</th>
<th>Notice</th>
<th>Note</th>
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<tbody>
<tr>
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<td>Sets the communication parameters for CANopen Transmit Process Data Object 4 (TPDO 4).</td>
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<td>A valid COB-ID can only be set for the available (existing) channel.</td>
<td>A value that is not a multiple integer of the CANopen sampling time is rounded-off.</td>
<td>Corresponds to the CANopen object 1803 hex.</td>
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<td>0000 hex</td>
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<td><strong>Dyn. index:</strong></td>
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<tr>
<td><strong>Func. diagram:</strong></td>
<td>9208, 9210</td>
<td></td>
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<tr>
<td><strong>Index:</strong></td>
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<tr>
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<td>[2] Inhibit time (in 100 µs)</td>
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<tr>
<td></td>
<td>[3] Reserved</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>[4] Event timer (in ms)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Factory setting:</strong></td>
<td>[0] C000 06DF hex</td>
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<td>[1] 00FE hex</td>
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<td>[3] 0000 hex</td>
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<td>[4] 0000 hex</td>
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</table>
### List of parameters

#### p8724[0...4]

**CAN Transmit PDO 5 / Transmit PDO 5**

- **G120C_CAN**
- **Access level:** 3
- **Can be changed:** C(3), T
- **Units group:** -
- **Min:** 0000 hex
- **Max:** C000 06DF hex
- **Data type:** Unsigned32
- **Calculated:** -
- **Scaling:** -
- **Dyn. index:** -
- **Func. diagram:** 9208
- **Dependency:** A valid COB-ID can only be set for the available (existing) channel.
- **Notice:** For inhibit time and even timer, the following apply:
  - A value that is not a multiple integer of the CANopen sampling time is rounded-off.
- **Note:** Corresponds to the CANopen object 1804 hex.

#### p8725[0...4]

**CAN Transmit PDO 6 / Transmit PDO 6**

- **G120C_CAN**
- **Access level:** 3
- **Can be changed:** C(3), T
- **Units group:** -
- **Min:** 0000 hex
- **Max:** C000 06DF hex
- **Data type:** Unsigned32
- **Calculated:** -
- **Scaling:** -
- **Dyn. index:** -
- **Func. diagram:** 9208
- **Dependency:** A valid COB-ID can only be set for the available (existing) channel.
- **Notice:** For inhibit time and even timer, the following apply:
  - A value that is not a multiple integer of the CANopen sampling time is rounded-off.
- **Note:** Corresponds to the CANopen object 1805 hex + 40 hex * x (x: Drive number 0 ... 7).

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### p8726[0...4] CAN Transmit PDO 7 / Transmit PDO 7

<table>
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<th><strong>Max</strong></th>
<th><strong>Data type:</strong> Unsigned32</th>
<th><strong>Dyn. index:</strong> -</th>
<th><strong>Func. diagram:</strong> 9208</th>
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</thead>
<tbody>
<tr>
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<td><strong>Scaling:</strong> -</td>
<td><strong>Unit selection:</strong> -</td>
<td>0000 hex</td>
<td>C000 06DF hex</td>
<td><strong>Factory setting</strong></td>
<td>0000 hex C000 06DF hex</td>
<td>-</td>
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</table>

**Description:**
Sets the communication parameters for CANopen Transmit Process Data Object 7 (TPDO 7).

**Index:**
- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.

**Notice:**
For inhibit time and even timer, the following apply:
A value that is not a multiple integer of the CANopen sampling time is rounded-off.

**Note:**
Corresponds to the CANopen object 1806 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.

### p8727[0...4] CAN Transmit PDO 8 / Transmit PDO 8

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<th><strong>Units group:</strong> -</th>
<th><strong>Min</strong></th>
<th><strong>Max</strong></th>
<th><strong>Data type:</strong> Unsigned32</th>
<th><strong>Dyn. index:</strong> -</th>
<th><strong>Func. diagram:</strong> 9208</th>
</tr>
</thead>
<tbody>
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<td><strong>Scaling:</strong> -</td>
<td><strong>Unit selection:</strong> -</td>
<td>0000 hex</td>
<td>C000 06DF hex</td>
<td><strong>Factory setting</strong></td>
<td>0000 hex C000 06DF hex</td>
<td>-</td>
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**Description:**
Sets the communication parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

**Index:**
- [0] = PDO COB-ID
- [1] = PDO transmission type
- [2] = Inhibit time (in 100 µs)
- [3] = Reserved
- [4] = Event timer (in ms)

**Dependency:**
A valid COB-ID can only be set for the available (existing) channel.

**Notice:**
For inhibit time and even timer, the following apply:
A value that is not a multiple integer of the CANopen sampling time is rounded-off.

**Note:**
Corresponds to the CANopen object 1807 hex.
Transmission types 0, 1 ... F0, FE and FF can be set.
### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td><strong>p8730[0...3]</strong></td>
<td>CAN Transmit Mapping for TPDO 1 / Mapping TPDO 1</td>
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<td>Scaling: -</td>
<td>Dyn. index: -</td>
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<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 9208, 9210</td>
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<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
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<td>Unit selection: -</td>
<td>Func. diagram: 9208, 9210</td>
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<td>Unit selection: -</td>
<td>Func. diagram: 9208, 9210</td>
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<td>Min</td>
<td>Max</td>
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<td>Dyn. index: -</td>
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<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 9208, 9210</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
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</tr>
<tr>
<td>0000 hex</td>
<td>FFFF FFFF hex</td>
<td>0000 hex</td>
<td></td>
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</tbody>
</table>

**Description:**
Sets the mapping parameters for CANopen Transmit Process Data Object 1 (TPDO 1).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A00 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

**Description:**
Sets the mapping parameters for CANopen Transmit Process Data Object 2 (TPDO 2).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A01 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

**Description:**
Sets the mapping parameters for CANopen Transmit Process Data Object 3 (TPDO 3).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A02 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

**Description:**
Sets the mapping parameters for CANopen Transmit Process Data Object 4 (TPDO 4).
# Parameters

## List of parameters

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<th>Description</th>
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<tbody>
<tr>
<td>[0] = Mapped object 1</td>
<td>Sets the mapping parameters for CANopen Transmit Process Data Object 5 (TPDO 5).</td>
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<tr>
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</tr>
<tr>
<td>[3] = Mapped object 4</td>
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**Note:**
Corresponds to the CANopen object 1A03 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

### p8734[0...3] CAN Transmit Mapping for TPDO 5 / Mapping TPDO 5

- **Description:** Sets the mapping parameters for CANopen Transmit Process Data Object 5 (TPDO 5).
- **Index:**
  - [0] = Mapped object 1
  - [1] = Mapped object 2
  - [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A04 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

### p8735[0...3] CAN Transmit Mapping for TPDO 6 / Mapping TPDO 6

- **Description:** Sets the mapping parameters for CANopen Transmit Process Data Object 6 (TPDO 6).
- **Index:**
  - [0] = Mapped object 1
  - [1] = Mapped object 2
  - [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A05 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.

### p8736[0...3] CAN Transmit Mapping for TPDO 7 / Mapping TPDO 7

- **Description:** Sets the mapping parameters for CANopen Transmit Process Data Object 7 (TPDO 7).
- **Index:**
  - [0] = Mapped object 1
  - [1] = Mapped object 2
  - [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A06 hex.

The parameter can only be written online when the associated COB ID in p872x is set as invalid.
### p8737[0...3] CAN Transmit Mapping for TPDO 8 / Mapping TPDO 8

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<td>Unit selection:</td>
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<td>Func. diagram: 9208</td>
</tr>
</tbody>
</table>

**Min** | 0000 hex | **Max** | FFFF FFFF hex | **Factory setting** | 0000 hex |

**Description:**
Sets the mapping parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

**Index:**
- [0] = Mapped object 1
- [1] = Mapped object 2
- [3] = Mapped object 4

**Note:**
Corresponds to the CANopen object 1A07 hex.
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

### p8744 CAN PDO mapping configuration / PDO Mapping conf.

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<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: 9204, 9206, 9208, 9210</td>
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</table>

**Min** | 1 | **Max** | 2 | **Factory setting** | 2 |

**Description:**
Selector switch for the PDO mapping.

**Value:**
1: Predefined Connection Set
2: Free PDO Mapping

### r8745[0...15] CO: CAN free PZD receive objects 16 bit / Free PZD recv 16

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<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
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</tbody>
</table>

**Min** | - | **Max** | - | **Factory setting** | - |

**Description:**
Access to free PZD receive objects 16 bit using the SDO transfer.
An index can only be used, if the corresponding object has not been mapped in a PDO.

**Index:**
- [0] = PZD object 0
- [1] = PZD object 1
- [2] = PZD object 2
- [3] = PZD object 3
- [4] = PZD object 4
- [5] = PZD object 5
- [6] = PZD object 6
- [7] = PZD object 7
- [8] = PZD object 8
- [9] = PZD object 9
- [10] = PZD object 10
- [12] = PZD object 12
- [13] = PZD object 13
- [14] = PZD object 14
- [15] = PZD object 15

**Note:**
Index 0 corresponds to the CANopen object 5800 hex
Index 1 corresponds to the CANopen object 5801 hex
Index 2 corresponds to the CANopen object 5802 hex
Index 3 corresponds to the CANopen object 5803 hex
Index 4 corresponds to the CANopen object 5804 hex
Index 5 corresponds to the CANopen object 5805 hex
Index 6 corresponds to the CANopen object 5806 hex
Index 7 corresponds to the CANopen object 5807 hex
Index 8 corresponds to the CANopen object 5808 hex
Index 9 corresponds to the CANopen object 5809 hex
Index 10 corresponds to the CANopen object 580A hex
Index 11 corresponds to the CANopen object 580B hex
Index 12 corresponds to the CANopen object 580C hex
Index 13 corresponds to the CANopen object 580D hex
Index 14 corresponds to the CANopen object 580E hex
Index 15 corresponds to the CANopen object 580F hex

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

Note: Index 0 corresponds to the CANopen object 5810 hex
Index 1 corresponds to the CANopen object 5811 hex
Index 2 corresponds to the CANopen object 5812 hex
Index 3 corresponds to the CANopen object 5813 hex
Index 4 corresponds to the CANopen object 5814 hex
Index 5 corresponds to the CANopen object 5815 hex
Index 6 corresponds to the CANopen object 5816 hex
Index 7 corresponds to the CANopen object 5817 hex
Index 8 corresponds to the CANopen object 5818 hex
Index 9 corresponds to the CANopen object 5819 hex
Index 10 corresponds to the CANopen object 581A hex
Index 11 corresponds to the CANopen object 581B hex
Index 12 corresponds to the CANopen object 581C hex
Index 13 corresponds to the CANopen object 581D hex
Index 14 corresponds to the CANopen object 581E hex
Index 15 corresponds to the CANopen object 581F hex
### List of parameters

#### r8747[0...7]

**CO: CAN free PZD receive objects 32 bit / Free PZD recv 32**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td></td>
</tr>
<tr>
<td>Scaling</td>
<td>4000H</td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Unit selection</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Access to free PZD receive objects 32 bit using the SDO transfer.
An index can only be used, if the corresponding object has not been mapped in a PDO.

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0] = PZD object 0</td>
<td></td>
</tr>
<tr>
<td>[1] = PZD object 1</td>
<td></td>
</tr>
<tr>
<td>[2] = PZD object 2</td>
<td></td>
</tr>
<tr>
<td>[3] = PZD object 3</td>
<td></td>
</tr>
<tr>
<td>[4] = PZD object 4</td>
<td></td>
</tr>
<tr>
<td>[5] = PZD object 5</td>
<td></td>
</tr>
<tr>
<td>[6] = PZD object 6</td>
<td></td>
</tr>
<tr>
<td>[7] = PZD object 7</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
Index 0 corresponds to the CANopen object 5820 hex
Index 1 corresponds to the CANopen object 5821 hex
Index 2 corresponds to the CANopen object 5822 hex
Index 3 corresponds to the CANopen object 5823 hex
Index 4 corresponds to the CANopen object 5824 hex
Index 5 corresponds to the CANopen object 5825 hex
Index 6 corresponds to the CANopen object 5826 hex
Index 7 corresponds to the CANopen object 5827 hex

#### p8748[0...7]

**CI: CAN free PZD send objects 32 bit / Free PZD send 32**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Can be changed</td>
<td>U, T</td>
<td></td>
</tr>
<tr>
<td>Scaling</td>
<td>4000H</td>
<td></td>
</tr>
<tr>
<td>Units group</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Unit selection</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Factory setting</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Sets the signal source for free PZD send objects 32 bit for SDO transfer.
An index can only be used, if the corresponding object has not been mapped in a PDO.

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0] = PZD object 0</td>
<td></td>
</tr>
<tr>
<td>[1] = PZD object 1</td>
<td></td>
</tr>
<tr>
<td>[2] = PZD object 2</td>
<td></td>
</tr>
<tr>
<td>[3] = PZD object 3</td>
<td></td>
</tr>
<tr>
<td>[4] = PZD object 4</td>
<td></td>
</tr>
<tr>
<td>[5] = PZD object 5</td>
<td></td>
</tr>
<tr>
<td>[6] = PZD object 6</td>
<td></td>
</tr>
<tr>
<td>[7] = PZD object 7</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
Index 0 corresponds to the CANopen object 5830 hex
Index 1 corresponds to the CANopen object 5831 hex
Index 2 corresponds to the CANopen object 5832 hex
Index 3 corresponds to the CANopen object 5833 hex
Index 4 corresponds to the CANopen object 5834 hex
Index 5 corresponds to the CANopen object 5835 hex
Index 6 corresponds to the CANopen object 5836 hex
Index 7 corresponds to the CANopen object 5837 hex
**Parameters**

**List of parameters**

---

**r8750[0...15]**  CAN mapped 16-bit receive objects / RPDO 16 mapped

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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
- [12...15] = Reserved

**Dependency:**
Refer to: r8750

**Description:** Displays the mapped 16-bit receive CANopen objects in the process data buffer. Example:
If, e.g. the control word is mapped in an RPDO, then r8750 indicates the position of the control word in the process data buffer.

---

**r8751[0...15]**  CAN mapped 16-bit transmit objects / TPDO 16 mapped

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**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
- [12...15] = Reserved

**Dependency:**
Refer to: r8750

**Description:** Displays mapped 16-bit transmit CANopen objects in the process data buffer.

---

**r8760[0...14]**  CAN mapped 32-bit receive objects / RPDO 32 mapped

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

**Description:** Displays the mapped 32-bit receive CANopen objects in the process data buffer.
### List of parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[3] = PZD 4 + 5</td>
<td></td>
</tr>
<tr>
<td>[4] = PZD 5 + 6</td>
<td></td>
</tr>
<tr>
<td>[5] = PZD 6 + 7</td>
<td></td>
</tr>
<tr>
<td>[6] = PZD 7 + 8</td>
<td></td>
</tr>
<tr>
<td>[7] = PZD 8 + 9</td>
<td></td>
</tr>
<tr>
<td>[8] = PZD 9 + 10</td>
<td></td>
</tr>
<tr>
<td>[9] = PZD 10 + 11</td>
<td></td>
</tr>
<tr>
<td>[10] = PZD 11 + 12</td>
<td></td>
</tr>
<tr>
<td>[11...14] = Reserved</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>r8761[0...14]</th>
<th>CAN mapped 32-bit transmit objects / TPDO 32 mapped</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> -</td>
<td>Scaling: -</td>
</tr>
</tbody>
</table>
| **Units group:** - | Unit selection: - | Func. diagram: - |}

| Description | Displays mapped 32-bit transmit CANopen objects in the process data buffer. |
| 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...14] = Reserved | |

<table>
<thead>
<tr>
<th>r8762</th>
<th>CO: CAN operating mode display / Op mode display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> -</td>
<td>Scaling: -</td>
</tr>
</tbody>
</table>
| **Units group:** - | Unit selection: - | Func. diagram: - |}

| Description | Displays the currently effective CANopen operating mode. |
| Index | |
| To send the CANopen object 0x6061 mapped in a TPDO, this parameter can be correspondingly interconnected in the PZD interface. | |

<table>
<thead>
<tr>
<th>r8784</th>
<th>CO: CAN status word / Status word</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access level:</strong> 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td><strong>Can be changed:</strong> -</td>
<td>Scaling: -</td>
</tr>
</tbody>
</table>
| **Units group:** - | Unit selection: - | Func. diagram: 8010 |}

<p>| Description | Displays the CANopen status word. |</p>
<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 Rdy for switch on</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01 Ready</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 Operation enabled</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 Fault present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 No coasting active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 No Quick Stop active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06 Switching on inhibited active</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07 Alarm present</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Parameters

List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>08</td>
<td>Can be freely interconnected (BI: p8785)</td>
<td>Yes No</td>
</tr>
<tr>
<td>09</td>
<td>Control request</td>
<td>Yes No</td>
</tr>
<tr>
<td>10</td>
<td>Target reached</td>
<td>Yes No</td>
</tr>
<tr>
<td>11</td>
<td>Torque limit reached</td>
<td>Yes No</td>
</tr>
<tr>
<td>12</td>
<td>Velocity equal to zero</td>
<td>Yes No</td>
</tr>
<tr>
<td>14</td>
<td>Can be freely interconnected (BI: p8786)</td>
<td>Yes No</td>
</tr>
<tr>
<td>15</td>
<td>Can be freely interconnected (BI: p8787)</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

Note: Corresponds to CANopen object 6041 hex.

Re bit 10:
When the ramp-function generator is activated, the interconnection from CI: p2151 = r1119 can be changed, so that to evaluate bit 10, the setpoint can be retrieved (taken) from in front of the ramp-function generator.

Re bit 10, 12:
When braking, the two bits must indicate the same state. This is the reason that the following parameters must be set the same:
p2161 (speed threshold value 3, for r2199.0) = p2163 (speed threshold value 4, for r2199.7)
p2150 (hysteresis speed 3, for r2199.0) = p2164 (hysteresis speed 4, for r2199.7)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>p8785</td>
<td>BI: CAN status word bit 8 / Status word bit 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G120C_CAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td>Binector input for CANopen status word bit 8.</td>
</tr>
<tr>
<td></td>
<td>Dependency:</td>
<td>Refer to: r8784</td>
</tr>
<tr>
<td>p8786</td>
<td>BI: CAN status word bit 14 / Status word bit 14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G120C_CAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td>Binector input for CANopen status word bit 14.</td>
</tr>
<tr>
<td></td>
<td>Dependency:</td>
<td>Refer to: r8784</td>
</tr>
<tr>
<td>p8787</td>
<td>BI: CAN status word bit 15 / Status word bit 15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G120C_CAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td>Binector input for CANopen status word bit 15.</td>
</tr>
<tr>
<td></td>
<td>Dependency:</td>
<td>Refer to: r8784</td>
</tr>
<tr>
<td>p8790</td>
<td>CAN control word - auto interconnection / STW interc auto</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G120C_CAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td></td>
<td>Can be changed: C(3), T</td>
<td>Scaling: -</td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td>Sets the automatic BICO interconnection of the CANopen control word.</td>
</tr>
<tr>
<td>Value:</td>
<td>0: No interconn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: Interconnection</td>
<td></td>
</tr>
</tbody>
</table>
Dependency: Refer to: r2050, r2090, r2091, r2092, r2093, r8750, r8795

Note: The following BICO interconnections are automatically established if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer.

**BI:** p0840.0 = r209x.0
**BI:** p0844.0 = r209x.1
**BI:** p0848.0 = r209x.2
**BI:** p0852.0 = r209x.3
**BI:** p2103.0 = r209x.7

The write access is rejected if a CANopen control word is not mapped at one of these locations. This also causes the project download of the commissioning software to be canceled.

### p8791 CAN stop option code / Stop opt_code

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Integer16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed:</th>
<th>Scaling:</th>
<th>Dyn. index:</th>
</tr>
</thead>
<tbody>
<tr>
<td>C(3), T</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group:</th>
<th>Unit selection:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>3</td>
<td>-1</td>
</tr>
</tbody>
</table>

Description: Setting for the CANopen control word bit 8 "Stop" (CANopen STW.8).

Value:
-1: No interconn
1: Interconnection CANopen STW.8 with p1142
3: Interconnection CANopen STW.8 with p1140

Dependency: Refer to: r2050, r8750, r8795

Note: Corresponds to CANopen object 605D hex.

The BICO interconnection is established, if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer.

### r8792[0] CO: CAN velocity mode I16 setpoint / Vel mod I16 set

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Integer16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed:</th>
<th>Scaling:</th>
<th>Dyn. index:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>4000H</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group:</th>
<th>Unit selection:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Description: Display and connector output to interconnect standardized I16 setpoint CANopen objects of the velocity mode for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

Index: [0] = VL Target Velocity

Note: Re index 0:

Corresponds to the CANopen object 6042 hex.

The displayed parameter value is scaled via the reference speed p2000: 4000 hex corresponds to p2000.

### r8795.0...15 CO/BO: CAN control word / Control word

<table>
<thead>
<tr>
<th>Access level:</th>
<th>Calculated:</th>
<th>Data type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed:</th>
<th>Scaling:</th>
<th>Dyn. index:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group:</th>
<th>Unit selection:</th>
<th>Func. diagram:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Description: Access to the CANopen control word using SDO transfer.

<table>
<thead>
<tr>
<th>Bit field:</th>
<th>Signal name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>ON/OFF1</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Do not activate coast down</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>02</td>
<td>Do not activate a Quick Stop</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>03</td>
<td>Operation enable</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
## Parameters

### List of parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Index</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>Ramp-function generator enable</td>
<td>[0] = Target velocity</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Continue ramp-function generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Speed setpoint enable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Acknowledge fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Stop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Freely intercon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Freely intercon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Freely intercon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Freely intercon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Freely intercon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dependency:
Refer to: p8790

### Note:
Corresponds to the CANopen object 6040 hex.

#### r8796[0]
**CO: CAN profile velocity mode I32 setpoints / Pr vel mo I32 set**

- **G120C_CAN**
- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Max:** -
- **Factory setting:** -
- **Calculated:** -
- **Data type:** Integer32
- **Scaling:** 4000H
- **Dyn. index:** -
- **Unit selection:** -
- **Func. diagram:** -

**Description:** Display and connector output to interconnect standardized I32 setpoint CANopen objects of the profile velocity mode for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

**Index:** [0] = Target velocity

**Note:** Re index 0:
Corresponds to the CANopen object 60FF hex.

The displayed parameter value is scaled via the reference speed p2000:
4000 0000 hex corresponds to p2000

#### r8797[0]
**CO: CAN profile torque mode I16 setpoints / Pr Tq mod I16 set**

- **G120C_CAN**
- **Access level:** 3
- **Can be changed:** -
- **Units group:** -
- **Min:** -
- **Max:** -
- **Factory setting:** -
- **Calculated:** -
- **Data type:** Integer16
- **Scaling:** 4000H
- **Dyn. index:** -
- **Unit selection:** -
- **Func. diagram:** -

**Description:** Display and connector output to interconnect standardized I16 setpoint CANopen objects of the profile torque mode for SDO transfer.

An index can only be used, if the corresponding object has not been mapped in a PDO.

**Index:** [0] = Target torque

**Note:** Re index 0:
Corresponds to the CANopen object 6071 hex.

The displayed parameter value is scaled via the reference torque p2003:
4000 hex corresponds to p2003

#### p8798[0...1]
**CAN speed conversion factor / n_conv_factor**

- **G120C_CAN**
- **Access level:** 3
- **Can be changed:** T
- **Units group:** -
- **Min:** 1
- **Max:** 4294967295
- **Factory setting:** 1
- **Calculated:** -
- **Data type:** Unsigned32
- **Scaling:** -
- **Dyn. index:** -
- **Unit selection:** -
- **Func. diagram:** -

**Description:**
The factor converts the required velocity units into the internal velocity units (U/s).

With the factory setting, for CANopen, the velocity units are increments/second.

The parameter corresponds to the CANopen object 6094 hex.
### List of parameters

#### The internal velocity is calculated as follows:
\[
\text{n\_set\_internal} = \frac{\text{object 6094.1}}{\text{object 6094.2}} \times \frac{1}{(p0408 \times 2^{p0418})} \times \text{n\_set\_bus}
\]

**Index:**
- [0] = Counter
- [1] = Denominator

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>r8854</strong> PROFINET state / PN state</td>
<td>State display for PROFINET.</td>
<td>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</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>r8858[0...39]</strong> PROFINET read diagnostics channel / PN diag_chan read</td>
<td>Displays the PROFINET diagnostics data.</td>
<td>Only for internal Siemens diagnostics.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
</table>
| **r8859[0...7]** PROFINET identification data / PN ident data | Displays the PROFINET identification data | Example:
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
r8859[4] = 1300 --> first part, firmware version V13.00 (second part, see index 7)
r8859[6] = 2306 --> 23rd June
r8859[7] = 1700 --> second part, firmware version (complete version: V13.00.17.00) |
r8909  PN device ID / PN device ID
G120C_PN
Access level: 3  Calculated: -  Data type: Unsigned16
Can be changed: -  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
Min  Max  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
0515 hex: G120 CU250S-2 Servo

p8920[0...239]  PN Name of Station / PN Name Stat
G120C_PN
Access level: 3  Calculated: -  Data type: Unsigned8
Can be changed: U, T  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
Min  Max  Factory setting
Description: Sets the station name for the onboard PROFINET interface on the Control Unit.
The active station name is displayed in r8930.
Note:
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
The interface configuration (p8920 and following) is activated with p8925 = 1.
The parameter is not influenced by setting the factory setting.
PN: PROFINET

p8921[0...3]  PN IP address of station / PN IP of stat
G120C_PN
Access level: 3  Calculated: -  Data type: Unsigned8
Can be changed: U, T  Scaling: -  Dyn. index: -
Units group: -  Unit selection: -  Func. diagram: -
Min  Max  Factory setting
0 255 0
Description: Sets the IP address for the onboard PROFINET interface on the Control Unit.
The active IP address is displayed in r8931.
Note:
The interface configuration (p8920 and following) is activated with p8925 = 1.
The parameter is not influenced by setting the factory setting.
List of parameters

p8922[0...3] PN Default Gateway of Station / PN Def Gateway

- **G120C_PN**
- **Access level:** 3
- **Calculated:** -
- **Data type:** Unsigned8
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Min:** 0
- **Max:** 255
- **Factory setting:** 0

**Description:**
Sets the default gateway for the onboard PROFINET interface on the Control Unit.
The active default gateway is displayed in r8932.

**Note:**
The interface configuration (p8920 and following) is activated with p8925 = 1.
The parameter is not influenced by setting the factory setting.

p8923[0...3] PN Subnet Mask of Station / PN Subnet Mask

- **G120C_PN**
- **Access level:** 3
- **Calculated:** -
- **Data type:** Unsigned8
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Min:** 0
- **Max:** 255
- **Factory setting:** 0

**Description:**
Sets the subnet mask for the onboard PROFINET interface on the Control Unit.
The active subnet mask is displayed in r8933.

**Note:**
The interface configuration (p8920 and following) is activated with p8925 = 1.
The parameter is not influenced by setting the factory setting.

p8925 PN interface configuration / PN IF config

- **G120C_PN**
- **Access level:** 3
- **Calculated:** -
- **Data type:** Integer16
- **Can be changed:** U, T
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Min:** 0
- **Max:** 3
- **Factory setting:** 0

**Description:**
Setting to activate the interface configuration for the onboard PROFINET interface on the Control Unit.
p8925 is automatically set to 0 at the end of the operation.

**Value:**
0: No function
1: Activate configuration
2: Activate and save configuration
3: Delete configuration

**Note:**
Re p8925 = 1:
The interface configuration (p8920 and following) is activated.
Re p8925 = 2:
The interface configuration (p8920 and following) is activated and saved to non-volatile memory.
Re p8925 = 3:
Restores all memory locations for the interface configuration to the factory settings.
The factory settings for the interface configuration are loaded on activation (p8925 = 1) or at the next POWER ON.

p8929 PN remote controller number / PN rem ctrl num

- **G120C_PN**
- **Access level:** 3
- **Calculated:** -
- **Data type:** Integer16
- **Can be changed:** C
- **Scaling:** -
- **Dyn. index:** -
- **Units group:** -
- **Unit selection:** -
- **Dyn. index:** -
- **Min:** 1
- **Max:** 2
- **Factory setting:** 1

**Description:**
Sets the number of remote controllers expected for PROFINET onboard.
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 PROFlsafe telegrams.

**Note:**
A change only becomes effective after POWER ON, reset or download.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>r8930[0...239]</td>
<td>PN Name of Station active / PN Name Stat act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Displays the active station name for the onboard PROFINET interface on the Control Unit.</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>PN IP Address of Station active / PN IP of Stat act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>PN Default Gateway of Station active / PN Def Gateway act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>PN Subnet Mask of Station active / PN Subnet Mask act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>PN MAC Address of Station / PN MAC of Station</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>r8931[0...3]</td>
<td>PN IP Address of Station active / PN IP of Stat act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Displays the active IP address for the onboard PROFINET interface on the Control Unit.</td>
</tr>
<tr>
<td>r8932[0...3]</td>
<td>PN Default Gateway of Station active / PN Def Gateway act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Displays the active default gateway for the onboard PROFINET interface on the Control Unit.</td>
</tr>
<tr>
<td>r8933[0...3]</td>
<td>PN Subnet Mask of Station active / PN Subnet Mask act</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Displays the active subnet mask for the onboard PROFINET interface on the Control Unit.</td>
</tr>
<tr>
<td>r8935[0...5]</td>
<td>PN MAC Address of Station / PN MAC of Station</td>
</tr>
<tr>
<td>G120C_PN</td>
<td>Displays the MAC address for the onboard PROFINET interface on the Control Unit.</td>
</tr>
</tbody>
</table>
### List of parameters

#### r8939  PN DAP ID / PN DAP ID

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**Description:**
Displays the PROFINET Device Access Point ID (DAP ID) for the onboard PROFINET interface.
The combination of device ID (r8909) and DAP ID uniquely identifies a PROFINET access point.

**Note:**
List of the SINAMICS DAP IDs:
- 20007 hex: CBE20 V4.5
- 20008 hex: CBE20 V4.6
- 20107 hex: CU310-2 PN V4.5
- 20108 hex: CU310-2 PN V4.6
- 20307 hex: CU320-2 PN V4.5
- 20308 hex: CU320-2 PN V4.6
- 20407 hex: CU230P-2 PN /CU240x-2 PN V4.5
- 20408 hex: CU230P-2 PN /CU240x-2 PN /CU250S-2 PN /G110M PN V4.6
- 20507 hex: CU250D-2 PN V4.5
- 20508 hex: CU250D-2 PN V4.6

#### r8960[0...2]  PN subslot controller assignment / PN subslot assign

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**Description:**
Displays the controller assignment of a PROFINET subslot on the actual drive object.

**Index:**
- [0] = Subslot 2 PROFIsafe
- [1] = Subslot 3 PZD telegram
- [2] = Subslot 4 PZD supplementary data

**Dependency:**
Refer to: r8961, r8962

**Note:**
Example:
If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

#### r8961[0...3]  PN IP Address Remote Controller 1 / IP Addr Rem Ctrl1

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**Description:**
Displays the IP address of the first PROFINET controller connected with the device via PN onboard.

#### r8962[0...3]  PN IP Address Remote Controller 2 / IP Addr Rem Ctrl2

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

**Description:**
Displays the IP address of the second PROFINET controller connected with the device via PN onboard.
### p8980  Ethernet/IP profile / Eth/IP profile

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p8980</td>
<td>Sets the profile for Ethernet/IP.</td>
<td>0: SINAMICS, 1: ODVA AC/DC</td>
<td>Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting. ODVA: Open DeviceNet Vendor Association</td>
</tr>
</tbody>
</table>

### p8981  Ethernet/IP ODVA STOP mode / Eth/IP ODVA STOP

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p8981</td>
<td>Sets the STOP mode for the Ethernet/IP ODVA profile (p8980 = 1).</td>
<td>0: OFF1, 1: OFF2</td>
<td>Refer to: p8980</td>
<td>Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting.</td>
</tr>
</tbody>
</table>

### p8982  Ethernet/IP ODVA speed scaling / Eth/IP ODVA n scal

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p8982</td>
<td>Sets the scaling for the speed for Ethernet/IP ODVA profile (p8980 = 1).</td>
<td>123: 32, 124: 16, 125: 8, 126: 4, 127: 2, 128: 1, 129: 0.5, 130: 0.25, 131: 0.125, 132: 0.0625, 133: 0.03125</td>
<td>Refer to: p8980</td>
<td>Changes only become effective after POWER ON. The parameter is not influenced by setting the factory setting.</td>
</tr>
</tbody>
</table>
### p8991  USB memory access / USB mem acc

| Access level: | 3 | Calculated: | - | Data type: Integer16 |
| Can be changed: | T | Scaling: | - | Dyn. index: | - |
| Units group: | - | Unit selection: | - | Func. diagram: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Description:** Selects the storage medium for access via the USB mass storage.

**Value:**

1: Memory card

2: Flash r/w internal

**Note:** A change only becomes effective after a POWER ON.

The parameter is not influenced by setting the factory setting.

### p8999  USB functionality / USB Fct

| Access level: | 4 | Calculated: | - | Data type: Integer16 |
| Can be changed: | T | Scaling: | - | Dyn. index: | - |
| Units group: | - | Unit selection: | - | Func. diagram: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Description:** Setting the USB functionality.

**Value:**

1: USS commissioning via the virtual COM port

2: Only memory access

3: USB commissioning and memory access

**Note:**

COMM: Commissioning.

A change only becomes effective after a POWER ON.

The parameter is not influenced by setting the factory setting.

### p9400  Safely remove memory card / Mem_card rem

| Access level: | 2 | Calculated: | - | Data type: Integer16 |
| Can be changed: | T | Scaling: | - | Dyn. index: | - |
| Units group: | - | Unit selection: | - | Func. diagram: | - |

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

**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

**Description:**
Displays the status of the memory card.

**Dependency:**
Refer to: p9400

**Note:**
- Re bit 00 and bit 01:
  - 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 00 and bit 02:
  - 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.

**Bit field:**
<table>
<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>Memory card inserted</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Memory card activated</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>SIEMENS memory card</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Memory card as USB data storage</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>medium from the PC used</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### r9463  Actual macro / Actual macro

**Description:**
Displays the set valid macro.

**Note:**
A value of 0 is displayed if a parameter set by a macro is changed.

### p9484  BICO interconnections search signal source / BICO S_src srch

**Description:**
Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks.
The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).

**Dependency:**
Refer to: r9485, r9486
## BICO interconnections signal source search count / BICO S_src srchQty

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>r9485</td>
<td>Displays the number of BICO interconnections to the signal sink being searched for.</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Dependency
Refer to: p9484, r9486

### 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).

## BICO interconnections signal source search first index / BICO S_src srchIdx

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>r9486</td>
<td>Displays the first index of the signal source being searched for.</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Dependency
Refer to: p9484, r9485

### Note
- The signal source to be searched for is set in p9484 (BICO-coded) and the search result is specified using the number (r9485) and the first index (r9486).

## SI enable functions integrated in the drive (processor 1) / SI enable fct P1

### p9601

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Access level</th>
<th>Can be changed</th>
<th>Units group</th>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td>Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1. Not all of the settings listed below will be permissible, depending on the Control Unit and Power Module being used: 0000 hex: Safety functions integrated in the drive inhibited (no safety function). 0001 hex: Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).</td>
<td>3</td>
<td>C(95)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0000 bin</td>
</tr>
</tbody>
</table>

### Bit field

<table>
<thead>
<tr>
<th>Bit</th>
<th>Signal name</th>
<th>0 signal</th>
<th>1 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Enable STO via terminals (processor 1)</td>
<td>Enable</td>
<td>Inhibit</td>
<td>2810</td>
</tr>
</tbody>
</table>

### Dependency
Refer to: r9771, p9801

### Note
- A change only becomes effective after a POWER ON.
- STO: Safe Torque Off

---

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
Not all of the settings listed below will be permissible, depending on the Control Unit and Power Module being used:

0000 hex:
Safety functions integrated in the drive inhibited (no safety function).

0001 hex:
Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).

0008 hex:
Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1).

0009 hex:
Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1).

<table>
<thead>
<tr>
<th>Bit field:</th>
<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>0</td>
<td>Enable STO via terminals (processor 1)</td>
<td>Enable</td>
<td>Inhibit</td>
<td>2810</td>
</tr>
<tr>
<td>03</td>
<td>0</td>
<td>Enable PROFIsafe (processor 1)</td>
<td>Enable</td>
<td>Inhibit</td>
<td>-</td>
</tr>
</tbody>
</table>

Dependency:
Refer to: r9771, p9801

Note:
A change only becomes effective after a POWER ON.

STO: Safe Torque Off

**p9610**
SI PROFIsafe address (processor 1) / SI PROFIsafe P1

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0000 hex</td>
</tr>
<tr>
<td>Max</td>
<td>FFFE hex</td>
</tr>
</tbody>
</table>

Description:
Sets the PROFIsafe address for processor 1.

Dependency:
Refer to: p9810

**p9650**
SI F-DI changeover tolerance time (processor 1) / SI F-DI_chg tol P1

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0.00 [ms]</td>
</tr>
<tr>
<td>Max</td>
<td>2000.00 [ms]</td>
</tr>
</tbody>
</table>

Description:
Sets the tolerance time for the changeover of the failsafe digital input for STO on processor 1.

An F-DI changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an F-DI changeover, dynamic data is not subject to a crosswise data comparison during this tolerance time.

Dependency:
Refer to: p9850

Note:
For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.

The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle.

F-DI: Failsafe Digital Input

**p9651**
SI STO debounce time (processor 1) / SI STO t_debou P1

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>0.00 [ms]</td>
</tr>
<tr>
<td>Max</td>
<td>100.00 [ms]</td>
</tr>
<tr>
<td>Factory setting</td>
<td>1.00 [ms]</td>
</tr>
</tbody>
</table>

Description:
Sets the debounce time for the failsafe digital inputs used to control the “STO” function.

The debounce time is rounded to whole milliseconds.

Note:
The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the failsafe digital inputs with no reaction/influence on the selection or deselection of the Safety Basic Functions.
Example:
Debounce time = 1 ms: Fault pulses of 1 ms are filtered; only pulses longer than 2 ms are processed.
Debounce time = 3 ms: Fault pulses of 3 ms are filtered; only pulses longer than 4 ms are processed.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Dependency</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>p9659</td>
<td>SI forced checking procedure timer / SI FCP Timer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: C(95)</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 2810</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min 0.00 [h]</td>
<td>Max 9000.00 [h]</td>
<td>Factory setting 8.00 [h]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sets the time interval for carrying out the forced checking procedure and testing the Safety shutdown paths.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within the parameterized time, STO must have been de-selected at least once. The monitoring time is reset each time that STO is de-selected.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependency:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refer to: A01699</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STO: Safe Torque Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r9660</td>
<td>SI forced checking procedure remaining time / SI frc chk remain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: FloatingPoint32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min - [h]</td>
<td>Max - [h]</td>
<td>Factory setting - [h]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Displays the time remaining before dynamization and testing of the safety shutdown paths (forced checking procedure).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependency:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refer to: A01699</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>p9700</td>
<td>SI copy function / SI copy function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access level: 3</td>
<td>Calculated: -</td>
<td>Data type: Integer16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be changed: C(95), U, T</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Min 0000 hex</td>
<td>Max 00D0 hex</td>
<td>Factory setting 0000 hex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setting to start the required copy function.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>After starting, the corresponding parameters are copied from processor 1 to processor 2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Once copying is complete, the parameter is automatically reset to zero.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value: 0: [00 hex] Copy function ended</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29: [1D hex] Start copy function node identifier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>87: [57 hex] Start copy function SI parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>208: [D0 hex] Start copy function SI basic parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependency:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Refer to: r3996</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Notice:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>When the parameters are copied, short-term communication interruptions may occur.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Re value = 57 hex and D0 hex:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Re value = D0 hex:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The following parameters are copied after starting the copy function:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p9601 --&gt; p9801, p9610 --&gt; p9810, p9650 --&gt; p9850, p9651 --&gt; p9851</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Parameters

List of parameters

p9701 Acknowledge SI data change / Ackn SI data

Access level: 3
Can be changed: C(95), U, T
Units group: -

Min 0000 hex
Max 00EC hex

Description:
Setting to transfer the reference checksums from the associated actual checksums after changes (SI parameters, hardware).

After transferring the reference checksums, parameters are automatically reset to zero.

Value:
0: [00 hex] Data unchanged
172: [AC hex] Acknowledge data change complete
220: [DC hex] Acknowledge SI basic parameter change
236: [EC hex] Acknowledge hardware CRC

Dependency:
Refer to: r9798, p9799, r9898, p9899

Note:
Re value = AC and DC hex:
These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

p9761 SI password input / SI password inp

Access level: 3
Can be changed: C, T
Units group: -

Min 0000 hex
Max FFFF FFFF hex

Description:
Enters the Safety Integrated password.

Dependency:
Refer to: F01659

Note:
It is not possible to change Safety Integrated parameters until the Safety Integrated password has been entered.

p9762 SI password new / SI password new

Access level: 3
Can be changed: C(95)
Units group: -

Min 0000 hex
Max FFFF FFFF hex

Description:
Enter a new Safety Integrated password.

Dependency:
A change made to the Safety Integrated password must be acknowledged in the following parameter:
Refer to: p9763

p9763 SI password acknowledgement / SI ackn password

Access level: 3
Can be changed: C(95)
Units group: -

Min 0000 hex
Max FFFF FFFF hex

Description:
Acknowledges the new Safety Integrated password.

Dependency:
Refer to: p9762

Note:
The new password entered into p9762 must be re-entered in order to acknowledge.
p9762 = p9763 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.
### r9768[0...7]
**SI PROFIsafe receive control words (processor 1) / SI Ps PZD recv P1**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Unit selection</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays the received PROFIsafe telegram on processor 1.

**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

**Dependency:** Refer to: r9769

**Note:** The PROFIsafe trailer at the end of the telegram is also displayed (2 words).

### r9769[0...7]
**SI PROFIsafe send status words (processor 1) / SI Ps PZD send P1**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Unit selection</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays the PROFIsafe telegram to be sent on processor 1.

**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

**Dependency:** Refer to: r9768

**Note:** The PROFIsafe trailer at the end of the telegram is also displayed (2 words).

### r9770[0...3]
**SI version drive-integrated safety function (processor 1) / SI version Drv P1**

<table>
<thead>
<tr>
<th>Access level</th>
<th>Calculated</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>Unsigned16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Can be changed</th>
<th>Scaling</th>
<th>Dyn. index</th>
<th>Func. diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2802</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units group</th>
<th>Unit selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Displays the Safety Integrated version for the drive-integrated safety functions on processor 1.

**Index:**
- [0] = Safety Version (major release)
- [1] = Safety Version (minor release)
- [2] = Safety Version (baselevel or patch)
- [3] = Safety Version (hotfix)

**Note:**
- Example:
  - r9770[0] = 2, r9770[1] = 60, r9770[2] = 1, r9770[3] = 0 --> Safety version V02.60.01.00
### Parameters

**List of parameters**

---

**r9771 SI common functions (processor 1) / SI general fct P1**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_USS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Can be changed:** -  
**Scaling:** -  
**Units group:** -  
**Unit selection:** -  
**Min:** -  
**Max:** -  
**Factory setting:** -

**Description:**  
Displays the supported Safety Integrated monitoring functions. Processor 1 determines this display.

**Dependency:**  
Refer to: r9871

**Note:**  
STO: Safe Torque Off

**Bit field:**  

<table>
<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>STO supported via terminals</td>
<td>Yes</td>
<td>No</td>
<td>2804</td>
</tr>
</tbody>
</table>

---

**r9771 SI common functions (processor 1) / SI general fct P1**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_DP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G120C_PN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Can be changed:** -  
**Scaling:** -  
**Units group:** -  
**Unit selection:** -  
**Min:** -  
**Max:** -  
**Factory setting:** -

**Description:**  
Displays the supported Safety Integrated monitoring functions. Processor 1 determines this display.

**Dependency:**  
Refer to: r9871

**Note:**  
STO: Safe Torque Off

**Bit field:**  

<table>
<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>STO supported via terminals</td>
<td>Yes</td>
<td>No</td>
<td>2804</td>
</tr>
<tr>
<td>06</td>
<td>Basic Functions PROFIsafe supported</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

---

**r9772.0...20 CO/BO: SI status (processor 1) / SI status P1**

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>G120C_USS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Can be changed:** -  
**Scaling:** -  
**Units group:** -  
**Unit selection:** -  
**Min:** -  
**Max:** -  
**Factory setting:** -

**Description:**  
Displays the Safety Integrated status on processor 1.

**Dependency:**  
Refer to: r9872

**Note:**  
STO: Safe Torque Off

**Bit field:**  

<table>
<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>STO selected on processor 1</td>
<td>Yes</td>
<td>No</td>
<td>2810</td>
</tr>
<tr>
<td>01</td>
<td>STO active on processor 1</td>
<td>Yes</td>
<td>No</td>
<td>2810</td>
</tr>
<tr>
<td>07</td>
<td>STO terminal state on processor 1</td>
<td>High</td>
<td>Low</td>
<td>-</td>
</tr>
</tbody>
</table>

**09**  
STOP A cannot be acknowledged active  
Yes  
No  
2802

**10**  
STOP A active  
Yes  
No  
2802

**15**  
STOP F active  
Yes  
No  
2802

**16**  
STOP cause: Safety comm. mode  
Yes  
No  
-  

**17**  
STOP cause selection via terminal (Basic Functions)  
Yes  
No  
-  

**18**  
STOP cause: Selection via motion monitoring functions  
Yes  
No  
-  

**19**  
STOP cause actual value missing  
Yes  
No  
-  

**20**  
STOP cause selection PROFIsafe (Basic Functions)  
Yes  
No  
-  

**Dependency:**  
Refer to: r9872

**Note:**  
Re bit 00:  
When STO is selected, the cause is displayed in bits 16 ... 20.
Re bit 18:
When the bit is set, STO is selected via PROFIsafe.
Re bit 19:
For the drive-integrated motion monitoring functions, due to OFF2, no actual value sensing possible.

<table>
<thead>
<tr>
<th>r9773.0...31</th>
<th>CO/BO: SI status (processor 1 + processor 2) / SI status P1+P2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 2</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
</tbody>
</table>

**Description:** Displays the Safety Integrated status on the drive (processor 1 + processor 2).

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>STO selected in drive</td>
<td>Yes</td>
<td>No</td>
<td>2804</td>
</tr>
<tr>
<td>01</td>
<td>STO active in drive</td>
<td>Yes</td>
<td>No</td>
<td>2804</td>
</tr>
<tr>
<td>31</td>
<td>Shutdown paths must be tested</td>
<td>Yes</td>
<td>No</td>
<td>2810</td>
</tr>
</tbody>
</table>

**Note:** This status is formed from the AND operation of the relevant status of the two monitoring channels.

<table>
<thead>
<tr>
<th>r9776</th>
<th>SI diagnostics / SI diag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 4</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
</tbody>
</table>

**Description:** The parameter is used for diagnostics.

<table>
<thead>
<tr>
<th>Bit field</th>
<th>Bit name</th>
<th>1 signal</th>
<th>0 signal</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Safety parameter changed POWER ON required</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:** Re bit 00 = 1:
At least one Safety parameter has been changed that will only take effect after a POWER ON.

<table>
<thead>
<tr>
<th>r9780</th>
<th>SI monitoring clock cycle (processor 1) / SI mon_clk cyc P1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>- [ms]</td>
<td>- [ms]</td>
</tr>
</tbody>
</table>

**Description:** Displays the clock cycle time for the Safety Integrated Basic Functions on processor 1.

**Note:** Information regarding the relationship between monitoring clock cycle and response times can be found in the following references:
- SINAMICS S120 Function Manual Safety Integrated
- Technical documentation for the particular product

<table>
<thead>
<tr>
<th>r9781[0...1]</th>
<th>SI checksum to check changes (processor 1) / SI chg chksm P1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Calculated: -</td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
</tr>
</tbody>
</table>

**Description:** Displays the checksum for tracking changes for Safety Integrated.
These are additional checksums that are created to track changes (fingerprint for the "safety logbook" functionality) to safety parameters (that are relevant for checksums).
### Index:

- [0] = SI checksum to track functional changes
- [1] = SI checksum to track hardware-specific changes

### Dependency:

Refer to: p9601, p9799

---

#### r9782[0...1]

**SI time stamp to check changes (processor 1) / SI chg t P1**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>- [h]</td>
<td>- [h]</td>
<td>- [h]</td>
</tr>
</tbody>
</table>

**Description:**

Displays the time stamps for the checksums for tracking changes for Safety Integrated.

The time stamps for the checksums for tracking changes (fingerprint for the "safety logbook" functionality) made to safety parameters are saved in parameters p9781[0] and p9781[1].

**Index:**

- [0] = SI time stamp for checksum to track functional changes
- [1] = SI time stamp for checksum to track hardware-specific changes

**Dependency:**

Refer to: p9601, p9799

---

#### r9794[0...19]

**SI crosswise comparison list (processor 1) / SI CDC_list P1**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 2802</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**

Displays the numbers of the data items that are currently being compared crosswise on processor 1.

The content of the list of crosswise-compared data is dependent upon the particular application.

**Note:**

Example:

- r9794[0] = 1 (monitoring clock cycle)
- r9794[1] = 2 (enable safety functions)
- r9794[2] = 3 (F-DI changeover, tolerance time)

... A complete list of numbers for crosswise-compared data items appears in fault F01611.

---

#### r9795

**SI diagnostics STOP F (processor 1) / SI diag STOP F P1**

<table>
<thead>
<tr>
<th>Access level: 2</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 2802</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**

Displays the number of the cross-compared data item which caused STOP F on processor 1.

**Dependency:**

Refer to: F01611

**Note:**

A complete list of numbers for crosswise-compared data items appears in fault F01611.

---

#### r9798

**SI actual checksum SI parameters (processor 1) / SI act chksm P1**

<table>
<thead>
<tr>
<th>Access level: 3</th>
<th>Calculated: -</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed: -</td>
<td>Scaling: -</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group: -</td>
<td>Unit selection: -</td>
<td>Func. diagram: 2800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Factory setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**

Displays the checksum for the Safety Integrated parameters checked using checksums on processor 1 (actual checksum).

**Dependency:**

Refer to: p9799, r9898

---

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### List of parameters

#### p9799

**SI setpoint checksum SI parameters (processor 1) / SI setp_chksm P1**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type:</th>
<th>Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
<td>Scalling:</td>
<td>-</td>
<td>Dyn. index:</td>
<td>-</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram:</td>
<td>2800</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>FFFF FFFF hex</td>
<td>Factory setting</td>
<td>0000 hex</td>
</tr>
</tbody>
</table>

**Description:**
Sets the checksum for the Safety Integrated parameters checked using checksums on processor 1 (setpoint checksum).

**Dependency:**
Refer to: r9798, p9899

#### p9801

**SI enable functions integrated in the drive (processor 2) / SI enable fct P2**

<table>
<thead>
<tr>
<th>G120C_CAN</th>
<th>G120C_USS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1.

Not all of the settings listed below will be permissible, depending on the Control Unit and Power Module being used:
0000 hex:
Safety functions integrated in the drive inhibited (no safety function).
0001 hex:
Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).
0002 hex:
Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1).
0003 hex:
Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1).

**Bit field:**

<table>
<thead>
<tr>
<th>Bit</th>
<th>Signal name 1</th>
<th>Signal name 0</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Enable STO via terminals (processor 2)</td>
<td>Enable</td>
<td>Inhibit</td>
</tr>
<tr>
<td>03</td>
<td>Enable PROFIsafe (processor 2)</td>
<td>Enable</td>
<td>Inhibit</td>
</tr>
</tbody>
</table>

**Dependency:**
Refer to: p9601, r9871

**Notice:**
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

**Note:**
A change only becomes effective after a POWER ON.

STO: Safe Torque Off

#### p9801

**SI enable functions integrated in the drive (processor 2) / SI enable fct P2**

<table>
<thead>
<tr>
<th>G120C_DP</th>
<th>G120C_PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level:</td>
<td>3</td>
</tr>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
</tr>
</tbody>
</table>

**Description:**
Sets the enable signals for the safety functions integrated in the drive and the type of selection on processor 1.

Not all of the settings listed below will be permissible, depending on the Control Unit and Power Module being used:
0000 hex:
Safety functions integrated in the drive inhibited (no safety function).
0001 hex:
Basic functions are enabled via onboard terminals (permissible for r9771.0 = 1).
0002 hex:
Basic functions are enabled via PROFIsafe (permissible for r9771.6 = 1).
0003 hex:
Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9771.6 = 1).

**Bit field:**

<table>
<thead>
<tr>
<th>Bit</th>
<th>Signal name 1</th>
<th>Signal name 0</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Enable STO via terminals (processor 2)</td>
<td>Enable</td>
<td>Inhibit</td>
</tr>
<tr>
<td>03</td>
<td>Enable PROFIsafe (processor 2)</td>
<td>Enable</td>
<td>Inhibit</td>
</tr>
</tbody>
</table>

**Dependency:**
Refer to: p9601, r9871

**Notice:**
This parameter is overwritten by the copy function of the safety functions integrated in the drive.
### Parameters

#### List of parameters

**Note:** A change only becomes effective after a POWER ON.

**STO:** Safe Torque Off

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>p9810</td>
<td><strong>SI PROFIsafe address (processor 2) / SI PROFIsafe P2</strong></td>
<td>Sets the PROFIsafe address on processor 2. This parameter is overwritten by the copy function of the safety functions integrated in the drive.</td>
</tr>
<tr>
<td>p9850</td>
<td><strong>SI F-DI changeover tolerance time (processor 2) / SI F-DI_chg tol P2</strong></td>
<td>Sets the tolerance time for the changeover of the failsafe digital input for STO on processor 2. An F-DI changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an F-DI changeover, dynamic data is not subject to a crosswise data comparison during this tolerance time.</td>
</tr>
<tr>
<td>p9851</td>
<td><strong>SI STO debounce time (processor 2) / SI STO t_debou P2</strong></td>
<td>Sets the debounce time for the failsafe digital inputs used to control the &quot;STO&quot; function. The debounce time is rounded to whole milliseconds.</td>
</tr>
<tr>
<td>r9871</td>
<td><strong>SI common functions (processor 2) / SI common fct P2</strong></td>
<td>Displays the supported Safety Integrated monitoring functions.</td>
</tr>
</tbody>
</table>

**Access level:** 3  
**Can be changed:** C(95)  
**Units group:** -  
**Min:** 0000 hex  
**Max:** FFFE hex  
**Factory setting:** 0000 hex  
**Data type:** Unsigned16  
**Calculated:** -  
**Scaling:** -  
**Dyn. index:** -  
**Func. diagram:** -

**Access level:** 3  
**Can be changed:** C(95)  
**Units group:** -  
**Min:** 0.00 [µs]  
**Max:** 2000000.00 [µs]  
**Factory setting:** 500000.00 [µs]  
**Data type:** FloatingPoint32  
**Calculated:** -  
**Scaling:** -  
**Dyn. index:** -  
**Func. diagram:** 2810

**Access level:** 3  
**Can be changed:** C(95)  
**Units group:** -  
**Min:** 0.00 [µs]  
**Max:** 100000.00 [µs]  
**Factory setting:** 0.00 [µs]  
**Data type:** FloatingPoint32  
**Calculated:** -  
**Scaling:** -  
**Dyn. index:** -  
**Func. diagram:** -

**Access level:** 3  
**Can be changed:** -  
**Units group:** -  
**Min:** -  
**Max:** -  
**Factory setting:** -  
**Data type:** Unsigned32  
**Calculated:** -  
**Scaling:** -  
**Dyn. index:** -  
**Func. diagram:** 2804

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## List of parameters

**r9871**  
**SI common functions (processor 2) / SI common fct P2**

<table>
<thead>
<tr>
<th>Bit field</th>
<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>0</td>
<td>STO supported via terminals</td>
<td>Yes</td>
<td>No</td>
<td>2804</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: r9771  
**Note:** STO: Safe Torque Off

### Dependency:
Refer to: r9771

### Note:
STO: Safe Torque Off

### r9872.0...20  
**CO/BO: SI status (processor 2) / SI Status P2**

<table>
<thead>
<tr>
<th>Bit field</th>
<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>0</td>
<td>STO supported via terminals</td>
<td>Yes</td>
<td>No</td>
<td>2804</td>
</tr>
<tr>
<td>06</td>
<td>0</td>
<td>Basic Functions PROFsac supported</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dependency:** Refer to: r9771  
**Note:** STO: Safe Torque Off

### Dependency:
Refer to: r9772

### Note:
Re bit 00:
When STO is selected, the cause is displayed in bits 16 ... 20.
Re bit 18:
When the bit is set, STO is selected via PROFsac.
### List of parameters

#### r9898
**SI actual checksum SI parameters (processor 2) / SI act_chksm P2**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: 2800</td>
</tr>
<tr>
<td>Min</td>
<td>-</td>
<td>Max</td>
<td>-</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**Description:** Displays the checksum for the Safety Integrated parameters checked using checksums on processor 2 (actual checksum).

**Dependency:** Refer to: r9798, p9899

#### p9899
**SI setpoint checksum SI parameters (processor 2) / SI setp_chksm P2**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: Unsigned32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>C(95)</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: 2800</td>
</tr>
<tr>
<td>Min</td>
<td>0000 hex</td>
<td>Max</td>
<td>FFFF FFFF hex</td>
<td>Factory setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0000 hex</td>
<td></td>
</tr>
</tbody>
</table>

**Description:** Sets the checksum for the Safety Integrated parameters checked using checksums on processor 2 (setpoint checksum).

**Dependency:** Refer to: p9799, r9898

#### r9976[0...7]
**System utilization / Sys util**

<table>
<thead>
<tr>
<th>Access level:</th>
<th>3</th>
<th>Calculated:</th>
<th>-</th>
<th>Data type: FloatingPoint32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be changed:</td>
<td>-</td>
<td>Scaling:</td>
<td>-</td>
<td>Dyn. index: -</td>
</tr>
<tr>
<td>Units group:</td>
<td>-</td>
<td>Unit selection:</td>
<td>-</td>
<td>Func. diagram: -</td>
</tr>
<tr>
<td>Min</td>
<td>- [%]</td>
<td>Max</td>
<td>- [%]</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>

**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: F01054, F01205

**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).

#### p60022
**PROFIsafe telegram selection / Ps telegram_sel**

| G120C_DP | Access level: | 3 | Calculated: | - | Data type: Unsigned16 |
| G120C_PN | Can be changed: | T | Scaling: | - | Dyn. index: - |
|          | Units group: | - | Unit selection: | - | Func. diagram: - |
| Min | 0 | Max | 998 | Factory setting |
|     |      |     | 998 |

**Description:** Sets the PROFIsafe telegram number.
### List of parameters

**Value:**
- 0: No PROFIsafe telegram selected
- 30: PROFIsafe standard telegram 30, PZD-1/1
- 998: Compatibility mode (as for firmware version < 4.6)

**Note:**
For \( p9601.3 = p9801.3 = 1 \) (PROFIsafe enabled), the following variants exist when parameterizing PROFIsafe telegram 30:
- \( p9611 = p9811 = 998 \) and \( p60022 = 0 \)
- \( p9611 = p9811 = 998 \) and \( p60022 = 30 \)
- \( p9611 = p9811 = 30 \) and \( p60022 = 30 \)

### r61000[0...239] PROFINET Name of Station / PN Name of Station

<table>
<thead>
<tr>
<th>G120C_PN</th>
<th>Description:</th>
<th>Notice:</th>
<th>Data type: Unsigned8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Displays PROFINET Name of Station.</td>
<td>An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.</td>
<td></td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Units group: -</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
<td></td>
</tr>
</tbody>
</table>

### r61001[0...3] PROFINET IP of Station / PN IP of Station

<table>
<thead>
<tr>
<th>G120C_PN</th>
<th>Description:</th>
<th>Notice:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access level: 3</td>
<td>Displays PROFINET IP of Station.</td>
<td></td>
</tr>
<tr>
<td>Can be changed: -</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Units group: -</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Min</td>
<td>Max</td>
<td>Factory setting</td>
</tr>
</tbody>
</table>
1.3 Command and drive data sets - overview

1.3.1 Command data sets (CDS)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: CDS

p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select bit 0
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 open 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] Speed setpoint selection / n_set sel
p1020[0...n] BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
p1021[0...n] BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
p1022[0...n] BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
p1023[0...n] BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3
p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise
p1036[0...n] BI: Motorized potentiometer lower setpoint / Mop lower
p1043[0...n] BI: Motorized potentiometer accept setting value / MotP acc set val
p1044[0...n] CI: Motorized potentiometer setting value / Mop set val
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
p1071[0...n] CI: Main setpoint scaling / Main setp scal
p1075[0...n] CI: Supplementary setpoint / Suppl setp
p1076[0...n] CI: Supplementary setpoint scaling / Suppl setp scal
p1106[0...n] CI: Minimum speed signal source / n_min s_src
p1110[0...n] BI: Inhibit negative direction / Inhib neg dir
p1111[0...n] BI: Inhibit positive direction / Inhib pos dir
p1113[0...n] BI: Setpoint inversion / Setp inv
p1138[0...n] CI: Up ramp scaling / Up ramp scaling
p1139[0...n] CI: Down ramp scaling / Down ramp scaling
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
p1201[0...n] BI: Flying restart enable signal source / Fly_res enab S_src
p1230[0...n] BI: DC braking activation / DC brake act
p1330[0...n] CI: U/f control independent voltage setpoint / Uf U_set independ.
p1352[0...n] BI: Motor holding brake starting frequency signal source / Brake f_start
p1475[0...n] CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB
p151[0...n] CI: Supplementary torque 1 / M_suppl 1
p1522[0...n] CI: Torque limit upper / M_max upper
p1523[0...n] CI: Torque limit lower / M_max lower
p1552[0...n] CI: Torque limit upper scaling without offset / M_max up w/o offs
p1554[0...n] CI: Torque limit lower scaling without offset / M_max low w/o offs
p2103[0...n] BI: 1. Acknowledge faults / 1. Acknowledge
Parameters

Command and drive data sets - overview

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p2104[0...n]</td>
<td>BI: 2. Acknowledge faults / 2. Acknowledge</td>
</tr>
<tr>
<td>p2106[0...n]</td>
<td>BI: External fault 1 / External fault 1</td>
</tr>
<tr>
<td>p2112[0...n]</td>
<td>BI: External alarm 1 / External alarm 1</td>
</tr>
<tr>
<td>p2200[0...n]</td>
<td>BI: Technology controller enable / Tec_ctrl enable</td>
</tr>
<tr>
<td>p2220[0...n]</td>
<td>BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0</td>
</tr>
<tr>
<td>p2221[0...n]</td>
<td>BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1</td>
</tr>
<tr>
<td>p2222[0...n]</td>
<td>BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2</td>
</tr>
<tr>
<td>p2223[0...n]</td>
<td>BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3</td>
</tr>
<tr>
<td>p2235[0...n]</td>
<td>BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise</td>
</tr>
<tr>
<td>p2236[0...n]</td>
<td>BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower</td>
</tr>
<tr>
<td>p2253[0...n]</td>
<td>CI: Technology controller setpoint 1 / Tec_ctrl setp 1</td>
</tr>
<tr>
<td>p2254[0...n]</td>
<td>CI: Technology controller setpoint 2 / Tec_ctrl setp 2</td>
</tr>
<tr>
<td>p2264[0...n]</td>
<td>CI: Technology controller actual value / Tec_ctrl act val</td>
</tr>
<tr>
<td>p2286[0...n]</td>
<td>BI: Hold technology controller integrator / Tec_ctr integ stop</td>
</tr>
<tr>
<td>p2289[0...n]</td>
<td>CI: Technology controller pre-control signal / Tec_ctrl precntl</td>
</tr>
<tr>
<td>p2296[0...n]</td>
<td>CI: Technology controller output scaling / Tec_ctrl outp scal</td>
</tr>
<tr>
<td>p2297[0...n]</td>
<td>CI: Technology controller maximum limit signal source / Tec_ctrlMaxLimS_src</td>
</tr>
<tr>
<td>p2298[0...n]</td>
<td>CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s</td>
</tr>
<tr>
<td>p2299[0...n]</td>
<td>CI: Technology controller limit offset / Tec_ctrl lim offs</td>
</tr>
<tr>
<td>p3330[0...n]</td>
<td>BI: 2/3 wire control command 1 / 2/3 wire cmd 1</td>
</tr>
<tr>
<td>p3331[0...n]</td>
<td>BI: 2/3 wire control command 2 / 2/3 wire cmd 2</td>
</tr>
<tr>
<td>p3332[0...n]</td>
<td>BI: 2/3 wire control command 3 / 2/3 wire cmd 3</td>
</tr>
</tbody>
</table>
1.3.2 Drive data sets (DDS)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: DDS

- p0340[0...n]: Automatic calculation motor/control parameters / Calc auto par
- p0640[0...n]: Current limit / Current limit
- p1001[0...n]: CO: Fixed speed setpoint 1 / n_set_fixed 1
- p1002[0...n]: CO: Fixed speed setpoint 2 / n_set_fixed 2
- p1003[0...n]: CO: Fixed speed setpoint 3 / n_set_fixed 3
- p1004[0...n]: CO: Fixed speed setpoint 4 / n_set_fixed 4
- p1005[0...n]: CO: Fixed speed setpoint 5 / n_set_fixed 5
- p1006[0...n]: CO: Fixed speed setpoint 6 / n_set_fixed 6
- p1007[0...n]: CO: Fixed speed setpoint 7 / n_set_fixed 7
- p1008[0...n]: CO: Fixed speed setpoint 8 / n_set_fixed 8
- p1009[0...n]: CO: Fixed speed setpoint 9 / n_set_fixed 9
- p1010[0...n]: CO: Fixed speed setpoint 10 / n_set_fixed 10
- p1011[0...n]: CO: Fixed speed setpoint 11 / n_set_fixed 11
- p1012[0...n]: CO: Fixed speed setpoint 12 / n_set_fixed 12
- p1013[0...n]: CO: Fixed speed setpoint 13 / n_set_fixed 13
- p1014[0...n]: CO: Fixed speed setpoint 14 / n_set_fixed 14
- p1015[0...n]: CO: Fixed speed setpoint 15 / n_set_fixed 15
- p1030[0...n]: Motorized potentiometer configuration / Mop configuration
- p1037[0...n]: Motorized potentiometer maximum speed / MotP n_max
- p1038[0...n]: Motorized potentiometer minimum speed / MotP n_min
- p1040[0...n]: Motorized potentiometer starting value / Mop start value
- p1047[0...n]: Motorized potentiometer ramp-up time / Mop ramp-up time
- p1048[0...n]: Motorized potentiometer ramp-down time / Mop ramp-down time
- p1058[0...n]: Jog 1 speed setpoint / Jog 1 n_set
- p1059[0...n]: Jog 2 speed setpoint / Jog 2 n_set
- p1060[0...n]: Minimum speed / n_min
- p1062[0...n]: Maximum speed / n_max
- p1083[0...n]: CO: Speed limit in positive direction of rotation / n_limit pos
- p1086[0...n]: CO: Speed limit in negative direction of rotation / n_limit neg
- p1091[0...n]: Skip speed 1 / n_skip 1
- p1092[0...n]: Skip speed 2 / n_skip 2
- p1101[0...n]: Skip speed bandwidth / n_skip bandwidth
- p1120[0...n]: Ramp-function generator ramp-up time / RFG ramp-up time
- p1121[0...n]: Ramp-function generator ramp-down time / RFG ramp-down time
- p1130[0...n]: Ramp-function generator initial rounding-off time / RFG t_start_round
- p1131[0...n]: Ramp-function generator final rounding-off time / RFG t_end_delay
- p1134[0...n]: Ramp-function generator rounding-off type / RFG round-off type
- p1135[0...n]: OFF3 ramp-up time / OFF3 t_RD
- p1136[0...n]: OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd
- p1137[0...n]: OFF3 final rounding-off time / RFG OFF3 t_end_del
- p1200[0...n]: Flying restart operating mode / FlyRest op_mode
- p1202[0...n]: Flying restart search current / FlyRest t_srch
- p1203[0...n]: Flying restart search rate factor / FlyRest v_Srch Fact
- p1240[0...n]: Vdc controller configuration (vector control) / Vdc_ctr config vec
- p1243[0...n]: Vdc controller dynamic factor / Vdc_max dyn_factor
- p1245[0...n]: Vdc_min controller switch-in level (kinetic buffering) / Vdc_min on_level
- p1247[0...n]: Vdc_min controller dynamic factor (kinetic buffering) / Vdc_min dyn_factor
- p1249[0...n]: Vdc_max controller speed threshold / Vdc_max n_thresh
- p1250[0...n]: Vdc controller proportional gain / Vdc_ctrl Kp
- p1251[0...n]: Vdc controller integral time / Vdc_ctr Tn
Parameters

Command and drive data sets - overview

p1252[0...n] Vdc controller rate time / Vdc_ctrl t_rate
p1255[0...n] Vdc_min controller time threshold / Vdc_min t_thresh
p1256[0...n] Vdc_min controller response (kinetic buffering) / Vdc_min response
p1257[0...n] Vdc_min controller speed threshold / Vdc_min n_thresh
p1280[0...n] Vdc_controller configuration (U/f) / Vdc_ctrl config U/f
p1283[0...n] Vdc_max controller dynamic factor (U/f) / Vdc_max dyn_factor
p1284[0...n] Vdc_max controller time threshold (U/f) / Vdc_max t_thresh
p1290[0...n] Vdc_controller proportional gain (U/f) / Vdc_ctrl Kp
p1291[0...n] Vdc_controller integral time (U/f) / Vdc_ctrl Tn
p1292[0...n] Vdc_controller rate time (U/f) / Vdc_ctrl t_rate
p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode
p1302[0...n] U/f control configuration / U/f config
p1310[0...n] Voltage boost permanent / U_boost perm
p1311[0...n] Voltage boost at acceleration / U_boost accelerate
p1312[0...n] Voltage boost when starting / U_boost starting
p1320[0...n] U/f control programmable characteristic frequency 1 / Uf char f1
p1321[0...n] U/f control programmable characteristic voltage 1 / Uf char U1
p1322[0...n] U/f control programmable characteristic frequency 2 / Uf char f2
p1323[0...n] U/f control programmable characteristic voltage 2 / Uf char U2
p1324[0...n] U/f control programmable characteristic frequency 3 / Uf char f3
p1325[0...n] U/f control programmable characteristic voltage 3 / Uf char U3
p1326[0...n] U/f control programmable characteristic frequency 4 / Uf char f4
p1327[0...n] U/f control programmable characteristic voltage 4 / Uf char U4
p1334[0...n] U/f control slip compensation starting frequency / Slip comp start
p1335[0...n] Slip compensation scaling / Slip comp scal
p1336[0...n] Slip compensation limit value / Slip comp lim val
p1338[0...n] U/f mode resonance damping gain / Uf Res_damp gain
p1340[0...n] I_max frequency controller proportional gain / I_max_ctrl Kp
p1341[0...n] I_max frequency controller integral time / I_max_ctrl Tn
p1345[0...n] I_max voltage controller proportional gain / I_max_U_ctrl Kp
p1346[0...n] I_max voltage controller integral time / I_max_U_ctrl Tn
p1349[0...n] U/f mode resonance damping maximum frequency / Uf res_damp f_max
p1351[0...n] CO: Motor holding brake starting frequency / Brake f_start
p1452[0...n] Speed controller speed actual value smoothing time (SLVC) / n_C n_act T_s SLVC
p1470[0...n] Speed controller encoderless operation P-gain / n_ctrl SLVC Kp
p1472[0...n] Speed controller encoderless operation integral time / n_ctrl SLVC Tn
p1496[0...n] Acceleration pre-control scaling / a_prectrl scal
p1517[0...n] Accelerating torque smoothing time constant / M_accel T_smooth
p1520[0...n] CO: Torque limit upper / M_max upper
p1521[0...n] CO: Torque limit lower / M_max lower
p1524[0...n] CO: Torque limit upper/motoring scaling / M_max up/mot scal
p1525[0...n] CO: Torque limit lower scaling / M_max lower scal
p1530[0...n] Power limit motoring / P_max mot
p1531[0...n] Power limit regenerative / P_max gen
p1553[0...n] Stall limit scaling / Stall limit scal
p1570[0...n] CO: Flux setpoint / Flex setp
p1580[0...n] Efficiency optimization / Efficiency opt.
p1582[0...n] Flux setpoint smoothing time / Flux setp T_smth
p1610[0...n] Torque setpoint static (SLVC) / M_set static
p1611[0...n] Supplementary accelerating torque (SLVC) / M_suppl_accel
p1730[0...n] Isd controller integral component shutdown threshold / Isd_ctr I_compDeac
p1745[0...n] Motor model error threshold stall detection / MotMod ThrshStall
p1749[0...n] Motor model increase changeover speed encoderless operation / Incr n_chng no enc
Parameters

Command and drive data sets - overview

- p1755[0...n] Motor model changeover speed encoderless operation / MotMod n_chgSnsorl
- p1764[0...n] Motor model without encoder speed adaptation Kp / MotMod woE n_adaKp
- p1767[0...n] Motor model without encoder speed adaptation Tn / MotMod woE n_adaTn
- p1780[0...n] Motor model adaptation configuration / MotMod adapt conf
- p1784[0...n] Motor model feedback scaling / MotMod fdbk scal
- r1787[0...n] Motor model Lh adaptation corrective value / MotMod Lh corr
- p1800[0...n] Pulse frequency setpoint / Pulse freq setp
- p1802[0...n] Modulator mode / Modulator mode
- p1803[0...n] Maximum modulation depth / Modulat depth max
- p1806[0...n] Filter time constant Vdc correction / T_filt Vdc_corr
- p1820[0...n] Reverse the output phase sequence / Outp_ph_seq rev
- p1959[0...n] Rotating measurement configuration / Rot meas config
- p2201[0...n] CO: Technology controller fixed value 1 / Tec_ctrl fix val1
- p2202[0...n] CO: Technology controller fixed value 2 / Tec_ctrl fix val 2
- p2203[0...n] CO: Technology controller fixed value 3 / Tec_ctrl fix val 3
- p2204[0...n] CO: Technology controller fixed value 4 / Tec_ctrl fix val 4
- p2205[0...n] CO: Technology controller fixed value 5 / Tec_ctrl fix val 5
- p2206[0...n] CO: Technology controller fixed value 6 / Tec_ctrl fix val 6
- p2207[0...n] CO: Technology controller fixed value 7 / Tec_ctrl fix val 7
- p2208[0...n] CO: Technology controller fixed value 8 / Tec_ctrl fix val 8
- p2209[0...n] CO: Technology controller fixed value 9 / Tec_ctrl fix val 9
- p2210[0...n] CO: Technology controller fixed value 10 / Tec_ctrl fix val 10
- p2211[0...n] CO: Technology controller fixed value 11 / Tec_ctrl fix val 11
- p2212[0...n] CO: Technology controller fixed value 12 / Tec_ctrl fix val 12
- p2213[0...n] CO: Technology controller fixed value 13 / Tec_ctrl fix val 13
- p2214[0...n] CO: Technology controller fixed value 14 / Tec_ctrl fix val 14
- p2215[0...n] CO: Technology controller fixed value 15 / Tec_ctrl fix val 15
- p2216[0...n] Technology controller fixed value selection method / Tec_ctrl FixVal sel
- p2230[0...n] Technology controller motorized potentiometer configuration / Tec_ctr mop config
- p2237[0...n] Technology controller motorized potentiometer maximum value / Tec_ctr mop max
- p2238[0...n] Technology controller motorized potentiometer minimum value / Tec_ctr mop min
- p2240[0...n] Technology controller motorized potentiometer starting value / Tec_ctr mop start
- p2247[0...n] Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up
- p2248[0...n] Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_r-down
- 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]
- p3320[0...n] Fluid flow machine power point 1 / Fluid_mach P1
- p3321[0...n] Fluid flow machine speed point 1 / Fluid_mach n1
- p3322[0...n] Fluid flow machine power point 2 / Fluid_mach P2
- p3323[0...n] Fluid flow machine speed point 2 / Fluid_mach n2
- p3324[0...n] Fluid flow machine power point 3 / Fluid_mach P3
- p3325[0...n] Fluid flow machine speed point 3 / Fluid_mach n3
- p3326[0...n] Fluid flow machine power point 4 / Fluid_mach P4
- p3327[0...n] Fluid flow machine speed point 4 / Fluid_mach n4
- p3328[0...n] Fluid flow machine power point 5 / Fluid_mach P5
- p3329[0...n] Fluid flow machine speed point 5 / Fluid_mach n5
- p3856[0...n] Compound braking current / Compound I_brake
- r3925[0...n] Identification final display / Ident final disp
- r3927[0...n] Motor data identification control word / MotID STW
- r3928[0...n] Rotating measurement configuration / Rot meas config
- r3929[0...n] Motor data identification modulated voltage generation / MotID U_gen mod
1.3.3 Motor data sets (MDS)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: MDS

- **p0133[0...n]** Motor configuration / Motor config
- **p0300[0...n]** Motor type selection / Mot type sel
- **p0301[0...n]** Motor code number selection / Mot code No. sel
- **p0304[0...n]** Rated motor voltage / Mot U_rated
- **p0305[0...n]** Rated motor current / Mot I_rated
- **p0306[0...n]** Number of motors connected in parallel / Motor qty
- **p0307[0...n]** Rated motor power / Mot P_rated
- **p0308[0...n]** Rated motor power factor / Mot cos_phi_rated
- **p0309[0...n]** Rated motor efficiency / Mot eta_rated
- **p0310[0...n]** Rated motor frequency / Mot f_rated
- **p0311[0...n]** Rated motor speed / Mot n_rated
- **p0312[0...n]** Rated motor torque / Mot M_rated
- **p0316[0...n]** Motor torque constant / Mot kT
- **p0320[0...n]** Motor rated magnetizing current/short-circuit current / Mot I_mag rated
- **p0322[0...n]** Maximum motor speed / Mot n_max
- **p0323[0...n]** Maximum motor current / Mot I_max
- **r0330[0...n]** Rated motor slip / Mot slip_rated
- **r0331[0...n]** Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act
- **p0333[0...n]** Rated motor torque / Mot M_rated
- **p0335[0...n]** Motor cooling type / Mot cool type
- **p0341[0...n]** Motor moment of inertia / Mot M_mom of inert
- **p0342[0...n]** Ratio between the total and motor moment of inertia / Mot MomInert Ratio
- **p0344[0...n]** Motor weight (for the thermal motor model) / Mot weight th mod
- **r0345[0...n]** Nominal motor starting time / Mot t_start_rated
- **p0346[0...n]** Motor excitation build-up time / Mot t_excitation
- **p0347[0...n]** Motor de-excitation time / Mot t_de-excitat.
- **p0350[0...n]** Motor stator resistance cold / Mot R_stator cold
- **p0352[0...n]** Cable resistance / R_cable
- **p0354[0...n]** Motor rotor resistance cold / Mot R_r cold
- **p0356[0...n]** Motor stator leakage inductance / Mot L_stator leak.
- **p0357[0...n]** Motor stator inductance d axis / Mot L_stator d
- **p0358[0...n]** Motor rotor leakage inductance / Mot L_rot leak
- **p0360[0...n]** Motor magnetizing inductance / Mot Lh
- **p0362[0...n]** Motor saturation characteristic flux 1 / Mot saturat.flux 1
- **p0363[0...n]** Motor saturation characteristic flux 2 / Mot saturat.flux 2
- **p0364[0...n]** Motor saturation characteristic flux 3 / Mot saturat.flux 3
- **p0365[0...n]** Motor saturation characteristic flux 4 / Mot saturat.flux 4
- **p0366[0...n]** Motor saturation characteristic L_mag 1 / Mot sat. L_mag 1
- **p0367[0...n]** Motor saturation characteristic L_mag 2 / Mot sat. L_mag 2
- **p0368[0...n]** Motor saturation characteristic L_mag 3 / Mot sat. L_mag 3
- **p0369[0...n]** Motor saturation characteristic L_mag 4 / Mot sat. L_mag 4
- **r0382[0...n]** Motor magnetizing inductance transformed / Mot L_magn transf
- **r0384[0...n]** Motor rotor time constant / damping time constant d axis / Mot TRotor/T_Dd
- **r0386[0...n]** Motor stator leakage time constant / Mot T_stator leak
- **p0395[0...n]** Actual stator resistance / R_stator act
- **r0396[0...n]** Actual rotor resistance / R_rotor act
- **p0601[0...n]** Motor temperature sensor type / Mot temp_sens type
- **p0604[0...n]** Mot temp_mod 2/KTY alarm threshold / Mod 2/KTY A thresh
- **p0605[0...n]** Mot temp_mod 1/2 threshold / Mod 1/2 threshold
- **p0610[0...n]** Motor overtemperature response / Mot temp response
Parameters

Command and drive data sets - overview

- p0611[0...n] I2t motor model thermal time constant / I2t mot_mod T
- p0612[0...n] Mot_temp_mod activation / Mot_temp_mod act
- p0614[0...n] Thermal resistance adaptation reduction factor / Therm R_adapt red
- p0615[0...n] Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh
- p0620[0...n] Thermal adaptation, stator and rotor resistance / Mot therm_adapt R
- p0621[0...n] Identification stator resistance after restart / Rst_ident Restart
- p0622[0...n] Motor excitation time for Rs_ident after powering up again / t_excit Rs_id
- p0625[0...n] Motor ambient temperature / Mot T_ambient
- r0632[0...n] Mot_temp_mod stator winding temperature / Mod T_winding
- p0637[0...n] Q flux flux gradient saturated / PSIQ Grad SAT
- p0826[0...n] Motor changeover motor number / Mot_chng mot No.
- p1231[0...n] DC braking configuration / DCBRK config
- p1232[0...n] DC braking braking current / DCBRK I_brake
- p1233[0...n] DC braking time / DCBRK time
- p1234[0...n] Speed at the start of DC braking / DCBRK n_start
- p1909[0...n] Motor data identification control word / MotID STW
- r3926[0...n] Voltage generation alternating base voltage amplitude / U_gen altern base

1.3.4 Power unit data sets (PDS)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: PDS
- p0124[0...n] CU detection via LED / CU detection LED
- p0201[0...n] Power unit code number / PU code no
- r0204[0...n] Power unit hardware properties / PU HW property

1.3.5 Encoder data sets (EDS)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: EDS
- p0422[0...n] Absolute encoder linear measuring step resolution / Enc abs meas step
1.4 BICO parameters (connectors/binectors)

1.4.1 Binector inputs (BI)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: BI

- p0730 BI: CU signal source for terminal DO 0 / CU S_src DO 0
- p0731 BI: CU signal source for terminal DO 1 / CU S_src DO 1
- p0782[0...1] BI: CU analog outputs invert signal source / CU AO inv S_src
- p0806 BI: Inhibit master control / PcCtrl inhibit
- p0810 BI: Command data set selection CDS bit 0 / CDS select bit 0
- p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select bit 0
- 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 open 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
- p1020[0...n] BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
- p1021[0...n] BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
- p1022[0...n] BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
- p1023[0...n] BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3
- p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise
- p1036[0...n] BI: Motorized potentiometer lower setpoint / Mop lower
- p1043[0...n] BI: Motorized potentiometer accept setting value / MoP acc set val
- p1055[0...n] BI: Jog bit 0 / Jog bit 0
- p1056[0...n] BI: Jog bit 1 / Jog bit 1
- p1110[0...n] BI: Inhibit negative direction / Inhib neg dir
- p1111[0...n] BI: Inhibit positive direction / Inhib pos dir
- 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 generatorfreeze ramp-function generator / Continue RFG
- p1142[0...n] BI: Enable setpoint/inhibit setpoint / Setpoint enable
- p1201[0...n] BI: Flying restart enable signal source / Fly_res enab S_src
- p1230[0...n] BI: DC braking activation / DC brake act
- p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1
- p2103[0...n] BI: 1. Acknowledge faults / 1. Acknowledge
- p2104[0...n] BI: 2. Acknowledge faults / 2. Acknowledge
- p2106[0...n] BI: External fault 1 / External fault 1
- p2112[0...n] BI: External alarm 1 / External alarm 1
- p2200[0...n] BI: Technology controller enable / Tec_ctrl enable
- p2220[0...n] BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0
- p2221[0...n] BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1
- p2222[0...n] BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2
- p2223[0...n] BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3
- p2235[0...n] BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise
- p2236[0...n] BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower
- p2286[0...n] BI: Hold technology controller integrator / Tec_ctr integ stop
### Parameters

#### BICO parameters (connectors/binectors)

- **p3330[0...n]** BI: 2/3 wire control command 1 / 2/3 wire cmd 1
- **p3331[0...n]** BI: 2/3 wire control command 2 / 2/3 wire cmd 2
- **p3332[0...n]** BI: 2/3 wire control command 3 / 2/3 wire cmd 3
- **p5614** BI: Pe set switch-on inhibit signal source / Pe sw on_inh s_src
- **p8785** BI: CAN status word bit 8 / Status word bit 8
- **p8786** BI: CAN status word bit 14 / Status word bit 14
- **p8787** BI: CAN status word bit 15 / Status word bit 15

#### 1.4.2 Connector inputs (CI)

**Product:** SINAMICS G120C, Version: 4601800, Language: eng, Type: CI

- **p0771[0...1]** CI: CU analog outputs signal source / CU AO S_src
- **p1044[0...n]** CI: Motorized potentiometer setting value / Mop set val
- **p1070[0...n]** CI: Main setpoint / Main setp
- **p1071[0...n]** CI: Main setpoint scaling / Main setp scal
- **p1075[0...n]** CI: Supplementary setpoint / Suppl setp
- **p1076[0...n]** CI: Supplementary setpoint scaling / Suppl setp scal
- **p1106[0...n]** CI: Minimum speed signal source / n_min s_src
- **p1138[0...n]** CI: Up ramp scaling / Up ramp scaling
- **p1139[0...n]** CI: Down ramp scaling / Down ramp scaling
- **p1330[0...n]** CI: U/f control independent voltage setpoint / Uf U_set independ.
- **p1352[0...n]** CI: Motor holding brake starting frequency signal source / Brake f_start
- **p1475[0...n]** CI: Speed controller torque setting value for motor holding brake / n_ctrl M_sv MHB
- **p1511[0...n]** CI: Supplementary torque 1 / M_suppl 1
- **p1522[0...n]** CI: Torque limit upper / M_max upper
- **p1523[0...n]** CI: Torque limit lower / M_max lower
- **p1552[0...n]** CI: Torque limit upper scaling without offset / M_max up w/o offs
- **p1554[0...n]** CI: Torque limit lower scaling without offset / M_max low w/o offs
- **p2016[0...3]** CI: Comm IF USS PZD send word / Comm USS send word
- **p2051[0...13]** CI: PROFIdrive PZD send word / PZD send word
- **p2061[0...12]** CI: PROFIBUS PZD send double word / PZD send DW
- **p2099[0...1]** CI: Connector-binector converter signal source / Con/bin S_src
- **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
- **p2289[0...n]** CI: Technology controller pre-control signal / Tec_ctrl prectrl
- **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]** CI: Technology controller minimum limit signal source / Tec_ctr min l s_s
- **p2299[0...n]** CI: Technology controller limit offset / Tec_ctr lim offs
- **p8746[0...15]** CI: CAN free PZD send objects 16 bit / Free PZD send 16
- **p8748[0...7]** CI: CAN free PZD send objects 32 bit / Free PZD send 32
1.4.3 Binector outputs (BO)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: BO

- **CO**: CU analog inputs status word / CU AI status word
- **BO**: CU analog outputs status word / CU AO ZSW
- **BO**: Master control active / PcCtrl active
- **BO**: Fixed speed setpoint status / n_setp_fix status
- **BO**: PROFIdrive PZD state / PD PZD state
- **BO**: PROFIdrive PZD1 receive bit-serial / PZD1 recv bitw
- **BO**: PROFIdrive PZD2 receive bit-serial / PZD2 recv bitw
- **BO**: PROFIdrive PZD3 receive bit-serial / PZD3 recv bitw
- **BO**: PROFIdrive PZD4 receive bit-serial / PZD4 recv bitw
- **BO**: Connector-binector converter binector output / Con/bin outp

1.4.4 Connector outputs (CO)

Product: SINAMICS G120C, Version: 4601800, Language: eng, Type: CO

- **CO**: Actual speed smoothed / n_act smooth
- **CO**: Output voltage smoothed / U_outp smooth
- **CO**: DC link voltage smoothed / Vdc smooth
- **CO**: Absolute actual current smoothed / I_act abs val smth
- **CO**: Active power actual value smoothed / P_actv_act smth
- **CO**: Motor utilization / Motor utilization
- **CO**: Motor temperature / Mot temp
- **CO**: Power unit overload I2t / PU overload I2t
- **CO**: Power unit temperatures / PU temperatures
- **CO**: Speed setpoint before the setpoint filter / n_set before filt.
- **CO**: Speed setpoint after the filter / n_set after filter
- **CO**: Speed actual value / n_act
- **CO**: Speed controller system deviation / n_ctrl system dev
- **CO**: Output frequency / f_outp
- **CO**: Output current maximum / I_outp max
- **CO**: Absolute current actual value / I_act abs val
- **CO**: Phase current actual value / I_phase act value
- **CO**: Actual DC link voltage / Vdc act val
- **CO**: Output voltage / U_output
- **CO**: Modulat_depth / Modulat_depth
- **CO**: Current setpoint field-generating / Id_set
- **CO**: Current actual value field-generating / Id_act
- **CO**: Current setpoint torque-generating / Iq_set
- **CO**: Current actual value torque-generating / Iq_act
- **CO**: Torque setpoint / M_set
- **CO**: Torque actual value / M_act
- **CO**: Torque utilization / M_Utilization
- **CO**: Active power actual value / P_act
- **CO**: Flux setpoint / Flex setp
- **CO**: Flux actual value / Flux act val
- **CO**: Actual power factor / Cos phi act
- **CO**: Maximum power unit output current / PU I_outp max
- **CO**: CU analog inputs input voltage/current actual / CU AI U/I_inp act
### Parameters

**BICO parameters (connectors/binectors)**

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<tr>
<th>Parameter</th>
<th>Description</th>
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</thead>
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<td>CU analog inputs actual value in percent / CU AI value in %</td>
</tr>
<tr>
<td>r0944</td>
<td>Counter for fault buffer changes / Fault buff change</td>
</tr>
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<td>p1001[0...n]</td>
<td>Fixed speed setpoint 1 / n_set_fixed 1</td>
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<tr>
<td>p1002[0...n]</td>
<td>Fixed speed setpoint 2 / n_set_fixed 2</td>
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<tr>
<td>p1003[0...n]</td>
<td>Fixed speed setpoint 3 / n_set_fixed 3</td>
</tr>
<tr>
<td>p1004[0...n]</td>
<td>Fixed speed setpoint 4 / n_set_fixed 4</td>
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<tr>
<td>p1005[0...n]</td>
<td>Fixed speed setpoint 5 / n_set_fixed 5</td>
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<td>p1006[0...n]</td>
<td>Fixed speed setpoint 6 / n_set_fixed 6</td>
</tr>
<tr>
<td>p1007[0...n]</td>
<td>Fixed speed setpoint 7 / n_set_fixed 7</td>
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<tr>
<td>p1008[0...n]</td>
<td>Fixed speed setpoint 8 / n_set_fixed 8</td>
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<tr>
<td>p1009[0...n]</td>
<td>Fixed speed setpoint 9 / n_set_fixed 9</td>
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<td>p1010[0...n]</td>
<td>Fixed speed setpoint 10 / n_set_fixed 10</td>
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<td>Fixed speed setpoint 11 / n_set_fixed 11</td>
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<td>Fixed speed setpoint 12 / n_set_fixed 12</td>
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<td>p1014[0...n]</td>
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<td>p1015[0...n]</td>
<td>Fixed speed setpoint 15 / n_set_fixed 15</td>
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<tr>
<td>r1024</td>
<td>Fixed speed setpoint effective / n_set_fixed eff</td>
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<tr>
<td>r1045</td>
<td>Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG</td>
</tr>
<tr>
<td>r1050</td>
<td>Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG</td>
</tr>
<tr>
<td>r1073</td>
<td>Main setpoint effective / Main setpoint eff</td>
</tr>
<tr>
<td>r1077</td>
<td>Supplementary setpoint effective / Suppl setpoint eff</td>
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<td>r1078</td>
<td>Total setpoint effective / Total setpoint eff</td>
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<tr>
<td>p1083[0...n]</td>
<td>Speed limit in positive direction of rotation / n_limit pos</td>
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<td>r1084</td>
<td>Speed limit positive effective / n_limit pos eff</td>
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<tr>
<td>p1086[0...n]</td>
<td>Speed limit in negative direction of rotation / n_limit neg</td>
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<td>r1087</td>
<td>Speed limit negative effective / n_limit neg eff</td>
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<td>r1112</td>
<td>Speed setpoint after minimum limiting / n_set aft min_lim</td>
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<td>r1114</td>
<td>Setpoint after the direction limiting / Setp after limit</td>
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<td>r1119</td>
<td>Ramp-function generator setpoint at the input / RFG setp at inp</td>
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<td>r1149</td>
<td>Ramp-function generator acceleration / RFG acceleration</td>
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<td>r1150</td>
<td>Ramp-function generator speed setpoint at the output / RFG n_set at outp</td>
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<td>r1170</td>
<td>Speed controller setpoint sum / n_ctrl setp sum</td>
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<td>r1258</td>
<td>Vdc controller output / Vdc_ctrl output</td>
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<tr>
<td>r1298</td>
<td>Vdc controller output (U/f) / Vdc_ctrl output</td>
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<tr>
<td>r1337</td>
<td>Actual slip compensation / Slip comp act val</td>
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<td>r1343</td>
<td>I_max controller frequency output / I_max_ctrl f_outp</td>
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<tr>
<td>r1348</td>
<td>U/f control Eco factor actual value / U/f Eco fac act v</td>
</tr>
<tr>
<td>p1351[0...n]</td>
<td>Motor holding brake starting frequency / Brake f_start</td>
</tr>
<tr>
<td>r1438</td>
<td>Speed controller speed setpoint / n_ctrl n_set</td>
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<tr>
<td>r1445</td>
<td>Actual speed smoothed / n_act smooth</td>
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<tr>
<td>r1482</td>
<td>Speed controller I torque output / n_ctrl I-M_outp</td>
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<tr>
<td>r1493</td>
<td>Moment of inertia total / M_inertia total</td>
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<tr>
<td>r1508</td>
<td>Torque setpoint before supplementary torque / M_set bef. M_suppl</td>
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<td>r1516</td>
<td>Supplementary torque and acceleration torque / M_suppl + M_accel</td>
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<td>Torque limit upper / M_max upper</td>
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<td>p1521[0...n]</td>
<td>Torque limit lower / M_max lower</td>
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<td>p1524[0...n]</td>
<td>Torque limit upper/motoring scaling / M_max up/mot scal</td>
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<td>p1525[0...n]</td>
<td>Torque limit lower scaling / M_max lower scal</td>
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<tr>
<td>r1526</td>
<td>Torque limit upper without offset / M_max up w/o offs</td>
</tr>
<tr>
<td>r1527</td>
<td>Torque limit lower without offset / M_max low w/o offs</td>
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<tr>
<td>r1538</td>
<td>Upper effective torque limit / M_max upper eff</td>
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<tr>
<td>r1539</td>
<td>Lower effective torque limit / M_max lower eff</td>
</tr>
</tbody>
</table>
BICO parameters (connectors/binectors)

- r1547[0...1] CO: Torque limit for speed controller output / M_max outp n_ctrl
- p1570[0...n] CO: Flux setpoint / Flex setp
- r1598 CO: Total flux setpoint / Flux setp total
- r1732[0...1] CO: Direct-axis voltage setpoint / Direct U set
- r1733[0...1] CO: Quadrature-axis voltage setpoint / Quad U set
- r1801[0...1] CO: Pulse frequency / Pulse frequency
- r2050[0...11] CO: PROFIBUS PZD receive word / PZD recv word
- r2060[0...10] CO: PROFIdrive PZD receive double word / PZD recv DW
- r2089[0...4] CO: Send binector-connector converter status word / Bin/con ZSW send
- r2120 CO: Sum of fault and alarm buffer changes / Sum buffer changed
- r2131 CO: Actual fault code / Actual fault code
- r2132 CO: Actual alarm code / Actual alarm code
- r2169 CO: Actual speed smoothed signals / n_act smth message
- p2201[0...n] CO: Technology controller fixed value 1 / Tec_ctrl fix val1
- p2202[0...n] CO: Technology controller fixed value 2 / Tec_ctrl fix val 2
- p2203[0...n] CO: Technology controller fixed value 3 / Tec_ctrl fix val 3
- p2204[0...n] CO: Technology controller fixed value 4 / Tec_ctrl fix val 4
- p2205[0...n] CO: Technology controller fixed value 5 / Tec_ctrl fix val 5
- p2206[0...n] CO: Technology controller fixed value 6 / Tec_ctrl fix val 6
- p2207[0...n] CO: Technology controller fixed value 7 / Tec_ctrl fix val 7
- p2208[0...n] CO: Technology controller fixed value 8 / Tec_ctrl fix val 8
- p2209[0...n] CO: Technology controller fixed value 9 / Tec_ctrl fix val 9
- p2210[0...n] CO: Technology controller fixed value 10 / Tec_ctrl fix val 10
- p2211[0...n] CO: Technology controller fixed value 11 / Tec_ctrl fix val 11
- p2212[0...n] CO: Technology controller fixed value 12 / Tec_ctrl fix val 12
- p2213[0...n] CO: Technology controller fixed value 13 / Tec_ctrl fix val 13
- p2214[0...n] CO: Technology controller fixed value 14 / Tec_ctrl fix val 14
- p2215[0...n] CO: Technology controller fixed value 15 / Tec_ctrl fix val 15
- r2224 CO: Technology controller fixed value effective / Tec_ctrl FixVal eff
- r2245 CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctrl mop befRFG
- r2250 CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctrl mop aftRFG
- r2260 CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG
- r2266 CO: Technology controller actual value after filter / Tec_ctr act aftFit
- p2272 CO: Technology controller actual value scaled / Tech_ctrl act scal
- r2273 CO: Technology controller error / Tec_ctrl error
- p2291 CO: Technology controller maximum limiting / Tec_ctrl max_lim
- p2292 CO: Technology controller minimum limiting / Tec_ctrl min_lim
- r2294 CO: Technology controller output signal / Tec_ctrl outp_sig
- p2295 CO: Technology controller output scaling / Tec_ctrl outp scal
- r2344 CO: Technology controller last speed setpoint (smoothed) / Tec_ctrl n_setp_sm
- p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]
- p2901[0...n] CO: Fixed value 2 [%] / Fixed value 2 [%]
- r2902[0...14] CO: Fixed values [%] / Fixed values [%]
- p2930[0...n] CO: Fixed value M [Nm] / Fixed value M [Nm]
- r8745[0...15] CO: CAN free PZD receive objects 16 bit / Free PZD recv 16
- r8747[0...7] CO: CAN free PZD receive objects 32 bit / Free PZD recv 32
- r8762 CO: CAN operating mode display / Op mode display
- r8784 CO: CAN status word / Status word
- r8792[0] CO: CAN velocity mode I16 setpoint / Vel mod I16 set
- r8796[0] CO: CAN profile velocity mode I32 setpoints / Pr vel mo I32 set
- r8797[0] CO: CAN profile torque mode I16 setpoints / Pr Tq mo I16 set
### 1.4.5 Connector/binector outputs (CO/BO)

<table>
<thead>
<tr>
<th>Address</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>r0046.0...31</td>
<td>CO/BO: Missing enable sig / Missing enable sig</td>
</tr>
<tr>
<td>r0050.0...1</td>
<td>CO/BO: Command Data Set CDS effective / CDS effective</td>
</tr>
<tr>
<td>r0051.0</td>
<td>CO/BO: Drive Data Set DDS effective / DDS effective</td>
</tr>
<tr>
<td>r0052.0...15</td>
<td>CO/BO: Status word 1 / ZSW 1</td>
</tr>
<tr>
<td>r0053.0...11</td>
<td>CO/BO: Status word 2 / ZSW 2</td>
</tr>
<tr>
<td>r0054.0...15</td>
<td>CO/BO: Control word 1 / STW 1</td>
</tr>
<tr>
<td>r0055.0...15</td>
<td>CO/BO: Supplementary control word / Suppl STW</td>
</tr>
<tr>
<td>r0056.0...15</td>
<td>CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl</td>
</tr>
<tr>
<td>r0722.0...11</td>
<td>CO/BO: CU digital inputs status / CU DI status</td>
</tr>
<tr>
<td>r0723.0...11</td>
<td>CO/BO: CU digital inputs status inverted / CU DI status inv</td>
</tr>
<tr>
<td>r0835.2...8</td>
<td>CO/BO: Data set changeover status word / DDS_ZSW</td>
</tr>
<tr>
<td>r0836.0...1</td>
<td>CO/BO: Command Data Set CDS selected / CDS selected</td>
</tr>
<tr>
<td>r0837.0</td>
<td>CO/BO: Drive Data Set DDS selected / DDS selected</td>
</tr>
<tr>
<td>r0898.0...14</td>
<td>CO/BO: Control word sequence control / STW seq_ctrl</td>
</tr>
<tr>
<td>r0899.0...13</td>
<td>CO/BO: Status word sequence control / ZSW seq_ctrl</td>
</tr>
<tr>
<td>r1198.0...15</td>
<td>CO/BO: Control word setpoint channel / STW setpoint chan</td>
</tr>
<tr>
<td>r1239.8...13</td>
<td>CO/BO: DC braking status word / DCBRK ZSW</td>
</tr>
<tr>
<td>r1406.4...15</td>
<td>CO/BO: Control word speed controller / STW n_ctrl</td>
</tr>
<tr>
<td>r1407.0...17</td>
<td>CO/BO: Status word speed controller / ZSW n_ctrl</td>
</tr>
<tr>
<td>r1408.0...14</td>
<td>CO/BO: Status word current controller / ZSW I_ctrl</td>
</tr>
<tr>
<td>r2129.0...15</td>
<td>CO/BO: Trigger word for faults and alarms / Trigger word</td>
</tr>
<tr>
<td>r2135.12...15</td>
<td>CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2</td>
</tr>
<tr>
<td>r2138.7...15</td>
<td>CO/BO: Control word faults/alarms / STW fault/alarm</td>
</tr>
<tr>
<td>r2139.0...12</td>
<td>CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1</td>
</tr>
<tr>
<td>r2197.0...13</td>
<td>CO/BO: Status word monitoring 1 / ZSW monitor 1</td>
</tr>
<tr>
<td>r2198.0...13</td>
<td>CO/BO: Status word monitoring 2 / ZSW monitor 2</td>
</tr>
<tr>
<td>r2199.0...11</td>
<td>CO/BO: Status word monitoring 3 / ZSW monitor 3</td>
</tr>
<tr>
<td>r2225.0</td>
<td>CO/BO: Technology controller fixed value selection status word / Tec_ctr FixVal ZSW</td>
</tr>
<tr>
<td>r2349.0...12</td>
<td>CO/BO: Technology controller status word / Tec_ctr status</td>
</tr>
<tr>
<td>r3113.0...15</td>
<td>CO/BO: NAMUR message bit bar / NAMUR bit bar</td>
</tr>
<tr>
<td>r3333.0...3</td>
<td>CO/BO: 2/3 wire control control word / 2/3 wire STW</td>
</tr>
<tr>
<td>r3859.0</td>
<td>CO/BO: Compound braking status word / Compound Br ZSW</td>
</tr>
<tr>
<td>r5613.0...1</td>
<td>CO/BO: Pe energy-saving active/inactive / Pe save act/inact</td>
</tr>
<tr>
<td>r8795.0...15</td>
<td>CO/BO: CAN control word / Control word</td>
</tr>
<tr>
<td>r9772.0...20</td>
<td>CO/BO: SI status (processor 1) / SI status P1</td>
</tr>
<tr>
<td>r9773.0...31</td>
<td>CO/BO: SI status (processor 1 + processor 2) / SI status P1+P2</td>
</tr>
<tr>
<td>r9872.0...20</td>
<td>CO/BO: SI status (processor 2) / SI Status P2</td>
</tr>
</tbody>
</table>
1.5 Parameters for write protection and know-how protection

1.5.1 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 G120C, Version: 4601800, Language: eng, Type: WRITE_NO_LOCK

- p0003 Access level / Acc_level
- p0010 Drive commissioning parameter filter / Drv comm. par_filt
- p0124[0...n] CU detection via LED / CU detection LED
- p0970 Reset drive parameters / Drive par reset
- p0971 Save parameters / Save par
- p0972 Drive unit reset / Drv_unit reset
- p2111 Alarm counter / Alarm counter
- 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
- p9400 Safely remove memory card / Mem_card rem
- p9484 BICO interconnections search signal source / BICO S_src srch

1.5.2 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 G120C, Version: 4601800, Language: eng, Type: KHP_WRITE_NO_LOCK

- p0003 Access level / Acc_level
- p0010 Drive commissioning parameter filter / Drv comm. par_filt
- p0124[0...n] CU detection via LED / CU detection LED
- p0970 Reset drive parameters / Drive par reset
- p0971 Save parameters / Save par
- p0972 Drive unit reset / Drv_unit reset
- p2040 Fieldbus interface monitoring time / Fieldbus t_monit
- p2111 Alarm counter / Alarm counter
- 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
- p8980 Ethernet/IP profile / Eth/IP profile
- p8981 Ethernet/IP ODVA STOP mode / Eth/IP ODVA STOP
- p8982 Ethernet/IP ODVA speed scaling / Eth/IP ODVA n scal
- p9400 Safely remove memory card / Mem_card rem
- p9484 BICO interconnections search signal source / BICO S_src srch
### 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.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0015</td>
<td>Macro drive unit / Macro drv unit</td>
</tr>
<tr>
<td>p0100</td>
<td>IEC/NEMA mot stds / IEC/NEMA mot stds</td>
</tr>
<tr>
<td>p0170</td>
<td>Number of Command Data Sets (CDS) / CDS count</td>
</tr>
<tr>
<td>p0180</td>
<td>Number of Drive Data Sets (DDS) / DDS count</td>
</tr>
<tr>
<td>p0199[0...24]</td>
<td>Drive object name / DO name</td>
</tr>
<tr>
<td>p0300[0...n]</td>
<td>Motor type selection / Mot type sel</td>
</tr>
<tr>
<td>p0304[0...n]</td>
<td>Rated motor voltage / Mot U_rated</td>
</tr>
<tr>
<td>p0305[0...n]</td>
<td>Rated motor current / Mot I_rated</td>
</tr>
<tr>
<td>p0505</td>
<td>Selecting the system of units / Unit sys select</td>
</tr>
<tr>
<td>p0595</td>
<td>Technological unit selection / Tech unit select</td>
</tr>
<tr>
<td>p0730</td>
<td>BI: CU signal source for terminal DO 0 / CU S_src DO 0</td>
</tr>
<tr>
<td>p0731</td>
<td>BI: CU signal source for terminal DO 1 / CU S_src DO 1</td>
</tr>
<tr>
<td>p0806</td>
<td>BI: Inhibit master control / PcCtrl inhibit</td>
</tr>
<tr>
<td>p0922</td>
<td>PROFIdrive PZD telegram selection / PZD telegr_sel</td>
</tr>
<tr>
<td>p1080[0...n]</td>
<td>Minimum speed / n_min</td>
</tr>
<tr>
<td>p1082[0...n]</td>
<td>Maximum speed / n_max</td>
</tr>
<tr>
<td>p1520[0...n]</td>
<td>CO: Torque limit upper / M_max upper</td>
</tr>
<tr>
<td>p2000</td>
<td>Reference speed reference frequency / n_ref f_ref</td>
</tr>
<tr>
<td>p2001</td>
<td>Reference voltage / Reference voltage</td>
</tr>
<tr>
<td>p2002</td>
<td>Reference current / I_ref</td>
</tr>
<tr>
<td>p2003</td>
<td>Reference torque / M_ref</td>
</tr>
<tr>
<td>p2006</td>
<td>Reference temp / Ref temp</td>
</tr>
<tr>
<td>p2030</td>
<td>Field bus int protocol selection / Field bus protocol</td>
</tr>
<tr>
<td>p2038</td>
<td>PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode</td>
</tr>
<tr>
<td>p2079</td>
<td>PROFIdrive PZD telegram selection extended / PZD telegr ext</td>
</tr>
<tr>
<td>p7763</td>
<td>KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764</td>
</tr>
<tr>
<td>p7764[0...n]</td>
<td>KHP OEM exception list / KHP OEM excep list</td>
</tr>
<tr>
<td>p9601</td>
<td>SI enable functions integrated in the drive (processor 1) / SI enable fct P1</td>
</tr>
<tr>
<td>p9810</td>
<td>SI PROFiSAFE address (processor 2) / SI PROFiSAFE P2</td>
</tr>
</tbody>
</table>
1.6 Quick commissioning (p0010 = 1)

The parameters required for the quick commissioning (p0010 = 1) are shown in Table 1-7:

Table 1-7 Quick commissioning (p0010 = 1)

<table>
<thead>
<tr>
<th>Par. no.</th>
<th>Name</th>
<th>Access level</th>
<th>Changeable</th>
</tr>
</thead>
<tbody>
<tr>
<td>p0010</td>
<td>Drive, commissioning parameter filter</td>
<td>1</td>
<td>C(1,T)</td>
</tr>
<tr>
<td>p0015</td>
<td>Macro drive unit</td>
<td>1</td>
<td>C(1)</td>
</tr>
<tr>
<td>p0100</td>
<td>IEC/NEMA motor standard</td>
<td>1</td>
<td>C(1)</td>
</tr>
<tr>
<td>p0205</td>
<td>Power unit application</td>
<td>1</td>
<td>C(1,2)</td>
</tr>
<tr>
<td>p0230</td>
<td>Drive filter type, motor side</td>
<td>1</td>
<td>C(1,2)</td>
</tr>
<tr>
<td>p0300</td>
<td>Motor type selection</td>
<td>2</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0301</td>
<td>Motor code number selection</td>
<td>2</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0304</td>
<td>Rated motor voltage</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0305</td>
<td>Rated motor current</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0306</td>
<td>Number of motors connected in parallel:</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0307</td>
<td>Rated motor power</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0308</td>
<td>Rated motor power factor</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0309</td>
<td>Rated motor efficiency</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0310</td>
<td>Rated motor frequency</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0311</td>
<td>Rated motor speed</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0316</td>
<td>Motor torque constant</td>
<td>4</td>
<td>C(1,3)UT</td>
</tr>
<tr>
<td>p0322</td>
<td>Maximum motor speed</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0323</td>
<td>Maximum motor current</td>
<td>1</td>
<td>C(1,3)</td>
</tr>
<tr>
<td>p0335</td>
<td>Motor cooling type</td>
<td>2</td>
<td>C(1,3)T</td>
</tr>
<tr>
<td>p0500</td>
<td>Technology application</td>
<td>2</td>
<td>G120C CAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>G120C DP</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>G120C USS/MB</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>G120C PN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C(1,5)T</td>
</tr>
<tr>
<td>p0500</td>
<td>Technology application</td>
<td>4</td>
<td>G120C PN</td>
</tr>
<tr>
<td>p0640</td>
<td>Current limit</td>
<td>2</td>
<td>C(1,3)UT</td>
</tr>
<tr>
<td>p0922</td>
<td>PROFIdrive telegram selection</td>
<td>1</td>
<td>C(1,T)</td>
</tr>
<tr>
<td>p0970</td>
<td>Reset drive parameters</td>
<td>1</td>
<td>C(1,30)</td>
</tr>
<tr>
<td>p1080</td>
<td>Minimum speed</td>
<td>1</td>
<td>C(1,T)</td>
</tr>
<tr>
<td>p1082</td>
<td>Maximum speed</td>
<td>1</td>
<td>C(1,T)</td>
</tr>
<tr>
<td>p1120</td>
<td>Ramp-function generator ramp-up time</td>
<td>1</td>
<td>C(1)UT</td>
</tr>
<tr>
<td>p1121</td>
<td>Ramp-function generator ramp-down time</td>
<td>1</td>
<td>C(1)UT</td>
</tr>
<tr>
<td>p1135</td>
<td>OFF3 ramp-down time</td>
<td>2</td>
<td>C(1)UT</td>
</tr>
</tbody>
</table>
Parameters

Quick commissioning (p0010 = 1)

If p0010 = 1 is selected, p0003 (user access level) can be used to select the parameters that are to be accessed.

At the end of the quick commissioning, set p3900 = 1 to perform the required motor calculations and reset all other parameters (not included in p0010 = 1) to their default settings.

**Note:**

This only applies for the quick commissioning.

<table>
<thead>
<tr>
<th>Par. no.</th>
<th>Name</th>
<th>Access level</th>
<th>Changeable</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1300</td>
<td>Open-loop/closed-loop control operating mode</td>
<td>2</td>
<td>C(1)T</td>
</tr>
<tr>
<td>p1900</td>
<td>Motor data identification and rotating measurement</td>
<td>2</td>
<td>C(1)T</td>
</tr>
<tr>
<td>p1905</td>
<td>Parameter tuning selection</td>
<td>1</td>
<td>C(1)T</td>
</tr>
<tr>
<td>p3900</td>
<td>Completion of quick commissioning</td>
<td>1</td>
<td>C(1)</td>
</tr>
</tbody>
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<td>2-314</td>
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<tr>
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## 2.2 Explanations on the function diagrams

### Function diagrams

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### Function Diagrams

**Parameters**

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<th>Meaning</th>
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<tr>
<td>nxxx[y..z]</td>
<td>Parameter name [Unit]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxxxy[...z]</td>
<td>Monitoring parameter with unit [Unit] and index range [y..z] or data set [C/D]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxxxy[...z]</td>
<td>Setting parameter with min/max value and unit [Unit] data set [C/D] and factory setting (Def)</td>
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</table>

### Connectors/binectors

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxxxy[...z]</td>
<td>Connector input CI with index range [y..z] or data set [C/D] and factory setting (Def)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td>xxxxy[...z]</td>
<td>Connector output CO with unit [Unit] and with index range [y..z]</td>
</tr>
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**Data sets**

<table>
<thead>
<tr>
<th>Symbol</th>
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</tr>
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<tbody>
<tr>
<td>pxxx[...z]</td>
<td>Setting parameter with min/max value and unit [Unit] data set [C/D] and factory setting (Def)</td>
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### Connectors/binectors

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>pxxx[...z]</td>
<td>Connector/binector output CO/BO</td>
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</table>

### Pre-assigned connectors

<table>
<thead>
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<th>Symbol</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>xxxxy[...z]</td>
<td>Connector output BO</td>
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</table>

### Cross references between diagrams

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>[aaaa.b]</td>
<td>Text = Unique signal designation</td>
</tr>
<tr>
<td>[cccc.d]</td>
<td>Text = Unique signal designation</td>
</tr>
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</table>

### Cross references for control bits

<table>
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<tr>
<td>pxxx[...z]</td>
<td>Original parameter of signal</td>
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### Information on parameters, binectors, connectors

- **Symbol:** Parameter name (up to 18 characters) [dimension unit]
- **Meaning:**
  - "p" = monitoring parameter. These parameters are read-only
  - "c" = setting parameter. These parameters can be changed.
  - "[y..z]" specifies the applicable index, "[y..z]" specifies the index range "ww" specifies the bit number (e.g. 0..15).
  - "[y..z]" specifies the applicable index, "[y..z]" specifies the index range "[y..z]" specifies the bit number (e.g. 0..15).
  - Value range.

### Table

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<td>xxxxy[...z]</td>
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<tr>
<td>xxxxy[...z]</td>
<td>xxxxy[...z]</td>
<td>xxxxy[...z]</td>
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For some parameters the value for the factory setting is calculated during commissioning for they are dependent on Power Module and motor (see Section 1.1.1 "Calculated").
**Symbols for logic functions**

- **Logical inversion**
  - Input: 1
  - Output: 

- **AND element with logical inversion of an input signal**
  - Inputs: &
  - Outputs: 

- **OR element**
  - Inputs: ∨
  - Output: 

- **Exclusiv-OR/XOR**
  - Inputs: x₁, x₂
  - Output: y = 1 when x₁ ≠ x₂ is.

- **R/S flip-flop**
  - Inputs: S, R
  - Outputs: Q, Q

**Symbols for computational and closed-loop control functions**

- **Threshold value switch 1/0**
  - Input: x
  - Output: y = 1 if x < S.

- **Threshold value switch 0/1**
  - Input: x
  - Output: y = 1 if x > S.

- **Threshold value 1/0 with hysteresis**
  - Input: x
  - Output: y = 1 if x < S. If x ≥ S + H then y returns to 0.

- **Threshold value 0/1 with hysteresis**
  - Input: x
  - Output: y = 1 if x > S. If x ≤ S - H then y returns to 0.

- **Limiter**
  - Inputs: x, LU, LL
  - Outputs: y, MLU, MLL
  - Description: x is limited to the upper limit LU and the lower limit LL, and output at y. The digital signals MLU and MLL have the value "1", if the upper or lower limit is active.

- **Sample & Hold element**
  - Inputs: x, SET
  - Outputs: y
  - Description: Sample and hold element. y = x if SET = 1 (not retentively saved at POWER OFF)

**Symbols for computational and closed-loop control functions**

- **Sign reversal**
  - Input: x
  - Output: y = -x

- **Absolute value generator**
  - Input: x
  - Output: y = |x|

- **Divider**
  - Inputs: x₁, x₂
  - Output: y = x₁ / x₂

- **Comparator**
  - Input: x > 0
  - Output: y = 1, if the analog signal x > 0, i.e. is positive.

- **Differentiator**
  - Input: x
  - Output: y = dx / dt

**Symbol for monitoring**

- **Monitoring**
  - Inputs: Axxxxx or Fxxxxx
  - Output: Monitoring

**Explanations for the function diagrams**

- **Function diagrams**
  - fp_1021_97_61.vsd
  - Function diagram
  - SINAMICS G120C
  - 12.12.2012 V4.6

**Explanation of the symbols (Part 2)**

- **Fig. 2-2 1021 – Explanation of the symbols (part 2)**
Switch-on delay

The digital signal \( x \) must have the value "1" without any interruption during the time \( T \) before output \( y \) changes to "1".

Switch-off delay

The digital signal \( x \) must have the value "0" without interruption during the time \( T \) before output \( y \) changes to "0".

Delay (switch-on and switch-off)

The digital signal \( x \) must have the value "1" without interruption during time \( T_1 \) or must have the value "0" during time \( T_2 \) before output \( y \) changes its signal state.

Switch symbol

Simple changeover switch

The switch position is shown according to the factory setting (in this case, switch position 1 in the default state on delivery).

PT1 element

Delay element, first order.

\[ y = \frac{1}{s + \frac{1}{\tau}} \]

\( \tau = \text{time constant} \)

PT2 low pass

Natural frequency, denominator
\[ f_n = \frac{1}{\tau} \]

Damping, denominator
\[ D = \frac{1}{\zeta} \]

Transfer function
\[ H(s) = \frac{1}{s + \frac{1}{\tau}} \]

2nd-order filter (bandstop/general filter)

Natural frequency, numerator
\[ f_n = \frac{1}{\tau} \]

Damping, numerator
\[ D = \frac{1}{\zeta} \]

Natural frequency, denominator
\[ f_n = \frac{1}{\tau} \]

Damping, denominator
\[ D = \frac{1}{\zeta} \]

Transfer function when used as general filter
\[ H(s) = \frac{1}{s^2 + \frac{2 \cdot D}{\tau} \cdot s + \frac{1}{f_n}} \]

Analog adder can be activated

The following applies to \( I = 1 \) signal: \( y = x_1 + x_2 \)

The following applies to \( I = 0 \) signal: \( y = x_1 \)
Handling BICO technology

Binector: r0723.15

Connector: r0723

Connectors are "analog signals" that can be freely interconnected (e.g. percentage variables, speeds or torques). Connectors are also "CO:" display parameters (CO = Connector Output).

Parameterization:
At the signal destination, the required binector or connector is selected using appropriate parameters:
"BI:" parameter for binectors (BI = Binector Input)
or
"CI:" parameter for connectors (CI = Connector Input)

Example:
The main setpoint for the Speed controller (CI: p1070) should be received from the output of the motorized potentiometer (CO: r1050) and the "jog" command (BI: p1055) from Digital Input DI0 (BO: r0722.0, Terminal 5 (Kl. 5)) on the CU.

Parameterizing steps:
1. p1055[0] = 722.0 Terminal 5 (Kl. 5) acts as "Jog bit 0".
2. p1070[0] = 1050 The output of the motorized potentiometer acts as main setpoint for the speed controller.
## 2.3 Overviews

**Function diagrams**

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Function diagrams

Overviews

1690 – Vector control, U/f control

Fig. 2-5

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fp_1690_97_05.vsd  Function diagram  12.12.2012  V4.6  SINAMICS G120C

© Siemens AG 2010 – 2013 All Rights Reserved
SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
Fig. 2-6 1700 – Vector control, speed control and generation of the torque limits

- Speedpoint
  - Acceleration model
- n_modell
- n_set after filter [1/min]
- n_ctrl SLVC
- Kp
- Tn
- Integrator control
- M_set [Nm]
- M_max upper [Nm]
- M_max lower [Nm]
- P_max mot [kW]
- P_max gen [kW]

- Status word closed-loop control
- Status word closed-loop current control

- Overview
  - Function diagrams

- SINAMICS G120C
- List Manual (LH13), 01/2013
- © Siemens AG 2010 - 2013 All Rights Reserved
Fig. 2-7 1710 – Vector control, current control

- Field weakening controller
- Field weakening characteristic
- Current calculation
- Current setpoint filter
- Vector control, current control

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[6714] Current controller

[6722] Field weakening characteristic, Id setpoint
[6723] Field weakening control, flux controller for induction motors (p0300 = 1)
[6724] Field weakening controller for synchronous motors (p0300 = 2)

[1700.3] n_pre-control
[1700.1] n_model

[1700.8] Current controller

[519] fp_1710_97_05.vsd

[526] Overviews

SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
2.4 Input/output terminals

Function diagrams

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<td>2255</td>
<td>Analog inputs as digital inputs (DI 11)</td>
<td>2-319</td>
</tr>
<tr>
<td>2260</td>
<td>Analog output 0 (AO 0)</td>
<td>2-320</td>
</tr>
</tbody>
</table>
Sampling time of the DO: 2 ms

<2> Kl. = Terminal

Input/Output Terminals

Digital outputs (DO 0 ... DO 1)
**Function Diagram of Analog Input 0 (AI 0)**

- **Input Terminals:**
  - Current Al 0 Uj 11 Voltage
  - 0 ... 20 mA
  - -10 ... +10 V

- **Output Terminals:**
  - CU Al Uj inp act
  - CU Al sim_mode
  - CU Al sim setp
  - CU Al char x1
  - CU Al char x2
  - CU Al char y1
  - CU Al char y2

- **Scaling:**
  - Scaling of AI char y1 and y2
  - Bezugsgrößen
  - CU WireBrkThresh
  - CU Al status word

- **Type Switching Analog Input:**
  - Hardware smoothing 100 µs

- **Possible Settings:**
  - p0756[0]:
    - 0: 0 V ... +10 V
    - 1: +2 V ... +10 V with monitoring
    - 2: 0 mA ... +20 mA
    - 3: 4 mA ... +20 mA with monitoring
    - 4: -10 V ... -10 V (Default for AI 0)

- **Possible Settings for CU Al sim_mode:**
  - 0: 100 ms
  - 1: 100 ms

- **CU Al sim mode Settings:**
  - 0...1

- **Sampling Time of AI:**
  - 4 ms

- **Possible Settings for CU WireBrkThresh:**
  - 0.00 ... 20.00

- **CU WireBrkThresh Settings:**
  - 0...1

- **Possible Settings for CU Al status word:**
  - 0...1

### Table: Input/Output Terminals

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Analog input 0 (AI 0)</td>
<td>fp_2250_97_05.vsd</td>
</tr>
</tbody>
</table>
Fig. 2-11
2255 – Analog inputs as digital inputs (DI 11)

For Example:

<1> Kl. = Terminal
Sampling time of the DI : 4 ms

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analog inputs as Digital input (DI 11)</td>
<td>fp_2255_97_05.vsd</td>
<td>Function diagram</td>
<td>- 2255 -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Input/Output Terminals</td>
<td>SINAMICS G120C</td>
<td>12.12.2012 V4.6</td>
<td>SINAMICS G120C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fig. 2-12  2260 – Analog output 0 (AO 0)

Function diagram

Input/Output Terminals

Analog output 0 (AO 0)

Table:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input/Output Terminals</td>
<td>Analog output 0 (AO 0)</td>
<td>fp_2260_97_05.vsd</td>
<td>Function diagram</td>
<td>- 2260 -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reference quantities p2000 ... r2004

CU AO U/I_outp r0774[0]

Sampling time of the AO : 4 ms

Kl = Terminal

For p0776 = 0, 2 the units are mA.
For p0776 = 1 the units are V.

The input signals are referred to the reference quantities p2000 ... r2004 (100 % = p2000).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current 0 ... 20 mA</td>
<td>1</td>
<td>2</td>
<td>0 ... 20 mA</td>
<td>p0776[0]</td>
<td>0 ... +10 V</td>
<td>p0776[0]</td>
<td>0 ... +20 mA</td>
</tr>
</tbody>
</table>

- 2260 -

SINAMICS G120C
### 2.5 PROFenergy

**Function diagrams**

<table>
<thead>
<tr>
<th>Control commands and interrogation commands</th>
<th>2-322</th>
</tr>
</thead>
<tbody>
<tr>
<td>States</td>
<td>2-323</td>
</tr>
</tbody>
</table>
Fig. 2-13 2381 - Control commands and interrogation commands

PROFIdriver Data set:
PROFIdriver control command "Start_Pause"

PROFIdriver Data set:
PROFIdriver control command "End_Pause"

PROFIdriver Data set:
PROFIdriver request command "List_Energy_Saving_Modes"

PROFIdriver Data set:
PROFIdriver request command "Get_Mode"

PROFIdriver Data set:
PROFIdriver request command "PEM_Status"

PROFIdriver Data set:
PROFIdriver request command "PE_Identify"

PROFIdriver Data set:
PROFIdriver request command "Query_Version"

PROFIdriver Data set:
PROFIdriver request command "Get_Measurement_List"

PROFIdriver Data set:
PROFIdriver request command "Get_Measurement_Values"

PROFIenergy Energy-saving mode 2

Port 1 / Port 2
Fig. 2-14 2382 – States

PROFIdrive State

POWER ON

S1: Switching on inhibited
- Off and no "Coast Stop" and no "Quick Stop"
- "Coast Stop" or "Quick Stop"

S2: Ready for switching on
- OFF
- ON

S3: Ready for operation
- Enable operation
- Disable operation

S4: Operation

PROFlenergy State

PROFlenergy Power OFF

PROFlenergy Energy-saving mode 2

1 = Inhibit PROFlenergy

≥1

1 = PE active

1 = PE inactive

A08800
PROFlenergy Energy-saving mode active

PROFlenergy Ready for operation

Operation

<1> Excerpt from: Basic state machine of a PROFIdrive drive axis, source: PROFIBUS Nutzerorganisation (PNO)

Off and no "Coast Stop" and no "Quick Stop"
"Coast Stop" or "Quick Stop"

Enable operation
Diable operation

Operation

SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC

PROFIenergy PN 12.12.2012 V4.6
Function diagrams

2.6  PROFIdrive communication (PROFIBUS/PROFINET)

Function diagrams

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2401 – Overview</td>
<td>2-325</td>
</tr>
<tr>
<td>2410 – PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics</td>
<td>2-326</td>
</tr>
<tr>
<td>2420 – Telegrams and process data (PZD)</td>
<td>2-327</td>
</tr>
<tr>
<td>2440 – PZD receive signals interconnection</td>
<td>2-328</td>
</tr>
<tr>
<td>2441 – STW1 control word interconnection (p2038 = 2)</td>
<td>2-329</td>
</tr>
<tr>
<td>2442 – STW1 control word interconnection (p2038 = 0)</td>
<td>2-330</td>
</tr>
<tr>
<td>2446 – STW3 control word interconnection</td>
<td>2-331</td>
</tr>
<tr>
<td>2450 – PZD send signals interconnection</td>
<td>2-332</td>
</tr>
<tr>
<td>2451 – ZSW1 status word interconnection (p2038 = 2)</td>
<td>2-333</td>
</tr>
<tr>
<td>2452 – ZSW1 status word interconnection (p2038 = 0)</td>
<td>2-334</td>
</tr>
<tr>
<td>2456 – ZSW3 status word interconnection</td>
<td>2-335</td>
</tr>
<tr>
<td>2468 – Receive telegram, free interconnection via BICO (p0922 = 999)</td>
<td>2-336</td>
</tr>
<tr>
<td>2470 – Send telegram, free interconnection via BICO (p0922 = 999)</td>
<td>2-337</td>
</tr>
</tbody>
</table>
Fig. 2-15  
2401 – Overview

PROFIdrive communication (PROFIBUS/PROFINET)  
Function diagrams

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFIdrive (PROFIBUS/PROFINET)</td>
<td>fp_2401_97_61.vsd</td>
<td>Function diagram</td>
<td>- 2401 -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overview

---

**Fig. 2-15**

2401 – Overview

PROFIdrive (PROFIBUS/PROFINET)

Function diagrams

1. **Permanently assigned telegrams**
   - PB address
     - 1 ... 126
     - p0918 (126)
   - LED
   - DIAGNOSTICS: Axxxxx
   - Pxx
   - PZD telegr_sel
     - p0922
   - Signal assignment
     - PZD1
     - ...
     - PZD8
   - Free telegrams
     - p0922 = 999

2. **Free telegrams**
   - Interconnecting the permanently assigned receive telegrams
   - [2440] ... [2442]
   - Interconnecting the permanently assigned send telegrams
   - [2450] ... [2452]
   - Interconnecting the free receive telegram
   - [2468]
   - Interconnecting the free send telegram
   - [2470]

3. **Signal assignment**
   - PZD1
   - ...
   - PZD8

4. **Telegram and process data**
   - PZD telegr_sel
     - p0922

5. **Header**
   - Netto data
   - Trailer

6. **Receive telegram**
   - Header
   - Netto data
   - Trailer

7. **Send telegram**
   - Header
   - Data
   - Trailer

---

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Fig. 2-16 2410 – PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics

### CU-specific functions

- **Setting the PROFIBUS address**
  - DIP switches on the control unit
  - All DIP switches to ON or OFF
  - Set the address using p0918
- **Power On**
  - Actual PROFIBUS address
- **Memory**
  - Set

### Drive-specific functions

- **Monitoring functions**
  - A01900 "PROFIBUS: Configuration telegram incorrect"
  - The response monitoring time, t, is automatically defined by the configuration tool (e.g., HW Config made by Siemens) within the framework of PROFIBUS configuration.
- **Faults**
  - F01910 "PROFIBUS setpoint timeout"
  - No telegrams from the master
- **Alarms**
  - A01920 "PROFIBUS: Cyclic connection interrupted"
  - t > t_response

### Diagnostic parameters

- **PD PZD state**
  - r2043.0
- **PB address**
  - 1 ... 126
  - p0918 (126)
- **PB status**
  - r2054
- **PD fault delay**
  - 0 ... 100 [s]
  - p2044 (0)
- **PB suppl t_monit**
  - 0 ... 20000 [ms]
  - p2047 (0)
- **PB addr_sw diag**
  - r2057
- **PB diag standard**
  - r2055 [0..2]
- **PN Name of Station**
  - r61000
- **PN IP of Station**
  - r61001
- **PROFINET address**
  - Diag offs recv
  - r2075
  - Diag offs send
  - r2076
- **FO1910 PROFIBUS abort timeout**

---

**PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics**

1. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
2. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
3. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
4. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
5. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
6. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
7. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics
8. PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics

---

**2-326 2410 - PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics**

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If \( p0922 = 999 \) is changed to another value, the telegram is automatically assigned.

If \( p0922 \neq 999 \) is changed to \( p0922 = 999 \), the "old" telegram assignment is maintained!

Freely interconnectable (pre-setting: MELD_NAMUR).

<2> Can be freely connected.

<3> Can be freely connected.

<4> In order to comply with the PROFIdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).

\( p2037 = 2 \) should be set if STW1 is not transferred with PZD1 as specified in the PROFIdrive profile.
### Signal receivers for PZD receive signals

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>PROFIdrive Signal No.</th>
<th>Interconnection parameter</th>
<th>Function diagram</th>
<th>Data type</th>
<th>Scaling</th>
</tr>
</thead>
<tbody>
<tr>
<td>STW1</td>
<td>Control word 1</td>
<td>1</td>
<td>(bit serial)</td>
<td>[2442]</td>
<td>U16</td>
<td>-</td>
</tr>
<tr>
<td>NSOLL_A</td>
<td>Speed setpoint A (16-bit)</td>
<td>5</td>
<td>p1070</td>
<td>[3030.2]</td>
<td>i16</td>
<td>4000 hex 2 p2000</td>
</tr>
<tr>
<td>M_LIM</td>
<td>Torque limit</td>
<td>310</td>
<td>p1552,p1554</td>
<td>[6060.1]</td>
<td>U16</td>
<td>4000 hex 100 %</td>
</tr>
<tr>
<td>STW3</td>
<td>Control word 3</td>
<td>304</td>
<td>(bit serial)</td>
<td>[2444]</td>
<td>U16</td>
<td>-</td>
</tr>
</tbody>
</table>

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS are automatically set to 0.
<2> Data type according to the PROFIdrive profile: I16 = Integer16, U16 = Unsigned16.
<3> Display parameters for receive data according to [2460].
<4> Only SIEMENS telegram 350

---

**PROFIdrive communication (PROFIBUS/PROFINET)**

**Fig. 2-18 2440 – PZD receive signals interconnection**

**Page dimensions:** 595.2x842.0

**SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC**
### Signal targets for STW1 in Interface Mode VIK-NAMUR (p2038 = 2)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>STW1.0</td>
<td><img src="signal1.png" alt="Signal 1" /> ON (pulses can be enabled)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.1</td>
<td>0 = OFF1 (braking with ramp-function generator, then pulse suppression &amp; ready for switching on)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.2</td>
<td>1 = No OFF2 (enable is possible)</td>
<td>p0848[0] = r2090.2</td>
<td>[2501.3]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.3</td>
<td>0 = OFF2 (immediate pulse suppression and switching on inhibited)</td>
<td>p0852[0] = r2090.3</td>
<td>[2501.3]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.4</td>
<td>1 = Enable operation (pulses can be enabled)</td>
<td>p1140[0] = r2090.4</td>
<td>[2501.3]</td>
<td>[3070]</td>
<td></td>
</tr>
<tr>
<td>STW1.5</td>
<td>0 = Inhibit operation (suppress pulses)</td>
<td>p1141[0] = r2090.5</td>
<td>[2501.3]</td>
<td>[3070]</td>
<td></td>
</tr>
<tr>
<td>STW1.6</td>
<td>1 = Enable setpoint</td>
<td>p1142[0] = r2090.6</td>
<td>[2501.3]</td>
<td>[3070]</td>
<td></td>
</tr>
<tr>
<td>STW1.7</td>
<td><img src="signal2.png" alt="Signal 2" /> Acknowledge faults</td>
<td>p2103[0] = r2090.7</td>
<td>[2546.1]</td>
<td>[8060]</td>
<td></td>
</tr>
<tr>
<td>STW1.8</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.9</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.10</td>
<td>1 = Control via PLC</td>
<td>p0854[0] = r2090.10</td>
<td>[2501.3]</td>
<td>[2501]</td>
<td></td>
</tr>
<tr>
<td>STW1.11</td>
<td>1 = Dir of rot reversal</td>
<td>p1113[0] = r2090.11</td>
<td>[2505.3]</td>
<td>[3040]</td>
<td></td>
</tr>
<tr>
<td>STW1.12</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.13</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.14</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.15</td>
<td>1 = CDS selection</td>
<td>p0810[0] = r2090.15</td>
<td>[2501.3]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes:**
- <1> Used in telegram 20.
- <2> Bit 10 in STW1 must be set to ensure that the drive accepts the process data.
- <3> Interconnection is not inhibited.
- <4> The direction reversal can be locked. See p1110 and p1111.
### Signal targets for STW1 in Interface Mode SINAMICS (p2038 = 0)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>STW1.0</td>
<td>▲ = ON (pulses can be enabled)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = OFF1 (braking with ramp-function generator, then pulse suppression &amp; ready for switching on)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.1</td>
<td>1 = No OFF2 (enable is possible)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = OFF2 (immediate pulse suppression and switching on inhibited)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.2</td>
<td>1 = No OFF3 (enable is possible)</td>
<td>p0848[0] = r2090.2</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.3</td>
<td>1 = Enable operation (pulses can be enabled)</td>
<td>p0852[0] = r2090.3</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit operation (supress pulses)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.4</td>
<td>1 = Operating condition (the ramp-function generator can be enabled)</td>
<td>p1140[0] = r2090.4</td>
<td>[2501.3]</td>
<td>(3070)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.5</td>
<td>1 = Enable the ramp-function generator</td>
<td>p1141[0] = r2090.5</td>
<td>[2501.3]</td>
<td>(3070)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Stop the ramp-function generator (freeze the ramp-function generator output)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.6</td>
<td>1 = Enable setpoint</td>
<td>p1142[0] = r2090.6</td>
<td>[2501.3]</td>
<td>(3070)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit setpoint (set the ramp-function generator input to zero)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.7</td>
<td>▲ = Acknowledge faults</td>
<td>p2103[0] = r2090.7</td>
<td>[2546.1]</td>
<td>[8000]</td>
<td>-</td>
</tr>
<tr>
<td>STW1.8</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>STW1.9</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>STW1.10</td>
<td>1 = Control via PLC</td>
<td>p0854[0] = r2090.10</td>
<td>[2501.3]</td>
<td>(2501)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>&lt;2&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.11</td>
<td>1 = Dir of rot reversal</td>
<td>p1113[0] = r209.11</td>
<td>[2505.3]</td>
<td>(3040)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>&lt;3&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.12</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>STW1.13</td>
<td>1 = Motorized potentiometer, setpoint, raise</td>
<td>p1035[0] = r2090.13</td>
<td>[2505.3]</td>
<td>(3020)</td>
<td>-</td>
</tr>
<tr>
<td>STW1.14</td>
<td>1 = Motorized potentiometer, setpoint, lower</td>
<td>p1036[0] = r2090.14</td>
<td>[2505.3]</td>
<td>(3020)</td>
<td>-</td>
</tr>
<tr>
<td>STW1.15</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

- **<1>** Used in telegrams 1, 352.
- **<2>** Bit 10 in STW1 must be set to ensure that the drive accepts the process data.
- **<3>** The direction reversal can be locked. See p1110 and p1111.
### Signal targets for STW3 in Interface Mode SINAMICS

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>STW3.0</td>
<td>1 = Fixed setp bit 0</td>
<td>p1020[0]= r2093.0</td>
<td>[3010.2]</td>
<td>[3010.2]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.1</td>
<td>1 = Fixed setp bit 1</td>
<td>p1021[0]= r2093.1</td>
<td>[2513.2]</td>
<td>[3010.2]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.2</td>
<td>1 = Fixed setp bit 2</td>
<td>p1022[0]= r2093.2</td>
<td>[2513.2]</td>
<td>[3010.2]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.3</td>
<td>1 = Fixed setp bit 3</td>
<td>p1023[0]= r2093.3</td>
<td>[2513.2]</td>
<td>[3010.2]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.4</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.5</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.6</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.7</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.8</td>
<td>1 = Technology controller enable</td>
<td>p2200[0]= r2093.8</td>
<td>[2513.2]</td>
<td>[7558.4]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.9</td>
<td>1 = DC brake enable</td>
<td>p1230[0]= r2093.9</td>
<td>[2513.2]</td>
<td>[7017.1]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.10</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.11</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.12</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.13</td>
<td>0 = External fault 1 (F07860)</td>
<td>p2106[0]= r2093.13</td>
<td>[2513.2]</td>
<td>[8060.1]</td>
<td>-</td>
</tr>
<tr>
<td>STW3.14</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW3.15</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<1> Used in telegrams 350.
### Signal sources for PZD send signals

<table>
<thead>
<tr>
<th>Signal</th>
<th>Description</th>
<th>PROFIdrive Signal No.</th>
<th>Interconnection parameter</th>
<th>Function diagram</th>
<th>Data type</th>
<th>Scaling</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSW1</td>
<td>Status word 1</td>
<td>2</td>
<td>p2089[0]</td>
<td>[2452]</td>
<td>U16</td>
<td>-</td>
</tr>
<tr>
<td>NIST_A</td>
<td>Actual speed A (16 bit)</td>
<td>6</td>
<td>p0063[0]</td>
<td>-</td>
<td>I16</td>
<td>4000 hex p2000</td>
</tr>
<tr>
<td>IAIST_GLATT</td>
<td>Absolute actual current, smoothed</td>
<td>51</td>
<td>r0068[1]</td>
<td>[6798]</td>
<td>I16</td>
<td>4000 hex p2002</td>
</tr>
<tr>
<td>MIST_GLATT</td>
<td>Actual torque smoothed</td>
<td>53</td>
<td>r0080[1]</td>
<td>[6798]</td>
<td>I16</td>
<td>4000 hex p2003</td>
</tr>
<tr>
<td>PIST_GLATT</td>
<td>Power factor, smoothed</td>
<td>54</td>
<td>r0082[1]</td>
<td>[6798]</td>
<td>I16</td>
<td>4000 hex p2004</td>
</tr>
<tr>
<td>NIST_A_GLATT</td>
<td>Actual speed, smoothed</td>
<td>57</td>
<td>r0063[1]</td>
<td>-</td>
<td>I16</td>
<td>4000 hex p2000</td>
</tr>
<tr>
<td>MELD_NAMUR</td>
<td>VIK-NAMUR message bit bar</td>
<td>58</td>
<td>r3113</td>
<td>-</td>
<td>U16</td>
<td></td>
</tr>
<tr>
<td>FAULT_CODE</td>
<td>Fault code</td>
<td>301</td>
<td>p2131</td>
<td>(8069)</td>
<td>U16</td>
<td></td>
</tr>
<tr>
<td>WARN_CODE</td>
<td>Alarm code</td>
<td>303</td>
<td>p2132</td>
<td>(8065)</td>
<td>U16</td>
<td></td>
</tr>
<tr>
<td>ZSW3</td>
<td>Status word 3</td>
<td>305</td>
<td>r0053</td>
<td>[2454]</td>
<td>U16</td>
<td></td>
</tr>
</tbody>
</table>

*<1> Data type according to the PROFIdrive profile: I16 = Integer16, U16 = Unsigned16.*
## Signal sources for ZSW1 in Interface Mode VIK-NAMUR (p2038 = 2)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSW1.0</td>
<td>1 = Ready for switching on</td>
<td>p2080[0] = r0899.0</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.1</td>
<td>1 = Ready for operation (DC link loaded, pulses inhibited)</td>
<td>p2080[1] = r0899.1</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.2</td>
<td>1 = Operation enabled (drive follows n_set)</td>
<td>p2080[2] = r0899.2</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.3</td>
<td>1 = Fault present</td>
<td>p2080[3] = r2139.3</td>
<td>[2548.7]</td>
<td>[8060]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.4</td>
<td>1 = No coast down active (OFF2 inactive)</td>
<td>p2080[4] = r0899.4</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.5</td>
<td>1 = No fast stop active (OFF3 inactive)</td>
<td>p2080[5] = r0899.5</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.6</td>
<td>1 = Switching on inhibited active</td>
<td>p2080[6] = r0899.6</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.7</td>
<td>1 = Alarm present</td>
<td>p2080[7] = r2139.7</td>
<td>[2548.7]</td>
<td>[8065]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.8</td>
<td>1 = Speed setpoint - actual value deviation within tolerance t_off</td>
<td>p2080[8] = r2197.7</td>
<td>[2534.7]</td>
<td>[8011]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.9</td>
<td>1 = Control requested</td>
<td>p2080[9] = r0899.9</td>
<td>[2503.7]</td>
<td>[2503]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.10</td>
<td>1 = f or n comparison value reached/exceeded</td>
<td>p2080[10] = r2199.1</td>
<td>[2536.7]</td>
<td>[8010]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.11</td>
<td>1 = I, M, or P limit not reached</td>
<td>p2080[11] = r0056.13</td>
<td>[2522.7]</td>
<td>[8060]</td>
<td>✓</td>
</tr>
<tr>
<td>ZSW1.12</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.13</td>
<td>1 = No motor overtemperature alarm</td>
<td>p2080[13] = r2135.14</td>
<td>[2548.7]</td>
<td>[8016]</td>
<td>✓</td>
</tr>
<tr>
<td>ZSW1.14</td>
<td>1 = Motor rotates forwards (n_rot ≥ 0)</td>
<td>p2080[14] = r2197.3</td>
<td>[2534.7]</td>
<td>[8011]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.15</td>
<td>1 = Display CDS</td>
<td>p2080[15] = r0836.0</td>
<td>[2536.7]</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**<1>** Used in telegram 20.

**<2>** The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

**<3>** The drive object is ready to accept data.

**<4>** Interconnection is not inhibited.
## Signal sources for ZSW1 in Interface Mode SINAMICS (p2038 = 0)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSW1.0</td>
<td>1 = Ready for switching on</td>
<td>p2080[0] = r0899.0</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.1</td>
<td>1 = Ready for operation (DC link loaded, pulses inhibited)</td>
<td>p2080[1] = r0899.1</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.2</td>
<td>1 = Operation enabled (drive follows n_set)</td>
<td>p2080[2] = r0899.2</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.3</td>
<td>1 = Fault present</td>
<td>p2080[3] = r2139.3</td>
<td>[2548.7]</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.4</td>
<td>1 = No coast down active (OFF2 inactive)</td>
<td>p2080[4] = r0899.4</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.5</td>
<td>1 = No fast stop active (OFF3 inactive)</td>
<td>p2080[5] = r0899.5</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.6</td>
<td>1 = Switching on inhibited active</td>
<td>p2080[6] = r0899.6</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.7</td>
<td>1 = Alarm present</td>
<td>p2080[7] = r2139.7</td>
<td>[2548.7]</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.8</td>
<td>1 = Speed setpoint - actual value deviation within tolerance t_off</td>
<td>p2080[8] = r2197.7</td>
<td>[2534.7]</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.9</td>
<td>1 = Control requested</td>
<td>p2080[9] = r0899.9</td>
<td>[2503.7]</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.10</td>
<td>1 = f or n comparison value reached/exceeded</td>
<td>p2080[10] = r2199.1</td>
<td>[2536.7]</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.11</td>
<td>1 = I, M, or P limit not reached</td>
<td>p2080[11] = r1407.7</td>
<td>[2522.7]</td>
<td>[8000]</td>
<td>✓</td>
</tr>
<tr>
<td>ZSW1.12</td>
<td>1 = Open holding brake</td>
<td>p2080[12] = r0899.12</td>
<td>[2503.7]</td>
<td>[2701]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.14</td>
<td>1 = Motor rotates forwards (n_act ≥ 0)</td>
<td>p2080[14] = r2197.3</td>
<td>[2534.7]</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>ZSW1.15</td>
<td>1 = Motor rotates backwards (n_act &lt; 0)</td>
<td>p2080[15] = r2135.15</td>
<td>[2548.7]</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

<1> Used in telegrams 1, 352.
<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0..0]...p2088[0.15])
<3> The drive is ready to accept data.

### PROFIdrive (PROFIBUS/PROFINET)

- 2452 -

**Function diagram**

- fp_2452_97_61.vsd

**ZSW1 status word interconnection (p2038 = 0)**

- 12.12.2012 V4.6

**SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC**
Signal sources for ZSW3 im Interface Mode SINAMICS

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>Internal status word</th>
<th>Signal source</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSW3.0</td>
<td>1 = DC brake active</td>
<td></td>
<td>2511.7</td>
<td>[7017.5]</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = DC brake not active</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW3.1</td>
<td>1 =</td>
<td>n_act</td>
<td>&gt; p1226 (n_standstill)</td>
<td></td>
<td>2511.7</td>
</tr>
<tr>
<td>ZSW3.2</td>
<td>1 =</td>
<td>n_act</td>
<td>&gt; p1080 (n_min)</td>
<td></td>
<td>2511.7</td>
</tr>
<tr>
<td>ZSW3.3</td>
<td>1 =</td>
<td>lact</td>
<td>=&gt; p2170</td>
<td></td>
<td>2511.7</td>
</tr>
<tr>
<td>ZSW3.4</td>
<td>1 =</td>
<td>n_act</td>
<td>&gt; p2155</td>
<td></td>
<td>2511.7</td>
</tr>
<tr>
<td>ZSW3.5</td>
<td>1 =</td>
<td>n_act</td>
<td>&lt;= p2155</td>
<td></td>
<td>2511.7</td>
</tr>
<tr>
<td>ZSW3.6</td>
<td>1 =</td>
<td>n_act</td>
<td>&gt;= r1119 (n_set)</td>
<td></td>
<td>2511.7</td>
</tr>
<tr>
<td>ZSW3.7</td>
<td>1 = Vdc &lt;= p2172</td>
<td></td>
<td>2511.7</td>
<td>[2534.7]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW3.8</td>
<td>1 = Vdc &gt; p2172</td>
<td></td>
<td>2511.7</td>
<td>[2534.7]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW3.9</td>
<td>1 = Ramping finished</td>
<td></td>
<td>2511.7</td>
<td>[3080.7]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW3.10</td>
<td>1 = Techn. contr. out at lower limit</td>
<td></td>
<td>2511.7</td>
<td>[7958.7]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW3.11</td>
<td>1 = Techn. contr. out at upper limit</td>
<td></td>
<td>2511.7</td>
<td>[7958.7]</td>
<td>-</td>
</tr>
<tr>
<td>ZSW3.12</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW3.13</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW3.14</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW3.15</td>
<td>Reserved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<1> Used in telegrams 350.
In order to maintain the PROFIdrive profile, receive word 1 must be used as control word (STW1) (due to bit 10 "control requested").

Using the connector-binector converters, the bits can be extracted from two of the PZD receive words 3 to 8 and used as binectors.

The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).

The following applies for temperature values: 100° C -> 100 % = 4000 hex, 0° C -> 0 %.

When interconnecting a connector output multiple times all the connector inputs must have either Integer or FloatingPoint data type.
To comply with the PROFIdrive profile, send word 1 must be used as status word 1 (ZSW1).

Physical word values are inserted in the telegram as referenced variables. \( p200x \) apply as reference variables (telegram content \( s = 4000 \) hex, if the input variable has the value \( p200x \)).

The following applies for temperature values: 100° C -> 100 % = 4000 hex; 0° C -> 0%.

A PZD send word can either be supplied via connector input \( p2051[x] \) (WORD) or via \( p2061[x] \) (DWORD). The two corresponding connector inputs cannot be interconnected.
## 2.7 CANopen communication

### Function diagrams

<table>
<thead>
<tr>
<th>Function Code</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9204</td>
<td>Receive telegram, free PDO mapping (<em>p8744 = 2</em>)</td>
<td>2-339</td>
</tr>
<tr>
<td>9206</td>
<td>Receive telegram, Predefined Connection Set (<em>p8744 = 1</em>)</td>
<td>2-340</td>
</tr>
<tr>
<td>9208</td>
<td>Send telegram, free PDO mapping (<em>p8744 = 2</em>)</td>
<td>2-341</td>
</tr>
<tr>
<td>9210</td>
<td>Send telegram, Predefined Connection Set (<em>p8744 = 1</em>)</td>
<td>2-342</td>
</tr>
<tr>
<td>9220</td>
<td>Control word, CANopen</td>
<td>2-343</td>
</tr>
<tr>
<td>9226</td>
<td>Status word, CANopen</td>
<td>2-344</td>
</tr>
</tbody>
</table>
Receive telegram, free PDO mapping (p8744 = 2)

<1> To use automatic BICO interconnection (p8790 = 1), one of the receive words 1 - 4 must be used as control word 1 (STW1).

<2> Telegram: up to 4 words or 64 bits. The sum of the various objects must not exceed 8 words.

RPDO: Receive Process Data Object
COB-ID: CAN object identification
Receive PDO 1
0000 hex ... 8000 06DF hex
p8700(0..1) (8000 06DF hex)

Receive PDO 2
p8701
60400010

Receive PDO 3
p8702
60420010

Receive PDO 4
p8703
60420010

Mapping RPDO 1
0000 hex ... FFFF FFFF hex
p8710(0..3) (0000 hex)

Evaluation of the COB-ID

1> To use automatic BICO interconnection (p8790 = 1), one of the receive words 1 - 4 must be used as control word 1 (STW1).
2> Telegram: up to 4 words or 64 bits. The sum of the various objects must not exceed 8 words.

RPDO: Receive Process Data Object
COB-ID: CAN object identification

Objects available a multiple number of times are marshalled to the same position in the receive buffer.

Automatic assignment of the RPDOs to the receive buffer.

The assignment is made from RPDO 1, RPDO 2 ... RPDO 8 and from receiver buffer word.

PVZD receive word 1

PVZD receive word 2

PVZD receive word 3

PVZD receive word 4

PVZD receive word 5

PVZD receive word 6

PVZD receive word 7

PVZD receive word 8

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

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PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD recv bitw

PVZD rec...
Fig. 2-30  9208 – Send telegram, free PDO mapping (p8744 = 2)

CANopen send words 1 ... 7

Automatic assignment of the send buffer to the TPDOs

The assignment is made from send buffer 1 and from TPDO 1.

Objects that occur a multiple number of times are updated from the same send buffer.

<1> Telegram: up to 4 words or 64 bits. The sum of the various objects must not exceed 8 words.

COB-ID: CAN object identification
Telegram: up to 4 words or 64 bits. The sum of the various objects must not exceed 8 words.

Automatic assignment of the send buffer to the TPDOs

TPDO: Transmit Process Data Object
COB-ID: CAN object identification

Sub-D socket CAN bus

CANopen send telegram

<1>
Fig. 2-31 9210 – Send telegram, Predefined Connection Set (p8744 = 1)

**Function diagrams**

**SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC**

- CANopen send words 1 ... 7
- Send buffer
- Automatic assignment of the send buffer to the TPDOs

1. TPDO 1: 60410010
2. TPDO 2: 60410010
3. TPDO 3: 60440010
4. TPDO 4: 60440010

- CANopen send telegram
- COB-ID: CAN object identification
- Telegram: up to 4 words or 64 bits. The sum of the various objects must not exceed 8 words.

**TPDO:** Transmit Process Data Object

**COB-ID:** CAN object identification

- **Objects** that occur a multiple number of times are updated from the same send buffer.
- **Evaluation of the COB-ID and data transfer type**

**Table:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANopen</td>
<td>Send telegram, Predefined Connection Set (p8744 = 1)</td>
<td>fp_9210_97_68.vsd</td>
<td>Function diagram</td>
<td>- 9210 -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.12.2012 V4.6</td>
<td>SINAMICS G120C CAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Signal targets for control word CANopen (r8795)

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram]</th>
<th>[Function diagram]</th>
</tr>
</thead>
<tbody>
<tr>
<td>STW1.0</td>
<td>= ON (pulses can be enabled)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td></td>
<td>= OFF (braking with RFG, then pulse suppression and ready for switching on)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td>STW1.1</td>
<td>1 = No coast-down activated (enable possible)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td></td>
<td>0 = Activate coast-down (immediate pulse suppression and switching on inhibited)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td>STW1.2</td>
<td>1 = No fast stop activated (enable possible)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td></td>
<td>0 = Activate fast stop (OFF3 ramp p1135, then pulse suppression and switching on inhibited)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td>STW1.3</td>
<td>1 = Enable operation (pulses can be enabled)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit operation (suppress pulses)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td>Sequence control</td>
</tr>
<tr>
<td>STW1.4</td>
<td>1 = Enable ramp-function generator</td>
<td>p1140[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit ramp-function generator</td>
<td>p1140[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td>STW1.5</td>
<td>1 = Continue ramp-function generator</td>
<td>p1140[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td></td>
<td>0 = function generator</td>
<td>p1140[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td>STW1.6</td>
<td>1 = Enable setpoint</td>
<td>p1140[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit setpoint (set the ramp-function generator input to zero)</td>
<td>p1140[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td>STW1.7</td>
<td>= Acknowledge fault</td>
<td>p2103[0] = r2090.0&lt;2&gt;</td>
<td>[2501.3]</td>
<td>[3070]</td>
</tr>
<tr>
<td>STW1.8</td>
<td>1 = Stop</td>
<td>&lt;2&gt;</td>
<td>-</td>
<td>[3070]</td>
</tr>
<tr>
<td>STW1.9</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.10</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.11</td>
<td>Can be freely connected</td>
<td>pxxxx[y] = r2090.11&lt;3&gt;</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.12</td>
<td>Can be freely connected</td>
<td>pxxxx[y] = r2090.12&lt;3&gt;</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.13</td>
<td>Can be freely connected</td>
<td>pxxxx[y] = r2090.13&lt;3&gt;</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.14</td>
<td>Can be freely connected</td>
<td>pxxxx[y] = r2090.14&lt;3&gt;</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.15</td>
<td>Can be freely connected</td>
<td>pxxxx[y] = r2090.15&lt;3&gt;</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<1> Depending on the position of the CANopen control word in p8750, the number of the binector to be connected changes.

<2> Not taken into account for the automatic control word interconnection (p8790).

<3> Interconnection via p8781.
Function diagrams

Fig. 2-33 9226 – Status word, CANopen

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status word CANopen</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = Ready for switching on</td>
</tr>
<tr>
<td>1</td>
<td>1 = Ready for operation (DC link loaded, pulses inhibited)</td>
</tr>
<tr>
<td>2</td>
<td>1 = Operation enabled (drive follows n_set)</td>
</tr>
<tr>
<td>3</td>
<td>1 = Fault present</td>
</tr>
<tr>
<td>4</td>
<td>1 = No coast down active</td>
</tr>
<tr>
<td>5</td>
<td>1 = No fast stop active</td>
</tr>
<tr>
<td>6</td>
<td>1 = Switching on inhibited active</td>
</tr>
<tr>
<td>7</td>
<td>1 = Alarm present</td>
</tr>
<tr>
<td>8</td>
<td>Freely interconnectable (Bl: p8785)</td>
</tr>
<tr>
<td>9</td>
<td>1 = Control requested</td>
</tr>
<tr>
<td>10</td>
<td>1 = Target reached</td>
</tr>
<tr>
<td>11</td>
<td>1 = Torque limit reached</td>
</tr>
<tr>
<td>12</td>
<td>1 = Velocity equal to zero</td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
</tr>
<tr>
<td>14</td>
<td>Freely interconnectable (Bl: p8786)</td>
</tr>
<tr>
<td>15</td>
<td>Freely interconnectable (Bl: p8787)</td>
</tr>
</tbody>
</table>

Bit 9 = 1 --> Ready to exchange process data

<1> With setpoint channel: connect p2151 with r1119 [8011.3].
2.8 Communication, fieldbus interface (USS, Modbus)

Function diagrams

<table>
<thead>
<tr>
<th>Function Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
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<td>Configuration, addresses and diagnostics</td>
<td>2-346</td>
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<tr>
<td>9342</td>
<td>STW1 control word interconnection</td>
<td>2-347</td>
</tr>
<tr>
<td>9352</td>
<td>ZSW1 status word interconnection</td>
<td>2-348</td>
</tr>
<tr>
<td>9360</td>
<td>Receive telegram, free interconnection via BICO (p0922 = 999)</td>
<td>2-349</td>
</tr>
<tr>
<td>9370</td>
<td>Send telegram, free interconnection via BICO (p0922 = 999)</td>
<td>2-350</td>
</tr>
</tbody>
</table>
Function diagrams

Communication, fieldbus interface (USS, Modbus)

Fig. 2-34 9310 – Configuration, addresses and diagnostics

- Fieldbus configuration
- Monitoring functions
- Diagnostic parameters
- Telegrams to the master
- No telegrams from the master
- Fieldbus interface (USS, Modbus)
- Fieldbus configuration
- USS configuration
- Fieldbus baud
- Fieldbus address
- Fieldbus times
- Fieldbus protocol
- Fieldbus error
- Fieldbus address
- Fieldbus times
- Fieldbus protocol
- Fieldbus error
- USS configuration
- Fieldbus baud
- Fieldbus address
- Fieldbus times
- Fieldbus protocol
- Fieldbus error
- USS configuration
- Fieldbus baud
- Fieldbus address
- Fieldbus times
- Fieldbus protocol
- Fieldbus error

Configuration, addresses and diagnostics

Communication, fieldbus interface (USS, Modbus)
### Signal targets for fieldbus STW1

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>STW1.0</td>
<td>( \checkmark = ) ON (pulses can be enabled)</td>
<td>p0840[0] = r2090.0</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = OFF1 (braking with ramp-function generator, then pulse suppression &amp; ready for switching on)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.1</td>
<td>1 = No OFF2 (enable is possible)</td>
<td>p0844[0] = r2090.1</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = OFF2 (immediate pulse suppression and switching on inhibited)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.2</td>
<td>1 = No OFF3 (enable is possible)</td>
<td>p0848[0] = r2090.2</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = OFF3 (braking with the OFF3 ramp p1135, then pulse suppression and switching on inhibited)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.3</td>
<td>1 = Enable operation (pulses can be enabled)</td>
<td>p0852[0] = r2090.3</td>
<td>[2501.3]</td>
<td>Sequence control</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit operation (suppress pulses)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.4</td>
<td>1 = Operating condition (the ramp-function generator can be enabled)</td>
<td>p1140[0] = r2090.4</td>
<td>[2501.3]</td>
<td>(3070)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.5</td>
<td>1 = Enable the ramp-function generator</td>
<td>p1141[0] = r2090.5</td>
<td>[2501.3]</td>
<td>(3070)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Stop the ramp-function generator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.6</td>
<td>1 = Enable setpoint</td>
<td>p1142[0] = r2090.6</td>
<td>[2501.3]</td>
<td>(3070)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 = Inhibit setpoint (set the ramp-function generator input to zero)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STW1.7</td>
<td>( \checkmark = ) Acknowledge faults</td>
<td>p2103[0] = r2090.7</td>
<td>[2546.1]</td>
<td>(8060)</td>
<td>-</td>
</tr>
<tr>
<td>STW1.8</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.9</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.10</td>
<td>1 = Control via PLC</td>
<td>p0854[0] = r2090.10</td>
<td>[2501.3]</td>
<td>[2501]</td>
<td>-</td>
</tr>
<tr>
<td>STW1.11</td>
<td>1 = Dir of rot reversal</td>
<td>p1113[0] = r2090.11</td>
<td>[2505.3]</td>
<td>(3040)</td>
<td>-</td>
</tr>
<tr>
<td>STW1.12</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STW1.13</td>
<td>1 = Motorized potentiometer, setpoint, raise</td>
<td>p1035[0] = r2090.13</td>
<td>[2505.3]</td>
<td>(3020)</td>
<td>-</td>
</tr>
<tr>
<td>STW1.14</td>
<td>1 = Motorized potentiometer, setpoint, lower</td>
<td>p1036[0] = r2090.14</td>
<td>[2505.3]</td>
<td>(3020)</td>
<td>-</td>
</tr>
<tr>
<td>STW1.15</td>
<td>Reserved</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- \( \checkmark = \) Bit 10 in STW1 must be set to ensure that the drive accepts the process data.
- \( \checkmark = \) The direction reversal can be locked. See p1110 and p1111.
### Signal sources for fieldbus ZSW1

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Interconnection parameters</th>
<th>[Function diagram] internal control word</th>
<th>[Function diagram] signal target</th>
<th>Inverted</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSW1.0</td>
<td>1 = Ready for switching on</td>
<td>p2080[0] = r0899.0</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td></td>
</tr>
<tr>
<td>ZSW1.1</td>
<td>1 = Ready for operation (DC link loaded, pulses inhibited)</td>
<td>p2080[1] = r0899.1</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td></td>
</tr>
<tr>
<td>ZSW1.2</td>
<td>1 = Operation enabled (drive follows n_set)</td>
<td>p2080[2] = r0899.2</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td></td>
</tr>
<tr>
<td>ZSW1.3</td>
<td>1 = Fault present</td>
<td>p2080[3] = r2139.3</td>
<td>[2548.7]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW1.4</td>
<td>1 = No coast down active (OFF2 inactive)</td>
<td>p2080[4] = r0899.4</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td></td>
</tr>
<tr>
<td>ZSW1.5</td>
<td>1 = No fast stop active (OFF3 inactive)</td>
<td>p2080[5] = r0899.5</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td></td>
</tr>
<tr>
<td>ZSW1.6</td>
<td>1 = Switching on inhibited active</td>
<td>p2080[6] = r0899.6</td>
<td>[2503.7]</td>
<td>Sequence control</td>
<td></td>
</tr>
<tr>
<td>ZSW1.7</td>
<td>1 = Alarm present</td>
<td>p2080[7] = r2139.7</td>
<td>[2548.7]</td>
<td>[8065]</td>
<td></td>
</tr>
<tr>
<td>ZSW1.8</td>
<td>1 = Speed setpoint - actual value deviation within tolerance t_off</td>
<td>p2080[8] = r2197.7</td>
<td>[2534.7]</td>
<td>[8011]</td>
<td></td>
</tr>
<tr>
<td>ZSW1.9</td>
<td>1 = Control requested</td>
<td>p2080[9] = r0899.9</td>
<td>[2503.7]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW1.10</td>
<td>1 = f or n comparison value reached/exceeded</td>
<td>p2080[10] = r2199.1</td>
<td>[2536.7]</td>
<td>[8010]</td>
<td></td>
</tr>
<tr>
<td>ZSW1.11</td>
<td>1 = I, M, or P limit not reached</td>
<td>p2080[11] = r1407.7</td>
<td>[2522.7]</td>
<td>[6060]</td>
<td></td>
</tr>
<tr>
<td>ZSW1.12</td>
<td>1 = Open holding brake</td>
<td>p2080[12] = r0899.12</td>
<td>[2503.7]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZSW1.13</td>
<td>1 = No motor overtemperature alarm</td>
<td>p2080[13] = r2135.14</td>
<td>[2548.7]</td>
<td>[8016]</td>
<td></td>
</tr>
<tr>
<td>ZSW1.14</td>
<td>1 = Motor rotates forwards (n_acd ≥ 0)</td>
<td>p2080[14] = r2197.3</td>
<td>[2534.7]</td>
<td>[8011]</td>
<td></td>
</tr>
<tr>
<td>ZSW1.15</td>
<td>1 = No alarm, thermal overload, power unit</td>
<td>p2080[15] = r2135.15</td>
<td>[2548.7]</td>
<td>[8014]</td>
<td></td>
</tr>
</tbody>
</table>

<1> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0...15])

<2> The drive is ready to accept data.

---

**Function diagram**

- **Fig. 2-36 9352 – ZSW1 status word interconnection**

- **fp_9352_97_62.vsd**

- **Communication, fieldbus interface (USS, Modbus)**

- **Function diagrams**

- **Sequence control**

- **Signal sources**

- **Signal Meanings**

- **Interconnection parameters**

- **Function diagram**

- **Internal control word**

- **Signal target**

- **Inverted**
Receive telegram, free interconnection via BICO (p0922 = 999)

Fieldbus Interface (USS, Modbus)

Refer to the diagram for detailed connections and parameters.

1. The receive word 1 must be used as control word (STW1) (due to bit 10 "control requested").
2. The preconfiguration with the speed setpoint is set automatically via p1000 = 6.
3. The following representation applies for words: 4000 hex = 100 %.
   The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
   The following applies for temperature values: 100° C -> 100 % = 4000 hex, 0° C -> 0 %.
The send word 1 must be used as status word (ZSW1).

The preconfiguration with the speed setpoint is set automatically via p1000 = 6.

Physical word values are inserted in the telegram as referenced variables. p200x apply as reference variables (telegram contents = 4000 hex, if the input variable has the value p200x).

The following applies for temperature values: 100°C -> 100% = 4000 hex; 0°C -> 0%.
## 2.9 Internal control/status words

### Function diagrams

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
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<td>Overview of internal control/status words</td>
<td>2-352</td>
</tr>
<tr>
<td>2501</td>
<td>Control word, sequence control</td>
<td>2-353</td>
</tr>
<tr>
<td>2503</td>
<td>Status word, sequence control</td>
<td>2-354</td>
</tr>
<tr>
<td>2505</td>
<td>Control word, setpoint channel</td>
<td>2-355</td>
</tr>
<tr>
<td>2510</td>
<td>Status word 1 (r0052)</td>
<td>2-356</td>
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<tr>
<td>2511</td>
<td>Status word 2 (r0053)</td>
<td>2-357</td>
</tr>
<tr>
<td>2512</td>
<td>Control word 1 (r0054)</td>
<td>2-358</td>
</tr>
<tr>
<td>2513</td>
<td>Control word 2 (r0055)</td>
<td>2-359</td>
</tr>
<tr>
<td>2522</td>
<td>Status word, speed controller</td>
<td>2-360</td>
</tr>
<tr>
<td>2526</td>
<td>Status word, closed-loop control</td>
<td>2-361</td>
</tr>
<tr>
<td>2530</td>
<td>Status word, current control</td>
<td>2-362</td>
</tr>
<tr>
<td>2534</td>
<td>Status word, monitoring functions 1</td>
<td>2-363</td>
</tr>
<tr>
<td>2536</td>
<td>Status word, monitoring functions 2</td>
<td>2-364</td>
</tr>
<tr>
<td>2537</td>
<td>Status word, monitoring functions 3</td>
<td>2-365</td>
</tr>
<tr>
<td>2546</td>
<td>Control word, faults/alarms</td>
<td>2-366</td>
</tr>
<tr>
<td>2548</td>
<td>Status word, faults/alarms 1 and 2</td>
<td>2-367</td>
</tr>
<tr>
<td>2634</td>
<td>Sequence control - Missing enables</td>
<td>2-368</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Internal control/status words</td>
<td>fp_2500_97_67.vsd</td>
<td>Function diagram</td>
</tr>
<tr>
<td>Overview</td>
<td>12.12.2012 V4.6</td>
<td>SINAMICS G120C</td>
</tr>
</tbody>
</table>
Control word sequence control (r0898)

- Bit 10 in STW1 must be set to ensure that the drive accepts the process data.
- PROFIdrive interconnection for CDS0: For PROFIdrive standard telegrams, the upper inputs are connected with PROFIdrive-STW1 [2420].
- When the master control is retrieved, predefined by STARTER or AOP30.

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Control word sequence control (r0898)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 = OFF1 active</td>
</tr>
<tr>
<td>1</td>
<td>1 = Operating condition, no coast down active (OFF2 inactive)</td>
</tr>
<tr>
<td>2</td>
<td>1 = Operating condition, no fast stop active (OFF3 inactive)</td>
</tr>
<tr>
<td>3</td>
<td>1 = Enable operation</td>
</tr>
<tr>
<td>4</td>
<td>1 = Enable ramp-function generator</td>
</tr>
<tr>
<td>5</td>
<td>1 = Continue ramp-function generator</td>
</tr>
<tr>
<td>6</td>
<td>1 = Enable speed setpoint</td>
</tr>
<tr>
<td>7</td>
<td>1 = Command open brake</td>
</tr>
<tr>
<td>8</td>
<td>1 = Jog 1</td>
</tr>
<tr>
<td>9</td>
<td>1 = Jog 2</td>
</tr>
<tr>
<td>10</td>
<td>1 = Control via PLC</td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
</tr>
<tr>
<td>12</td>
<td>1 = Speed controller enable</td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
</tr>
<tr>
<td>14</td>
<td>1 = Command close brake</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

### Internal control/status words

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal control/status words</td>
<td>Function diagram</td>
<td>12.12.2012 V4.6</td>
<td>SINAMICS G120C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Function diagrams

Internal control/status words

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Fig. 2-41 2503 – Status word, sequence control

Internal control/status words

Status word, sequence control

12.12.2012 V4.6 SINAMICS G120C
### Internal Control/Status Words

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Bit Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Fixed speed setpoint (Bit 0)</td>
</tr>
<tr>
<td>1</td>
<td>Fixed speed setpoint (Bit 1)</td>
</tr>
<tr>
<td>2</td>
<td>Fixed speed setpoint (Bit 2)</td>
</tr>
<tr>
<td>3</td>
<td>Fixed speed setpoint (Bit 3)</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>Inhibit negative direction of rotation</td>
</tr>
<tr>
<td>6</td>
<td>Inhibit positive direction of rotation</td>
</tr>
<tr>
<td>7</td>
<td>Reserved</td>
</tr>
<tr>
<td>8</td>
<td>Motorized potentiometer, raise</td>
</tr>
<tr>
<td>9</td>
<td>Motorized potentiometer, lower</td>
</tr>
<tr>
<td>10</td>
<td>Bypass ramp-function generator</td>
</tr>
<tr>
<td>11</td>
<td>Setpoint inversion</td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td>Motorized potentiometer, lower</td>
</tr>
<tr>
<td>14</td>
<td>Motorized potentiometer, raise</td>
</tr>
</tbody>
</table>

### Control Word, Setpoint Channel (r1198)

- **Control Word, Setpoint Channel (r1198)**
- **Function Diagram**

1. **Function Diagram**
2. **SINAMICS G120C**
3. **List Manual (LH13), 01/2013, A5E03052632 AC**
4. **2-355© Siemens AG 2010 - 2013 All Rights Reserved**
### Status word 1 (r0052)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status word 1 (r0052)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = Drive ready for switching on</td>
</tr>
<tr>
<td></td>
<td>0 = Drive not ready for switching on</td>
</tr>
<tr>
<td>1</td>
<td>1 = Drive ready for operation (DC link loaded; pulses inhibited)</td>
</tr>
<tr>
<td></td>
<td>0 = Drive not ready for operation</td>
</tr>
<tr>
<td>2</td>
<td>1 = Operation enabled / pulse enable (voltage at output terminals)</td>
</tr>
<tr>
<td></td>
<td>0 = Pulses inhibited</td>
</tr>
<tr>
<td>3</td>
<td>1 = Drive fault present (pulses inhibited)</td>
</tr>
<tr>
<td></td>
<td>0 = No fault</td>
</tr>
<tr>
<td>4</td>
<td>0 = Coast down active (OFF2 active)</td>
</tr>
<tr>
<td></td>
<td>1 = No coast down active (OFF2 inactive)</td>
</tr>
<tr>
<td>5</td>
<td>0 = Fast stop active (OFF3 active)</td>
</tr>
<tr>
<td></td>
<td>1 = No fast stop active (OFF3 inactive)</td>
</tr>
<tr>
<td>6</td>
<td>1 = Switching on inhibited active</td>
</tr>
<tr>
<td></td>
<td>0 = No switching on inhibited (possible to switch on)</td>
</tr>
<tr>
<td>7</td>
<td>1 = Alarm present</td>
</tr>
<tr>
<td></td>
<td>0 = No alarm</td>
</tr>
<tr>
<td>8</td>
<td>0 = Deviation setpoint / actual speed</td>
</tr>
<tr>
<td></td>
<td>1 = No deviation setpoint / actual speed</td>
</tr>
<tr>
<td>9</td>
<td>1 = Control request</td>
</tr>
<tr>
<td>10</td>
<td>1 = Maximum speed reached (f_actual &gt;= p1082 (f_max))</td>
</tr>
<tr>
<td></td>
<td>0 = f_actual &lt; p1082 (f_max)</td>
</tr>
<tr>
<td>11</td>
<td>0 = I,M,P limit reached</td>
</tr>
<tr>
<td></td>
<td>1 = Limit not reached</td>
</tr>
<tr>
<td>12</td>
<td>1 = Open motor holding brake</td>
</tr>
<tr>
<td>13</td>
<td>0 = Alarm motor overtemperature</td>
</tr>
<tr>
<td></td>
<td>1 = No motor overtemperature</td>
</tr>
<tr>
<td>14</td>
<td>1 = Motor rotates right</td>
</tr>
<tr>
<td></td>
<td>0 = Motor does not rotate right</td>
</tr>
<tr>
<td>15</td>
<td>0 = Alarm drive converter overload</td>
</tr>
<tr>
<td></td>
<td>1 = No drive converter overload</td>
</tr>
</tbody>
</table>

**Signal is inverted if connected to a Digital Output.**

---

**Internal control/status words**

- **fp_2510_97_05.vsd**
- Function diagram

**Status word 1 (r0052)**

- 12.12.2012 V4.6
- SINAMICS G120C
### Status word 2 (r0053)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = DC brake active 0 = DC brake not active</td>
</tr>
<tr>
<td>1</td>
<td>Reserved</td>
</tr>
<tr>
<td>2</td>
<td>1 =</td>
</tr>
<tr>
<td>3</td>
<td>Reserved</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>Reserved</td>
</tr>
<tr>
<td>6</td>
<td>1 =</td>
</tr>
<tr>
<td>7</td>
<td>Reserved</td>
</tr>
<tr>
<td>8</td>
<td>Reserved</td>
</tr>
<tr>
<td>9</td>
<td>1 = Ramping finished</td>
</tr>
<tr>
<td>10</td>
<td>1 = Techn. contr. out at lower limit</td>
</tr>
<tr>
<td>11</td>
<td>1 = Techn. contr. out at upper limit</td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
</tr>
<tr>
<td>14</td>
<td>Reserved</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

- **DCBRK ZSW**: r1239
- **ZSW monitor 1**: r2197
- **Tec_ctrl status**: r2349
Fig. 2-45 2512 – Control word 1 (r0054)

- 2512 -

Function diagrams

Internal control/status words

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All bits = 1 --> drive runs

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Control word 1 (r0054)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>OFF1, Shutdown via ramp, followed by pulse inhibit</td>
</tr>
<tr>
<td>1</td>
<td>Operating condition (edge-controlled)</td>
</tr>
<tr>
<td>1</td>
<td>OFF2: Electrical stop, pulse inhibit, motor coasts down</td>
</tr>
<tr>
<td>1</td>
<td>Operating condition</td>
</tr>
<tr>
<td>2</td>
<td>Off3: Fast stop</td>
</tr>
<tr>
<td>1</td>
<td>Operating condition</td>
</tr>
<tr>
<td>3</td>
<td>Operation enable</td>
</tr>
<tr>
<td>1</td>
<td>Ramp-function generator enable</td>
</tr>
<tr>
<td>1</td>
<td>Continue ramp-function generator</td>
</tr>
<tr>
<td>1</td>
<td>Speed setpoint enable</td>
</tr>
<tr>
<td>1</td>
<td>Acknowledge fault</td>
</tr>
<tr>
<td>1</td>
<td>Jog bit 0</td>
</tr>
<tr>
<td>1</td>
<td>Jog bit 1</td>
</tr>
<tr>
<td>1</td>
<td>Master ctrl by PLC</td>
</tr>
<tr>
<td>1</td>
<td>Directions reversal (setpoint)</td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td>Motorized potentiometer raise</td>
</tr>
<tr>
<td>14</td>
<td>Motorized potentiometer lower</td>
</tr>
<tr>
<td>15</td>
<td>CDS bit 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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<td>Internal control/status words</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control word 1 (r0054)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Control word 2 (r0055)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Control word 2 (r0055)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = Fixed setp bit 0</td>
</tr>
<tr>
<td>1</td>
<td>1 = Fixed setp bit 1</td>
</tr>
<tr>
<td>2</td>
<td>1 = Fixed setp bit 2</td>
</tr>
<tr>
<td>3</td>
<td>1 = Fixed setp bit 3</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>Reserved</td>
</tr>
<tr>
<td>6</td>
<td>Reserved</td>
</tr>
<tr>
<td>7</td>
<td>Reserved</td>
</tr>
<tr>
<td>8</td>
<td>1 = Technology controller enable</td>
</tr>
<tr>
<td>9</td>
<td>1 = DC brake enable</td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td>0 = External fault 1 (F07860)</td>
</tr>
<tr>
<td>14</td>
<td>Reserved</td>
</tr>
<tr>
<td>15</td>
<td>1 = CDS bit 1</td>
</tr>
</tbody>
</table>

Suppl STW

Fig. 2-46
2513 – Control word 2 (r0055)
From the changeover, closed-loop control types

From the control unit

From the speed controller [6040.7]

From the speed controller [6040.7]

From the torque setpoint [6060.7]

From the torque setpoint [6060.7]

From the torque setpoint [6060.7]

From the torque setpoint [6060.7] [6060.4]

From the speed setpoint [6030.3]

From the speed setpoint [6030.3] [6030.5]

From the speed limiting [6640.8]

Bit No. | Status word, speed controller (r1407)
-------|----------------------------------------
0      | 1 = U/f control active
1      | 1 = Sensorless operation active
2      | Reserved
3      | 1 = Closed-loop speed control active
4      | Reserved
5      | 1 = Speed controller, I component held
6      | 1 = Speed controller, I component set
7      | 1 = Torque limit reached
8      | 1 = Torque limiting, upper, active
9      | 1 = Torque limiting, lower, active
10     | 1 = Droop enabled
11     | 1 = Speed setpoint limited
12     | 1 = Ramp-function generator set
13     | 1 = Sensorless operation due to a fault
14     | 1 = U/f control active
15     | 1 = Torque limit reached (without pre-control)
16     | Reserved
17     | 1 = Speed limiting control active

Ramp-function generator tracking [1550.7]

Speed controller [6040.4]

Motor locked/stalled [8012.5]
### Status word, closed-loop control (r0056)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Description</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Initialization completed</td>
<td>[6060.7]</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>De-magnetization completed</td>
<td>[6722.6]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pulses enabled</td>
<td>[6714.8]</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Soft starting available</td>
<td>[6730.5], [6731.5]</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Magnetization completed</td>
<td>[6310.8]</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Starting boost active</td>
<td>[630.5], [631.5]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Acceleration voltage active</td>
<td>[6730.5], [6731.5]</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Frequency, negative</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Field weakening active</td>
<td>[6310.8]</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Voltage limit active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Slip limiting active</td>
<td>[6730.5], [6731.5]</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Frequency limit active</td>
<td>[6310.8]</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Current limiting controller, voltage output active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Current/torque limiting active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Vdc_max controller active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Vdc_min controller active</td>
<td>[6722.3]</td>
<td></td>
</tr>
</tbody>
</table>

<1> Only for U/f control.

---

**ZSW cl-loop ctrl**

- 0056.0
- 0056.1
- 0056.2
- 0056.3
- 0056.4
- 0056.5
- 0056.6
- 0056.7
- 0056.8
- 0056.9
- 0056.10
- 0056.11
- 0056.12
- 0056.13
- 0056.14
- 0056.15

---

**Status word, closed-loop control**

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Description</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Initialization completed</td>
<td>[6060.7]</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>De-magnetization completed</td>
<td>[6722.6]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pulses enabled</td>
<td>[6714.8]</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Soft starting available</td>
<td>[6730.5], [6731.5]</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Magnetization completed</td>
<td>[6310.8]</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Starting boost active</td>
<td>[630.5], [631.5]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Acceleration voltage active</td>
<td>[6730.5], [6731.5]</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Frequency, negative</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Field weakening active</td>
<td>[6310.8]</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Voltage limit active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Slip limiting active</td>
<td>[6730.5], [6731.5]</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Frequency limit active</td>
<td>[6310.8]</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Current limiting controller, voltage output active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Current/torque limiting active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Vdc_max controller active</td>
<td>[6722.3]</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Vdc_min controller active</td>
<td>[6722.3]</td>
<td></td>
</tr>
</tbody>
</table>

<1> Only for U/f control.

---

**Function diagram**

- fp_2526_97_63.vsd
- Function diagram
- 12.12.2012 V4.6
- SINAMICS G120C
Status word closed-loop current control (r1408)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status word</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = Closed-loop current control active</td>
</tr>
<tr>
<td>1</td>
<td>1 = Id controller I comp. limitation</td>
</tr>
<tr>
<td>2</td>
<td>Reserved</td>
</tr>
<tr>
<td>3</td>
<td>1 = Voltage limitation</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>Reserved</td>
</tr>
<tr>
<td>6</td>
<td>Reserved</td>
</tr>
<tr>
<td>7</td>
<td>Reserved</td>
</tr>
<tr>
<td>8</td>
<td>Reserved</td>
</tr>
<tr>
<td>9</td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td>1 = Speed adaption limitation</td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
</tr>
<tr>
<td>12</td>
<td>1 = Motor stalled</td>
</tr>
<tr>
<td>13</td>
<td>1 = Separately-excited synchronous motor is excited</td>
</tr>
<tr>
<td>14</td>
<td>1 = Current model FEM: Magnetizing excitation current set to 0</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>
### Status word, monitoring functions 1 (r2197)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(1 =</td>
</tr>
<tr>
<td>1</td>
<td>Reserved</td>
</tr>
<tr>
<td>2</td>
<td>Reserved</td>
</tr>
<tr>
<td>3</td>
<td>(1 = n_{act} &gt;= 0)</td>
</tr>
<tr>
<td>4</td>
<td>(1 =</td>
</tr>
<tr>
<td>5</td>
<td>Reserved</td>
</tr>
<tr>
<td>6</td>
<td>(1 =</td>
</tr>
<tr>
<td>7</td>
<td>(1 = \text{Speed setpoint - actual value deviation within tolerance } t_{off})</td>
</tr>
<tr>
<td>8</td>
<td>Reserved</td>
</tr>
<tr>
<td>9</td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td>(1 = \text{Load missing})</td>
</tr>
<tr>
<td>12</td>
<td>(1 =</td>
</tr>
<tr>
<td>13</td>
<td>(1 =</td>
</tr>
<tr>
<td>14</td>
<td>Reserved</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

**From extended signals (8020.8)**

**From speed signals (8011.8)**

**From extended signals (8020.8)**

**From speed signals (8010.8)**

**From speed signals (8011.8)**

ZSW monitor 1

**Function diagram**

- **Fig. 2-50**
- **2534 - Status word, monitoring functions 1**

---

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### Status word, monitoring functions 2 (r2198)

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved</td>
</tr>
<tr>
<td>1</td>
<td>Reserved</td>
</tr>
<tr>
<td>2</td>
<td>Reserved</td>
</tr>
<tr>
<td>3</td>
<td>Reserved</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>$1 = n_{set} &gt; 0$</td>
</tr>
<tr>
<td>6</td>
<td>$1 = n_{set} &gt; 0$</td>
</tr>
<tr>
<td>7</td>
<td>$1 = n_{set} &gt; 0$</td>
</tr>
<tr>
<td>8</td>
<td>Reserved</td>
</tr>
<tr>
<td>9</td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
</tr>
<tr>
<td>14</td>
<td>Reserved</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

#### Notes:
- From speed signals: $8011.8$
- From torque messages, motor locked/stalled: $8012.8$

---

**Function diagram**

- ZSW monitor 2

---

**Table of contents**

- Internal control/status words
- Status word, monitoring functions 2

---

**Reference**

- SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
- fp_2536_97_05.vsd
- Function diagram

---

**Additional information**

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- 12.12.2012 V4.6
- SINAMICS G120C
Fig. 2-52 2537 – Status word, monitoring functions 3

- Status word, monitoring functions 3
- Internal control/status words
- Function diagrams

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status word, monitoring functions 3 (r2199) Bit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved</td>
</tr>
<tr>
<td>1</td>
<td>Speed setpoint - actual value deviation within tolerance t_on</td>
</tr>
<tr>
<td>2</td>
<td>Ramp-up/ramp-down completed</td>
</tr>
<tr>
<td>3</td>
<td>Ramp-function generator active</td>
</tr>
<tr>
<td>4</td>
<td>1 = Speed setpoint - actual value deviation within tolerance t_on</td>
</tr>
<tr>
<td>5</td>
<td>0 = Ramp-function generator active</td>
</tr>
<tr>
<td>6</td>
<td>Reserved</td>
</tr>
<tr>
<td>7</td>
<td>Reserved</td>
</tr>
<tr>
<td>8</td>
<td>Reserved</td>
</tr>
<tr>
<td>9</td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td>Reserved</td>
</tr>
<tr>
<td>12</td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td>Reserved</td>
</tr>
<tr>
<td>14</td>
<td>Reserved</td>
</tr>
<tr>
<td>15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>
PROFIdrive-Bit

0

Reserved

1

Reserved

2

Reserved

3

Reserved

4

Reserved

5

Reserved

6

Reserved
To fault buffer [8060.1]

2. Acknowledge
p2104 [C]
(0)
<1>

7

External alarm 1
<1>

External fault 1
<1>

= Acknowledge faults

8

Reserved

9

Reserved

r2138.7

To alarm buffer [8065.1]

p2112 [C]

1

(1)

10

= External alarm 1 (A07850)

11

Reserved

12

Reserved

r2138.10

To fault buffer [8060.1]

p2106 [C]

1

(1)

13

= External fault 1 (F07860)

14

Reserved

15

Reserved

r2138.13

<1> These parameters refer to the Command Data Sets (CDS)..

1
2
Internal control/status words
Control word, faults/alarms

3

4

5

6
fp_2546_97_05.vsd

V4.6

7
Function diagram
SINAMICS G120C

8
- 2546 -

Function diagrams

2546 – Control word, faults/alarms

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1. Acknowledge
p2103 [C]
(722.2)
<1>

STW fault/alarm
r2138
r2138

Control word, faults/alarms

Internal control/status words

Fig. 2-53

2-366

Bit No.


### Status word, faults/alarms 1

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status word, faults/alarms 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = Acknowledgement running</td>
</tr>
<tr>
<td>1</td>
<td>Reserved</td>
</tr>
<tr>
<td>2</td>
<td>Reserved</td>
</tr>
<tr>
<td>3</td>
<td>1 = Fault present</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>1 = Internal signal 1 present</td>
</tr>
<tr>
<td>6</td>
<td>1 = Alarm present</td>
</tr>
<tr>
<td>7</td>
<td>Reserved</td>
</tr>
<tr>
<td>8</td>
<td>1 = Internal signal 2 present</td>
</tr>
<tr>
<td>9</td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td>Alarm class bit 0</td>
</tr>
<tr>
<td>12</td>
<td>Alarm class bit 1</td>
</tr>
<tr>
<td>13-15</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

### Status word, faults/alarms 2

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status word, faults/alarms 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved</td>
</tr>
<tr>
<td>1-11</td>
<td>Reserved</td>
</tr>
<tr>
<td>12</td>
<td>1 = Fault motor overtemperature</td>
</tr>
<tr>
<td>13</td>
<td>1 = Fault, thermal overload, power module</td>
</tr>
<tr>
<td>14</td>
<td>1 = Alarm motor overtemperature</td>
</tr>
<tr>
<td>15</td>
<td>1 = Alarm, thermal overload, power module</td>
</tr>
</tbody>
</table>

---

**Function diagrams**

- **ZSW fault/alarms 1**: From the fault buffer [8060.6]
- **ZSW fault/alarms 2**: From the alarm buffer [8065.4]
- From the thermal monitoring, motor [8016.8]
- From the thermal monitoring, power module [8014.8]

---

**Table: Internal control/status words**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal control/status words</td>
<td>Function diagram</td>
<td>Function diagram</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status word, faults/alarms 1 and 2</td>
<td>fp_2548_97_65.vsd</td>
<td>SINAMICS G120C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fig. 2-55 2634 – Sequence control - Missing enables

**Missing enable signals (r0046)**

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = OFF1 enable missing</td>
</tr>
<tr>
<td>1</td>
<td>1 = OFF2 enable missing</td>
</tr>
<tr>
<td>2</td>
<td>1 = OFF3 enable missing</td>
</tr>
<tr>
<td>3</td>
<td>1 = Operation enable missing</td>
</tr>
<tr>
<td>4</td>
<td>1 = DC current brake, enable missing</td>
</tr>
<tr>
<td>...</td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td>1 = Ramp-function generator enable missing</td>
</tr>
<tr>
<td>11</td>
<td>1 = Ramp-function generator start missing</td>
</tr>
<tr>
<td>12</td>
<td>1 = Setpoint enable missing</td>
</tr>
<tr>
<td>...</td>
<td>Reserved</td>
</tr>
<tr>
<td>16</td>
<td>1 = OFF1 enable internal missing</td>
</tr>
<tr>
<td>17</td>
<td>1 = OFF2 enable internal missing</td>
</tr>
<tr>
<td>18</td>
<td>1 = OFF3 enable internal missing</td>
</tr>
<tr>
<td>19</td>
<td>1 = Pulse enable internal missing</td>
</tr>
<tr>
<td>20</td>
<td>1 = DC current brake, internal enable missing</td>
</tr>
<tr>
<td>21</td>
<td>1 = PU enable missing</td>
</tr>
<tr>
<td>...</td>
<td>Reserved</td>
</tr>
<tr>
<td>26</td>
<td>1 = Drive inactive or not operational</td>
</tr>
<tr>
<td>27</td>
<td>1 = Demagnetizing not completed</td>
</tr>
<tr>
<td>28</td>
<td>1 = Brake open missing</td>
</tr>
<tr>
<td>...</td>
<td>Reserved</td>
</tr>
<tr>
<td>30</td>
<td>1 = Speed controller inhibited</td>
</tr>
<tr>
<td>31</td>
<td>1 = Jog setpoint active</td>
</tr>
</tbody>
</table>

**Fault with OFF3 response**

- 0 = Internal fast stop
- 1 = Internal RFG enable

**Bits 0046.0 to 0046.31**

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Missing enable sig</th>
</tr>
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<tbody>
<tr>
<td>0046.0</td>
<td>r0046</td>
</tr>
<tr>
<td>0046.1</td>
<td>r0046</td>
</tr>
<tr>
<td>0046.2</td>
<td>r0046</td>
</tr>
<tr>
<td>0046.3</td>
<td>r0046</td>
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<tr>
<td>0046.4</td>
<td>r0046</td>
</tr>
<tr>
<td>0046.10</td>
<td>r0046</td>
</tr>
<tr>
<td>0046.11</td>
<td>r0046</td>
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<td>0046.12</td>
<td>r0046</td>
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<td>0046.16</td>
<td>r0046</td>
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<tr>
<td>0046.17</td>
<td>r0046</td>
</tr>
<tr>
<td>0046.18</td>
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<td>0046.19</td>
<td>r0046</td>
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<td>0046.20</td>
<td>r0046</td>
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</table>

SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC

12.12.2012 V4.6 SINAMICS G120C
2.10 Brake control

Function diagrams

2701 – Basic brake control 2-370
Fig. 2-56  2701 – Basic brake control

1. Motor holding brake configuration (p1215)
   0 = No motor holding brake being used.
   1 = Motor holding brake acc. to sequence control.
   2 = Motor holding brake always released.
   3 = Motor holding brake like sequence control, connection via BICO.


3. If p1215 = 0, 2 -> t = 0 ms.

4. Only if Safety Integrated is active.

5. Monitoring time is initialized in dependence on the rated power of Power Module.

6. If an external motor holding brake is used, p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

7. The signal generation is shown simplified.

8. The internal signal includes signals that lead to OFF1 or OFF3 (e.g., BICO or fault response).

<8> Monitoring time is initialized in dependence on the rated power of Power Module.
<8> If an external motor holding brake is used, p1215 should be set to 3 and r0899.12 should be interconnected as control signal.
<7> r0046.21 = 0, as long as r0046.0 = 1 (OFF1 enable missing or switching on inhibited).
r0046.21 = 1, if p0858 = 1 or p0856 = 0.
The signal generation is shown simplified.
<8> The internal signal includes signals that lead to OFF1 or OFF3 (e.g., BICO or fault response).
<9> If the brake is permanently applied or released (p0855, p0858 or p1215), the drive does not wait while the brake is released or applied.
<10> Start frequency with U/f control: p1351, p1352 [6310.6]; Start torque with vector control: p1475 [6040.3]

---

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Basic braking control</td>
<td>fp_2701_97_05.vsd</td>
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</table>
2.11 Safety Integrated Basic Functions

Function diagrams

<table>
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</thead>
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<td>2-372</td>
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<td>2-373</td>
</tr>
<tr>
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<td>2-374</td>
</tr>
<tr>
<td>2810 – STO: Safe Torque Off</td>
<td>2-375</td>
</tr>
<tr>
<td>2812 – F-DI: Fail-safe digital input</td>
<td>2-376</td>
</tr>
</tbody>
</table>
Changing safety parameters

Safety parameterizing enable

Safety Integrated commissioning
p0010 = 95
SI password inp p9761
SI password new p9762
SI ackn password p9763

Effective password

Safety parameters can be changed.

Checksum check for safety parameters

Safety parameters are valid.

Resetting safety parameters

Inhibit safety functions

Safety parameters can be reset to the factory settings via p0970, p3900.

SI act chksm P1 p9798
SI setp_chksm P1 p9799
SI act chksm P2 p9898
SI setp_chksm P2 p9899

p0010 unequal 95
Exit safety commissioning mode

SI enable fct P1 p9601 = 0 [2810.3]
SI enable fct P2 p9801 = 0 [2810.3]
Fig. 2-59 2804 – Status words

<table>
<thead>
<tr>
<th>Bit No.</th>
<th>Status (Processor 1)</th>
<th>Bit No.</th>
<th>Status (Processor 2)</th>
<th>Bit No.</th>
<th>Status (Processor 1 + Processor 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[2810.4]</td>
<td>0 1 = STO selected on Processor 1</td>
<td>[2810.4]</td>
<td>0 1 = STO selected on Processor 2</td>
<td>[2810.4]</td>
<td>0 1 = STO selected in drive</td>
</tr>
<tr>
<td>[2810.7]</td>
<td>1 1 = STO active on Processor 1</td>
<td>[2810.6]</td>
<td>1 1 = STO active on Processor 2</td>
<td>[2810.6]</td>
<td>1 1 = STO active in drive</td>
</tr>
<tr>
<td>...</td>
<td>Reserved</td>
<td>...</td>
<td>Reserved</td>
<td>...</td>
<td>Reserved</td>
</tr>
<tr>
<td>[2810.8]</td>
<td>7 1 = STO terminal state on Processor 1</td>
<td>[2810.2]</td>
<td>7 1 = STO terminal state on Processor 2</td>
<td>[2810.5]</td>
<td>31 1 = The shutdown paths must be tested</td>
</tr>
<tr>
<td>[2810.2]</td>
<td>8 Reserved</td>
<td>[2810.5]</td>
<td>8 Reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[2810.7]</td>
<td>9 1 = STOP A cannot be acknowledged, active</td>
<td>[2802.7]</td>
<td>9 1 = STOP A cannot be acknowledged, active</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[2810.8]</td>
<td>10 1 = STOP A active</td>
<td>[2802.8]</td>
<td>10 1 = STOP A active</td>
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<td></td>
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<tr>
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<td>Reserved</td>
<td>...</td>
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<td>[2810.5]</td>
<td>15 1 = STOP F active</td>
<td>[2802.5]</td>
<td>15 1 = STOP F active</td>
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<tr>
<td>[2800.3]</td>
<td>16 1 = STO cause: Safety commissioning mode</td>
<td>[2800.3]</td>
<td>16 1 = STO cause: Safety commissioning mode</td>
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</tr>
<tr>
<td>[2810.5]</td>
<td>17 1 = STO cause: selection via terminal</td>
<td>[2810.2]</td>
<td>17 1 = STO cause: selection via terminal</td>
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<tr>
<td>[2810.2]</td>
<td>18 1 = STO cause: selection via motion monitoring functions</td>
<td>[2810.2]</td>
<td>18 1 = STO cause: selection via motion monitoring functions</td>
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</tr>
<tr>
<td>[2819.8]</td>
<td>19 1 = STO cause: actual value missing</td>
<td>[2810.2]</td>
<td>19 Reserved</td>
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</tr>
<tr>
<td>[2810.2]</td>
<td>20 1 = STO cause: selection PROFIsafe</td>
<td>[2810.2]</td>
<td>20 1 = STO cause: selection PROFIsafe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Status (Processor 1 + Processor 2) and Status (Processor 2) are not shown in the diagram.
Fig. 2-60 2810 – STO: Safe Torque Off

1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9772.17 [2804.1]]
1 = STO selected on P1 [2802.2] [2804.2]
1 = STOP selected on P1 [r9772.0]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9772.18 [2804.2]]

<2> 1 = Safety commissioning mode [2800.3]
1 = STO cause: selection via terminal [r9872.17 [2804.4] [2802.4]]
1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9872.7 [2802.2] [2802.2]]
1 = STO cause: selection via proactive monitoring functions [r9872.20 [2804.4]]
1 = STO cause: selection via proactive monitoring functions [r9872.20 [2804.4]]
1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9872.18 [2804.2] [2804.2]]

<1> Switch-on delay starts when the *request pulse suppression P1* is withdrawn.
<2> Redundant functions in the Processor 1 (P1) and Processor 2 (P2).
<3> Transistors inhibited for a "0" signal.
STO: Safe Torque Off

Processor 1

CU DI status [r0772] [r0772.4]
Enable STO via terminals (P1) [0 = Select PROFIsafe via STO]
PROFIsafe enabled for dbSI0 (p9801.2 = 0 and p9801.3 = 1) (P1)
0 = Select PROFIsafe via STO
1 = STO cause: selection via terminal [r9772.17 [2804.1]]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STO release [2825.8]
Si enable, functions integrated in the drive (p9601 ≠ 0)

Processor 2

CU DI status [r0772] [r0772.5]
Enable STO via terminals (P2) [0 = Select PROFIsafe via STO]
PROFIsafe enabled for dbSI0 (p9801.2 = 0 and p9801.3 = 1) (P2)
0 = Select PROFIsafe via STO
1 = STO cause: selection via terminal [r9872.17 [2804.4] [2802.4]]
1 = STO cause: selection via proactive monitoring functions [r9872.20 [2804.4]]
1 = STO release [2825.8]
Si enable, functions integrated in the drive (p9801 ≠ 0)

Fig. 2-60 2810 – STO: Safe Torque Off

Upper IGBT bridge halve
Gating unit
Upper IGBT bridge halve
Gating unit

0 = Request Pulse suppression P1
0 = Request pulse suppression P2

SI F-DI_chg tol P1 0.00 ... 2000.00 [ms] p9659 (500.00) 1 = SI status P1+P2 r9773 [2804.2]
[2802.1] DIAG_L
[2802.1] DIAG_U

<3> 1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9772.17 [2804.1]]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STO release [2825.8]
Si enable, functions integrated in the drive (p9601 ≠ 0)

1 = STO cause: selection via terminal [r9772.17 [2804.1]]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STOP A [2802.8]
1 = STO selected on P1 [2802.2] [2804.2]
1 = STOP selected on P1 [r9772.0]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STO cause: selection via proactive monitoring functions [r9772.20 [2804.1]]
1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9872.18 [2804.2] [2804.2]]

1 = Safety commissioning mode [2800.3]
1 = STO cause: selection via terminal [r9872.17 [2804.4] [2802.4]]
1 = STO cause: selection via proactive monitoring functions [r9872.20 [2804.4]]
1 = STOP A [2802.8]
1 = STO selected on P2 [2802.2] [2804.4]
1 = STOP selected on P2 [r9872.6]
1 = STO cause: selection via proactive monitoring functions [r9872.20 [2804.4]]
1 = STO cause: selection via proactive monitoring functions [r9872.20 [2804.4]]
1 = STOP A [2802.8]
1 = STO cause: selection via terminal [r9872.18 [2804.2] [2804.2]]

1 = Safety commissioning mode [2800.3]
Fig. 2-61 2812 – F-DI: Fail-safe digital input

Safety Integrated Basic Functions

F-DI: Fail-safe Digital Input

<table>
<thead>
<tr>
<th>1</th>
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<th>3</th>
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<tbody>
<tr>
<td>Safety Integrated Basic Functions</td>
<td>fp_2812_97_66.vsd</td>
<td>Function diagram</td>
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<td>F-DI (Fail-safe Digital Input)</td>
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2.12 Safety Integrated PROFIsafe

Function diagrams

2915 – Standard telegrams  2-378
## Function Diagrams

### Standard Telegrams

<table>
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<td>PZD1</td>
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<td>PZD2</td>
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<td>PZD4</td>
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<td>PZD5</td>
</tr>
<tr>
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<td>PZD30</td>
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<tr>
<td>PZD31</td>
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<tr>
<td>PZD32</td>
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</tbody>
</table>

### Interconnection

- Telegram selection is made according to

### Manufacturer

**Siemens AG**

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- 2915 -
## 2.13 Setpoint channel

### Function diagrams

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<tr>
<th>Function</th>
<th>Description</th>
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<tbody>
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<td>Overview</td>
<td>2-380</td>
</tr>
<tr>
<td>3010</td>
<td>Fixed speed setpoints, binary selection (p1016 = 2)</td>
<td>2-381</td>
</tr>
<tr>
<td>3011</td>
<td>Fixed speed setpoints, direct selection (p1016 = 1)</td>
<td>2-382</td>
</tr>
<tr>
<td>3020</td>
<td>Motorized potentiometer</td>
<td>2-383</td>
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<tr>
<td>3030</td>
<td>Main/supplementary setpoint, setpoint scaling, jogging</td>
<td>2-384</td>
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<tr>
<td>3040</td>
<td>Direction limitation and direction reversal</td>
<td>2-385</td>
</tr>
<tr>
<td>3050</td>
<td>Skip frequency bands and speed limitations</td>
<td>2-386</td>
</tr>
<tr>
<td>3070</td>
<td>Extended ramp-function generator</td>
<td>2-387</td>
</tr>
</tbody>
</table>
Fig. 2-63  3001 – Overview

Setpoint channel overview:

1. Main setpoint
2. Supplementary setpoint
3. Setpoint scaling, jogging
4. Ramping function generator
5. Direction limitation and direction reversal
6. Skip (suppression) bandwidth and speed limiting
7. Ramp-function generator
8. Motorized potentiometer

- Fixed speed setpoints, binary
- Extended ramp-function generator
- Ramp function generator
- Mop setpoint after RFG [1/min]
- Main/supplementary setpoint
- Jogging 1 n_set
- Jogging 2 n_set
- RFG setpoint at input
- RFG setpoint at output
- STW seq_ctrl
- Setpoint after limit
- Lower limit
- Upper limit
- RFG setpoint sum
- M_limit
- N_set_fixed eff [1/min]
- Jog 1 in set
- Jog 2 in set
- Jog + in set

Parameters:
- p1070 [C]
- p1075 [C]
- r1024
- p1058 [D]
- p1059 [D]
- r1114
- r1119
- r1438
- r1170
- r0898

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Fig. 2-64  3010 – Fixed speed setpoints, binary selection (p1016 = 2)

Setpoint channel

Function diagrams
Fig. 2-65  
3011 – Fixed speed setpoints, direct selection (p1016 = 1)
The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.

The setpoint for the motorized potentiometer is saved in an ashion after OFF and after ON set to the saved value.

-210000.000 ... 210000.000 [1/min]

MotP n_min

p1037 [D] (0.000)

MotP n_max

p1038 [D] (0.000)

Mop raise

p1035 [C] (0)

Mop lower

p1036 [C] (0)

Mop n_set bef RFG [1/min]

p1030.1 (0)

Mop setp after RFG [1/min]

p1030.2 (0)

MotP acc set val

p1043 [C]

Mop start value

p1040 [D] (0.000)

Mop ramp-down time

0.000 ... 1000.000 [s]

p1048 [D] (10.000)

Mop ramp-up time

0.000 ... 1000.000 [s]

p1047 [D] (10.000)

For automatic commissioning, p1037 and p1038 are set to the maximum motor frequency or to the rated motor frequency, provided that f_max has not been specified.

If initial rounding is active (p1025.2 = 1), the selected ramp-up/down times are exceeded accordingly.

Only effective if p1025.0 = 0.

The ramp-up encoder is calculated independently of the pulse enable.

Ramp-up encoder inactive, active with pulse inhibit. The ramp-up encoder is calculated independently of the pulse enable.

Data save active 0

Automatic mode 0

Ramp-function generator active 0

Initial rounding off active 0

Save in NVRAM active 0

The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.

The setpoint for the motorized potentiometer is saved in an ashion after OFF and after ON set to the saved value.

-210000.000 ... 210000.000 [1/min]

MotP n_min

p1037 [D] (0.000)

MotP n_max

p1038 [D] (0.000)

Mop raise

p1035 [C] (0)

Mop lower

p1036 [C] (0)

Mop n_set bef RFG [1/min]

p1030.1 (0)

Mop setp after RFG [1/min]

p1030.2 (0)

MotP acc set val

p1043 [C]

Mop start value

p1040 [D] (0.000)

Mop ramp-down time

0.000 ... 1000.000 [s]

p1048 [D] (10.000)

Mop ramp-up time

0.000 ... 1000.000 [s]

p1047 [D] (10.000)

For automatic commissioning, p1037 and p1038 are set to the maximum motor frequency or to the rated motor frequency, provided that f_max has not been specified.

If initial rounding is active (p1025.2 = 1), the selected ramp-up/down times are exceeded accordingly.

Only effective if p1025.0 = 0.

The ramp-up encoder is calculated independently of the pulse enable.

Ramp-up encoder inactive, active with pulse inhibit. The ramp-up encoder is calculated independently of the pulse enable.

Data save active 0

Automatic mode 0

Ramp-function generator active 0

Initial rounding off active 0

Save in NVRAM active 0

The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.
<1> Jogging can only be activated in the operating state "Ready for switching on".

<2> =1 if technology controller is activated (p2200 > 0, p2251 = 0).

<3> The connection to the source for the main and additional setpoint is established automatically via the setting in p1000.

<table>
<thead>
<tr>
<th>Setpoint channel</th>
<th>Function diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main/supplementary setpoint, setpoint scaling, jogging</td>
<td>3030 - Main/supplementary setpoint, setpoint scaling, jogging</td>
</tr>
</tbody>
</table>
Setpoint channel

Function diagrams

Fig. 2-68  3040 – Direction limitation and direction reversal

Direction limitation and direction reversal

Setpoint channel

Function diagrams
A suppression frequency of 0 de-activates the suppression frequency bandwidth.

The setting range of p1082 is limited to f_max_mot.

If the drive is not stopped via the input setpoint, but via controlled intervention, the lower hysteresis branch is relevant after a subsequent run-up.
Fig. 2-70  
3070 - Extended ramp-function generator

**Function diagram**

1. **Setpoint channel**
   - **Function diagrams**

2. **Up ramp scaling**
   - **p1138 [C]**

3. **STW setpoint chan**
   - **p1198**
     - 1 = Bypass ramp-function generator
   - **p1198.15**
     - **p0889**
       - **p1082**
         - **x**

4. **STW seq ctrl**
   - **p0889**
     - 0 = Freeze ramp-function generator
   - **p1089**
     - **x**

5. **RFG setp at inp [1/min]**
   - **p1119**
     - **p3050.8**

6. **Freeze ramp-function generator**
   - **p1198**
     - **x**

7. **FRG round-off type**
   - **p1134 [D]**

8. **Effective ramp-up time**
   - **Tup_eff = Tup + (IR/2 + FR/2)**

9. **Effective ramp-down time**
   - **Tdn_eff = Tdn + (IR/2 + FR/2)**

10. **Rounding-off is always active. Overshoots can occur.**

11. **p1134 = 0: Rounding-off is not effective when the setpoint is suddenly reduced during ramp-up.**

12. **With activated Technology controller (p2200 > 0, p2251 = 0) the ramp-function generator is bypassed.**

13. **Value range and/or factory setting depend on Power Module.**

---

**Table: 3070 - Extended ramp-function generator**

| Setpoint channel | fp_3070_97_05.vsd | Function diagram | 12.12.2012 V4.6 | SINAMICS G120C | - 3070 - |
2.14 Vector control

Function diagrams

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Fig. 2-72 6040 – Speed controller

1 = Kp/Tn adaptation active
1 = Automatic Kp/Tn adaptation active
Dynamic reduction, field weakening

Vector control
SINAMICS G120C
12.12.2012 V4.6

For p1472 = 0.0 s or 100.0 s, the I component is inhibited (integral action time = infinite).

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<td>- 6040 -</td>
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</table>
<1> Acceleration control is inhibited for p1517 = 100 ms.
<2> M_set is also influenced by the speed limit controller.
Fig. 2-74 6220 – Vdc_max controller and Vdc_min controller

Vdc_max (Vector control)
- Calculate on_level
- Vdc_act val [V]
  - r0070
- Vdc_max SenseOnLev
  - 0...1
  - p1254 (1)
- V_connect
  - 1...63000 [V]
  - p0210 (400)
- Vdc_max on_level [V]
  - r1242
- Vdc_ctrl output [Aeff]
- Operating point selection
- Vdc_max dyn_factor
  - 1...10000 [%]
  - p1243 [D] (100)
- ZSW cl-loop ctrl
  - 0056
  - p0056.14 [2526.2]

Vdc_min (Vector control)
- Calculate on_level
- Vdc_act val [V]
  - r0070
- Vdc_min SenseOnLev
  - 0...1
  - p1245 [D] (76)
- V_connect
  - 1...63000 [V]
  - p0210 (400)
- Vdc_min on_level [V]
  - r1248
- Vdc_min dyn_factor
  - 1...10000 [%]
  - p1247 [D] (300)
- ZSW cl-loop ctrl
  - 0056
  - p0056.19 [2526.2]

<1> p1240
- 0: Inhib Vdc ctrl
- 1: Enable Vdc_max controller
- 2: Enable Vdc_min controller (kinetic buffering)
- 3: Enable Vdc_min controller and Vdc_max controller
Fig. 2-75

6300 – V/f characteristic and voltage boost

Vector control

Linear
Mot U rated p0304
U output max r0071
Mot U_rated p0304
U_output max [Veff]
r0071

Parabolic
Mot I rated
0.00 ... 650.00 [Hz]
p0310 [D] (0.00)
U_output max r0071
Mot U_rated p0304

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SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC
Function diagrams

Vector control

SINAMICS G120C

Resonance damping and slip compensation (U/f)

U/f resonance damping

U/f slip compensation

- Fig. 2-76 -

- 6310 -

- Resonance damping and slip compensation (U/f) -

1. If p1349 = 0: the limit is 0.95 x f Mot N <= 45 Hz.
2. Activation with r0056.4 = 1 till r0066 => p1334 and p1216 has expired.

100 % equal r0330 (Rated motor slip)

100 % equal r0330 (Rated motor slip)

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</table>
Vector control

Function diagrams

Vdc_max (U/f control)

Vdc_min (U/f control)

<1> p1280
0: Inhib Vdc ctrl
1: Enable Vdc_max controller
2: Enable Vdc_min controller (kinetic buffering)
3: Enable Vdc_min controller and Vdc_max controller

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Upper torque limit

Danger: Negative values at <1> represent a minimum torque for the other torque direction and can cause the motor to accelerate uncontrollably.

Lower torque limit

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fp_6630_97_05.vsd

Function diagram

- 6630 -

SINAMICS G120C

12.12.2012 V4.6
**Current limiting**

- **U_output max [Veff]**
- **Iq max calculation**
- **Iq stall calculation**
- **Iq_max total [Aeff]**

**Power limiting**

- **P_max gen**
- **P_max mot**

**Speed limiting**

- **Kp from speed controller [6040.5]**
- **Tn from speed controller [6040.6]**

**Intervention when the speed limit is exceeded + 2 % n_rated.**

---

1. **Current limiting control active**
2. **Speed limiting control**

---

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Function diagram: `fp_6640_97_05.vsd`

Function diagram: 12.12.2012 V4.6

SINAMICS G120C
Function diagrams

Fig. 2-80 6710 - Current setpoint filter

Vector control

SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC

Current setpoint filter

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fp_6710_97_05.vsd Function diagram

12.12.2012 V4.6 SINAMICS G120C
Fig. 2-81
6714 – Iq and Id controllers

Pre-control, de-coupling and limiting

Id current controller

Iq current controller

Symmetrizing

Kp, Tn

Pre-control, de-coupling and limiting

Id_set total

Iq_set [Aeff]

Id_set [Aeff]

Id_act [Aeff]

Id_set [Aeff]

Id_act [Aeff]

U_set

U_soll

U_angle

ZSW cl-loop ctrl

Direct U set [Veff]

Quad U set [Veff]

Coordinate converter

ZSW cl-loop ctrl

Function control

Symmetrizing

Phase U

Phase V

Phase W

For induction motors

For synchronous motors

Is set automatically at the end of commissioning.

Table:

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Function diagrams

Vector control

From Id_field weakening

Load angle for synchronous motors 90°

Load angle correction

\[ \sqrt{l_{abs}} - I_q^* \]

\[ \sqrt{l_{abs}} - I_q^* \]

Load angle for synchronous motors 90°

Id_set

MIN

40 [ms]

To current controller

Id_set

Id_inject

from the model control

\( r1407.2 \)

Motor reluctance torque constant

Motor leakage inductance, total

Motor stator inductance, d axis

Motor model deviation component 1

Torque setting value, speed controller

Mot_t_excitation

0.000 ... 20.000 [s]

p0346 [D] (0.000)

M_set static

-200.0 ... 200.0 [%]

p1610 [D] (50.0)

M_set acceleration

0.0 ... 200.0 [%]

p1611 [D] (30.0)

M_set static

-200.0 ... 200.0 [%]

p1610 [D] (50.0)

M_set acceleration

0.0 ... 200.0 [%]

p1611 [D] (30.0)

M adaptation

labs

MAX

labs_sum

M

\( r1538 \)

Motor model deviation component 1

\( r1539 \)

\( r1515 \) M_suppl total

\( r1624 \)

PEM: Permanent-magnet synchronous motor

Mot t_excitation

0.000 ... 20.000 [s]

p0346 [D] (0.000)

M_set static

-200.0 ... 200.0 [%]

p1610 [D] (50.0)

M_set acceleration

0.0 ... 200.0 [%]

p1611 [D] (30.0)

M adaptation

labs

MAX

labs_sum

M

\( r1538 \)

Motor model deviation component 1

\( r1539 \)

\( r1515 \) M_suppl total

\( r1624 \)

PEM: Permanent-magnet synchronous motor
Fig. 2-83  6722 – Field weakening characteristic, Id setpoint (ASM, p0300 = 1)

- Value range and/or factory setting depend on Power Module.  

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ASM: Induction motor

- 6722 -
Fig. 2-84 6723 – Field weakening controller, flux controller (ASM, p0300 = 1)

Function diagrams

Vector control

Calculation, max. modulation depth

U_max 1

U_output max [Veff]

Voltage reserve dynamic [10.0 V]

Field weakening controller integral-action time [300 ms]

Saturation characteristic

Flux setpoint smoothed

Flux setpoint differentiated active

Quick magnetizing active

Id current limit

ASM: Induction motor

1 2 3 4 5 6 7 8

Vector control

Field weakening controller, flux controller (ASM, p0300 = 1)

fp_6723_97_05.vsd 12.12.2012 V4.6 SINAMICS G120C
Control Unit

Power Module

Fig. 2-87 6731 – Interface to the Power Module (PEM, p0300 = 2)

1 2 3 4 5 6 7 8

Vector control

Interface to the Power Module (PEM, p0300 = 2)

Function diagrams

- 6731 -
2.15 Technology functions

Function diagrams

7017 – DC braking (p0300 = 1)
Function diagrams

Technology functions

SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC

Fig. 2-89 7017 – DC braking (p0300 = 1)

- 7017 -

Function diagram
fp_7017_97_05.vsd  01/2013

Technology functions

1  2  3  4  5  6  7  8

1  Technology functions
2  DC brake (p0300 = 1)
3  fp_7017_97_05.vsd  01/2013
4  Function diagram
5  12.12.2012 V4.6  SINAMICS G120C

1 The de-magnetization time is determined during automatic calculation (p0340 = 1, 3).
2 The DC braking current is determined during automatic calculation (p0340 = 1).
3 DC braking when starting speed for DC braking (p1234) is fallen below.

- 7017 -
2.16 Technology controller

Function diagrams

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<td>Fixed value selection direct (p2216 = 1)</td>
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Fig. 2-91 - Fixed value selection direct (p2216 = 1)

Fixed values, direct selection (p2216 = 1)

- Tec_ctr FixVal eff [%]
- Tec_ctr fix val 1: -200.00 ... 200.00 [%]
  p2201 [D] (10.00)
- Tec_ctr fix val 2: -200.00 ... 200.00 [%]
  p2202 [D] (20.00)
- Tec_ctr fix val 3: -200.00 ... 200.00 [%]
  p2203 [D] (30.00)
- Tec_ctr fix val 4: -200.00 ... 200.00 [%]
  p2204 [D] (40.00)

- Tec_ctr FixVal ZSW
  r2225

- Tec_ctrl sel bit 0
  p2220 [C] (0)
- Tec_ctrl sel bit 1
  p2221 [C] (0)
- Tec_ctrl sel bit 2
  p2222 [C] (0)
- Tec_ctrl sel bit 3
  p2223 [C] (0)

- Tec_ctr FixVal sel
  p2216 [D] (1)

<1> Binary selection [7950]

Function diagrams
The setpoint for the motorized potentiometer is not saved and after ON is entered using p2240.

The setpoint for the motorized potentiometer is saved after OFF and after ON is entered using r2231.

Without initial rounding.

With initial rounding. The ramp-up/down time set is exceeded accordingly.

Non-volatile data save not activated

Non-volatile data save active (p2230.0 = 1)

Ramp-up encoder active with pulse inhibit.

The ramp-up encoder is calculated independently of the pulse enable.

For p2230.0 = 0, this setpoint is entered after ON.

If initial rounding-off is active (p2230.2 = 1), the selected ramp-up/down times are exceeded accordingly.
Fig. 2-93  7958 – Closed-loop control

The start value p2302 is only used in mode p2251 = 0 (Technology controller as speed main setpoint). After enable of technology controller the start value is present as long as the RFG output reaches this value.

I component stop, only when r2294 is below the minimum speed or within a suppression bandwidth.

Signal = 0 --> factor = 0, when setpoint from external OP or operating tool
2.17 Signals and monitoring functions

Function diagrams

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8010 – Speed signals 1 2-416
8011 – Speed signals 2 2-417
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Signals and monitoring functions

Function diagram

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Fig. 2-95
8010 – Speed signals 1

Signals and monitoring functions

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Fig. 2-96  8011 – Speed signals 2

Signals and monitoring functions

Function diagrams

1  2  3  4  5  6  7  8

Signals and monitoring functions  fp_8011_97_05.vsd  Function diagram
Speed signals 2  12.12.2012 V4.6  SINAMICS G120C

- 8011 -
Motor locked detection or motor locked monitoring function (not for closed-loop torque control)

\[ x_1 > x_2 = y = 1 \] (positive torque requested)

Requested torque

Actual torque limit

Motor locked detection or motor locked monitoring function (not for U/f control)

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Signals and monitoring functions

Thermal monitoring, power module

Function diagrams

Function diagram - 8014 -

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Signals and monitoring functions

Thermal monitoring, motor

Fig. 2-99  8016 – Thermal monitoring, motor

For KTY and “no sensor”, temperature as defined in the model.

The relevant rated response temperature in °C depends on the temperature sensor chosen by the motor manufacturer.

-250 °C 0 °C 140 °C

Sensor type

Fault response

Supress fault with p0610 = 0

Motor overtemperature

Motor overtemperature

I max reduction

Fault response

r0035

Mot temp [°C]

Mod 1/2 threshold

Mod temp [°C]

Mod temp [°C]

Mod temp [°C]

Mod temp [°C]

Mod temp [°C]

Mod temp [°C]

Mod temp [°C]

Mod temp [°C]

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Fig. 2-100 8017 – Thermal motor models

1 = Activate motor temperature model 1 (I2t)

2 = Activate motor temperature model 2 (for induction motor only)

3 = Motor weight th mod

4 = Mod T winding [°C]

5 = Motor I rated

6 = p0605 – 40 K x 100 [%]

<1> Only if there is a temperature sensor (p0601 = 2).
<2> Only if <1> are not met.
<3> The lower p0611 and the lower the reference current of the thermal motor model 1 (I2t), the faster A07012 is reached.
<4> p0605 also defines the target temperature for p0034 = 100 %.
Therefore, p0605 has no influence on the time up to alarm A07012.
<5> If p0610 = 12.

**Signals and monitoring functions**

<table>
<thead>
<tr>
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<th>2</th>
<th>3</th>
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<th>8</th>
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<tbody>
<tr>
<td><strong>Signals and monitoring functions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- 8017 -</td>
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<tr>
<td><strong>Thermal motor models</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>12.12.2012 V4.6 SINAMICS G120C</td>
</tr>
</tbody>
</table>
Fig. 2-102 8021 – Monitoring functions 2

Signals and monitoring functions

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<tr>
<td>Monitoring functions 2</td>
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<td>SINAMICS G120C</td>
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</table>
### 2.18 Faults and alarms

**Function diagrams**

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<th>Function Code</th>
<th>Description</th>
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<td>8050</td>
<td>Overview</td>
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<tr>
<td>8060</td>
<td>Fault buffer</td>
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<tr>
<td>8065</td>
<td>Alarm buffer</td>
<td>2-427</td>
</tr>
<tr>
<td>8070</td>
<td>Fault/alarm trigger word (r2129)</td>
<td>2-428</td>
</tr>
<tr>
<td>8075</td>
<td>Fault/alarm configuration</td>
<td>2-429</td>
</tr>
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</table>
Faults and warnings

Function diagrams

Faults and alarms

SINAMICS G120C List Manual (LH13), 01/2013, A5E03052632B AC

Fig. 2-103 8050 - Overview

Fault buffer

Alarm buffer

Fault/alarm trigger word

Fault/alarm configuration

Changes the fault response

Changing the acknowledge mode
Faults and alarms

- Fault buffer

Faults and warnings

Function diagrams

Fault code | Fault value | Fault time "received" | Fault time "removed"
--- | --- | --- | ---
Fault 1 | r0945[0] | r0948[0] | r2109[0]

Fault times

1. Acknowledged fault case
2. Fault disappears
3. Fault case acknowledge
4. Fault case appears
5. Delete fault buffer
6. 16 bit counter, free running
7. Fault buffer change [8065.6]
8. Fault responses to the sequence control
9. ZSW fault/alarm 1
10. Fault buffer change [8065.6]

Fault cases qty
0 ... 65535
Fault buffer change
Fault buffer is deleted/cleared
Fault code
Fault time "received"
Fault time "removed"
Fault value
Faults and warnings
Fault buffer

Faults and warnings

Fault buffer

Faults and warnings

Fault buffer
Faults and warnings

<table>
<thead>
<tr>
<th>Faults and warnings</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>fp_8065_97_05.vsd</td>
<td>Function diagram</td>
<td>- 8065 -</td>
<td></td>
</tr>
</tbody>
</table>

<1> The buffer parameters are updated cyclically in the background (see status signal in r2139).
### Faults and warnings

#### Fault/alarm trigger word (r2129)

- **Message trigger**
  - 0...65535
  - p2128 (0)

- **Trigger word**
  - r2129
  - r2129.0

- **Setting, fault/alarm trigger**

- **Fault/alarm code**
  - 0
  - 1
  - 15

- **Message/presentation present**
  - 0
  - 1
  - 15

### Notes

- Faults and warnings can be used as trigger conditions to record traces.
- Setting fault/alarm trigger (e.g., to enable logging of specific event conditions).
Changing the fault response for maximum 20 faults <1>

Fault response

0 = NONE
1 = OFF1
2 = OFF2
3 = OFF3
4 = STOP2
5 = STOP3
6 = IASC/DCBRK

Changing the acknowledge mode for maximum 20 faults <1>

Acknowledge mode

1 = Acknowledgment is only possible using POWER ON
2 = Acknowledgment IMMEDIATELY after the cause has been removed.

The fault response and acknowledge mode for all faults and alarms are set to meaningful default values in the factory setting. Changes are only possible in specific value ranges specified by SIEMENS.

When the message type is changed, the supplementary information is transferred from fault value r0949 to alarm value r2124 and vice versa.
2.19 Data sets

Function diagrams

- 8550 – Data set overview 2-431
- 8560 – Command Data Sets (CDS) 2-432
- 8565 – Drive Data Sets (DDS) 2-433
Example:
Change over command data set
CDS0 → CDS1

BI: p0810 = "0"
CDS0 selected
r0836.0 = 0

BI: p0810 = "1"
CDS1 selected
r0836.0 = 1

CDS0 effective
r0050.0 = 0
CDS1 effective
r0050.0 = 1

CDS select bit 0
p0810 (0)

CDS selected
r0836
r0836.0
r0836.1

Source CDS
p0809[0] (0)

Start copy process
p0809[2] (0)

Target CDS
p0809[1] (1)

CDS count
2   2
p0170 (2)

CDS0

CDS1

Note
Data sets can only be applied and cleared when p0010 = 15 is set.
A BICO interconnection to a parameter which is part of a drive data set always influences the currently effective data set.

Data sets can only be applied and cleared when p0010 = 15 is set.

<table>
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<th>1</th>
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<th>6</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Data sets</td>
<td>Drive Data Sets (DDS)</td>
<td>fp_8565_97_05.vsd</td>
<td>Function diagram</td>
<td>-8565-</td>
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<tr>
<td>12.12.2012 V4.6</td>
<td>SINAMICS G120C</td>
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</tbody>
</table>
Faults and alarms

Contents

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3.2 List of faults and alarms 3-445
3.1 Overview of faults and alarms

3.1.1 General information

Display of faults/alarms (messages)
If a fault occurs, the drive indicates the fault and/or alarm.

For example, the following methods for displaying faults and alarms are available:

- Display via the fault and alarm buffer with PROFIBUS/PROFINET
- Display online via the commissioning software
- Display and operating unit (e.g. BOP, AOP)

Differences between faults and alarms
The differences between faults and alarms are as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faults</td>
<td>What happens when a fault occurs?</td>
</tr>
<tr>
<td></td>
<td>- The appropriate fault reaction is initiated.</td>
</tr>
<tr>
<td></td>
<td>- Status signal ZSW1.3 is set.</td>
</tr>
<tr>
<td></td>
<td>- The fault is entered in the fault buffer.</td>
</tr>
<tr>
<td></td>
<td>How are faults eliminated?</td>
</tr>
<tr>
<td></td>
<td>- Remove the original cause of the fault.</td>
</tr>
<tr>
<td></td>
<td>- Acknowledge the fault.</td>
</tr>
</tbody>
</table>

| Alarms | What happens when an alarm occurs? |
|        | - Status signal ZSW1.7 is set. |
|        | - The alarm is entered in the alarm buffer. |
|        | How are alarms eliminated? |
|        | - 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:

Tabelle 3-2  Fault reactions

<table>
<thead>
<tr>
<th>List</th>
<th>PROFIdrive</th>
<th>Reaction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td>-</td>
<td>None</td>
<td>No reaction when a fault occurs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong></td>
<td>With the &quot;Basic positioner&quot; (r0108.4 = 1), the following applies:</td>
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<td></td>
<td>When a fault occurs with fault reaction &quot;NONE&quot;, an active traversing task</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>is interrupted and the system switches to tracking mode until the fault has</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>been rectified and acknowledged.</td>
</tr>
<tr>
<td>OFF1</td>
<td>ON/OFF</td>
<td>Brake along the ramp-function generator down ramp followed by pulse inhibit</td>
<td><strong>Closed loop speed control (p1300 = 20, 21)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• n_set = 0 is input immediately to brake the drive along the ramp-function</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>generator deceleration ramp (p1121).</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>• When zero speed is detected, the motor holding brake (if parameterized)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>is closed (p1215). The pulses are suppressed when the brake application</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>time (p1217) expires.</td>
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<td></td>
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<td></td>
<td>Zero speed is detected if the actual speed drops below the threshold</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>(p1226) or if the monitoring time (p1227) started when the speed setpoint</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>&lt;= speed threshold (p1226) has expired.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Torque control (p1300 = 22, 23)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The following applies to closed-loop torque control mode:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Reaction as for OFF2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• When the system switches to torque control with p1501, the following</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>applies:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>No separate braking reaction.</td>
</tr>
<tr>
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<td></td>
<td>If the actual speed value drops below the speed threshold (p1226) or the</td>
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<td></td>
<td>timer stage (p1227) has expired, the motor holding brake (if one is being</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>used) is closed. The pulses are suppressed when the brake application</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>time (p1217) expires.</td>
</tr>
<tr>
<td>OFF1 DELAYED</td>
<td>-</td>
<td>As for OFF1, however delayed</td>
<td>Faults with this fault reaction only become effective after the delay time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>in p3136 has expired.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The remaining time up to OFF1 is displayed in r3137.</td>
</tr>
<tr>
<td>OFF2</td>
<td>COAST STOP</td>
<td>Internal/external pulse inhibit</td>
<td><strong>Closed-loop speed and torque control</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Instantaneous pulse suppression, the drive &quot;coasts&quot; to a standstill.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The motor holding brake (if one is being used) is closed immediately.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Switching on inhibited is activated.</td>
</tr>
</tbody>
</table>
### Faults and alarms

#### Overview of faults and alarms

<table>
<thead>
<tr>
<th>List</th>
<th>PROFI-drive</th>
<th>Reaction</th>
<th>Description</th>
</tr>
</thead>
</table>
| OFF3       | QUICK STOP  | Brake along the OFF3 down ramp followed by pulse inhibit                                       | **Closed loop speed control (p1300 = 20, 21)**  
  - n_set = 0 is input immediately to brake the drive along the OFF3 down ramp (p1135).  
  - When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the brake application time (p1217) expires.  
  Zero speed is detected if the actual speed drops below the threshold (p1226) or if the monitoring time (p1227) started when the speed setpoint <= speed threshold (p1226) has expired.  
  - Switching on inhibited is activated.  
**Torque control (p1300 = 22, 23)**  
  - Changeover to speed-controlled operation and other reactions as described for speed-controlled operation. |
| STOP1      | -           | -                                                                                            | Under development.                                                                                                                                                                                                                                                                                                                                                                           |
| STOP2      | -           | n_set = 0                                                                                     | **n_set = 0 is input immediately to brake the drive along the OFF3 down ramp (p1135).**  
  **The drive remains in speed control mode.**                                                                                                                                                                                                                                                                                           |
| IASC/DCBRAKE | -          | -                                                                                            | **For synchronous motors, the following applies:**  
  If a fault occurs with this fault reaction, an internal armature short-circuit is triggered.  
  The conditions for p1231 = 4 must be observed.  
**For induction motors, the following applies:**  
  If a fault occurs with this fault reaction, DC braking is triggered.  
  DC braking must have been commissioned (p1230 to p1239).                                                                                                                                                                                                                |
| ENCODER    | -           | Internal/external pulse inhibit (p0491)                                                       | The fault reaction ENCODER is applied as a function of the setting in p0491.  
  **Factory setting:**  
  p0491 = 0 --> Encoder fault causes OFF2  
**Notice:**  
When changing p0491, it is imperative that the information in the description of this parameter is carefully observed.                                                                                                                                                    |
Acknowledging faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been remedied.

Tabelle 3-3 Acknowledgement of faults

<table>
<thead>
<tr>
<th>Acknowledgement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER ON</td>
<td>The fault is acknowledged by a POWER ON process (switch drive unit off and on again).</td>
</tr>
<tr>
<td></td>
<td>Note: If this action has not eliminated the fault cause, the fault is displayed again immediately after power-up.</td>
</tr>
</tbody>
</table>

IMMEDIATELY

Faults can be acknowledged on one drive object (Points 1 to 3) or on all drive objects (Point 4) as follows:

1. Acknowledge by setting parameter:
   \[ p3981 = 0 \rightarrow 1 \]
2. Acknowledge via binector inputs:
   \[ p2103 \quad p2104 \quad p2105 \]
   - BI: 1. Acknowledge faults
   - BI: 2. Acknowledge faults
   - BI: 3. Acknowledge faults
3. Acknowledge using PROFIBUS control signal:
   \[ STW1.7 = 0 \rightarrow 1 \text{ (edge)} \]

Note:
- These faults can also be acknowledged by a POWER ON operation.
- If this action has not eliminated the fault cause, the fault will continue to be displayed after acknowledgment.
- Safety Integrated faults
  The "Safe Torque Off" (STO) function must be deselected before these faults are acknowledged.

PULSE INHIBIT

The fault can only be acknowledged with a pulse inhibit (r0899.11 = 0).
The same possibilities are available for acknowledging as described under acknowledge IMMEDIATELY.
3.1.2 Explanation of the list of faults and alarms

The data in the following example has 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 (See Section 3.2) is structured as follows:

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

<table>
<thead>
<tr>
<th>Axxxxx (F, N)</th>
<th>Fault location (optional): Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledgment:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>Description of possible causes</td>
</tr>
<tr>
<td></td>
<td>Fault value (r0949, interpret format): or alarm value (r2124, interpret format): (optional)</td>
</tr>
<tr>
<td></td>
<td>Information about fault or alarm values (optional)</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Description of possible remedies</td>
</tr>
</tbody>
</table>

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

Axxxxx    Alarm xxxxx
Axxxxx (F, N) Alarm xxxxx (message type can be changed to F or N)
Fxxxxx     Fault xxxxx
Fxxxxx (A, N) Fault xxxxx (report type can be changed to A or N)
Nxxxxx     No message
Nxxxxx (A) No message (message type can be changed to A)
Cxxxxx     Safety message (separate message buffer)

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".
- C means "Safety message"

The optional parentheses indicate whether the type specified for this message can be changed and which message types can be adjusted via parameters (p2118, p2119).

Information on reaction and acknowledgment is specified independently for a message with an adjustable message type (e.g. reaction to F, acknowledgment for F).
Overview of faults and alarms

Faults and alarms

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Note:
You can change the default properties of a fault or alarm by setting parameters.

References: /BA7/ SINAMICS G120 Operating Instructions
SINAMICS G120C Frequency Converter,
Section "Alarms, faults, and system messages"

The list of faults and alarms (see Section 3.2) provides information in relation to the properties of a message that have been set as standard. 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).

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 3-2

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 3-3
Faults and alarms

Overview of faults and alarms

Cause:

Describes 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 eliminating the cause of the active fault/alarm

Alarm

In certain cases, servicing and maintenance personnel are responsible for choosing a suitable method for eliminating the cause of faults.
3.1.3 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 Section 3.2.

Faults and alarms are organized into the following number ranges:

<table>
<thead>
<tr>
<th>from</th>
<th>to</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>3999</td>
<td>Control Unit</td>
</tr>
<tr>
<td>4000</td>
<td>4999</td>
<td>Reserved</td>
</tr>
<tr>
<td>5000</td>
<td>5999</td>
<td>Power unit</td>
</tr>
<tr>
<td>6000</td>
<td>6899</td>
<td>Infeed</td>
</tr>
<tr>
<td>6900</td>
<td>6999</td>
<td>Braking Module</td>
</tr>
<tr>
<td>7000</td>
<td>7999</td>
<td>Drive</td>
</tr>
<tr>
<td>8000</td>
<td>8999</td>
<td>Option Board</td>
</tr>
<tr>
<td>9000</td>
<td>12999</td>
<td>Reserved</td>
</tr>
<tr>
<td>13000</td>
<td>13020</td>
<td>Licensing</td>
</tr>
<tr>
<td>13021</td>
<td>13099</td>
<td>Reserved</td>
</tr>
<tr>
<td>13100</td>
<td>13102</td>
<td>Know-how protection</td>
</tr>
<tr>
<td>13103</td>
<td>19999</td>
<td>Reserved</td>
</tr>
<tr>
<td>20000</td>
<td>29999</td>
<td>OEM</td>
</tr>
<tr>
<td>30000</td>
<td>30999</td>
<td>DRIVE-CLiQ component power unit</td>
</tr>
<tr>
<td>31000</td>
<td>31999</td>
<td>DRIVE-CLiQ component encoder 1</td>
</tr>
<tr>
<td>32000</td>
<td>32999</td>
<td>DRIVE-CLiQ component encoder 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>33000</td>
<td>33999</td>
<td>DRIVE-CLiQ component encoder 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>34000</td>
<td>34999</td>
<td>Voltage Sensing Module (VSM)</td>
</tr>
<tr>
<td>35000</td>
<td>35199</td>
<td>Terminal Module 54F (TM54F)</td>
</tr>
<tr>
<td>from</td>
<td>to</td>
<td>Range</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>35200</td>
<td>35999</td>
<td>Terminal Module 31 (TM31)</td>
</tr>
<tr>
<td>36000</td>
<td>36999</td>
<td>DRIVE-CLiQ Hub Module</td>
</tr>
<tr>
<td>37000</td>
<td>37999</td>
<td>HF Damping Module</td>
</tr>
<tr>
<td>40000</td>
<td>40999</td>
<td>Controller Extension 32 (CX32)</td>
</tr>
<tr>
<td>41000</td>
<td>48999</td>
<td>Reserved</td>
</tr>
<tr>
<td>49000</td>
<td>49999</td>
<td>SINAMICS GM/SM/GL</td>
</tr>
<tr>
<td>50000</td>
<td>50499</td>
<td>Communication Board (COMM BOARD)</td>
</tr>
<tr>
<td>50500</td>
<td>59999</td>
<td>OEM Siemens</td>
</tr>
<tr>
<td>60000</td>
<td>65535</td>
<td>SINAMICS DC MASTER (DC control)</td>
</tr>
</tbody>
</table>
3.2 List of faults and alarms

Objects: G120C_CAN, G120C_DP, G120C_PN, G120C_USS

F01000 Internal software error
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
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
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
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.

F01003 Acknowledgement delay when accessing the memory
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.
### Faults and alarms

#### List of faults and alarms

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
<th>Reaction</th>
<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>N01004 (F, A)</td>
<td><strong>Internal software error</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>An internal software error has occurred.</td>
<td>- read out diagnostics parameter (r9999).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fault value (r0949, hexadecimal):</td>
<td>- contact the Hotline.</td>
</tr>
<tr>
<td>F01005</td>
<td><strong>File upload/download error</strong></td>
<td>NONE</td>
<td>IMMEDIATELY</td>
<td>The upload or download of EEPROM data was unsuccessful.</td>
<td>- read out diagnostics parameter (r9999).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fault value (r0949, interpret hexadecimal):</td>
<td>- contact the Hotline.</td>
</tr>
<tr>
<td>A01009 (N)</td>
<td><strong>CU: Control module overtemperature</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>The temperature (r0037[0]) of the control module (Control Unit) has exceeded the specified limit value.</td>
<td>- check the air intake for the Control Unit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- check the Control Unit fan.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note: The alarm automatically disappears after the limit value has been undershot.</td>
</tr>
<tr>
<td>F01010</td>
<td><strong>Drive type unknown</strong></td>
<td>NONE</td>
<td>IMMEDIATELY</td>
<td>An unknown drive type was found.</td>
<td>- replace Power Module.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- carry out a POWER ON (power off/on).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- upgrade firmware to later version.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- contact the Hotline.</td>
</tr>
</tbody>
</table>
### F01015 Internal software error

**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

**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.

### A01017 Component lists changed

**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):  
x y z dec: x = Problem, y = Directory, x = 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  
**Remedy:**  
For the file on the memory card involved, restore the status originally supplied from the factory.

### F01018 Booting has been interrupted several times

**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.

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01019</td>
<td>Writing to the removable data medium unsuccessful</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>The write access to the removable data medium was unsuccessful.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Remove and check the removable data medium. Then run the data backup again.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01020</td>
<td>Writing to RAM disk unsuccessful</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>A write access to the internal RAM disk was unsuccessful.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Adapt the file size for the system logbook to the internal RAM disk (p9930).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01021</td>
<td>Removable data medium as USB data storage medium from the PC used</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>The removable data medium is used as USB data storage medium from a PC As a consequence, the drive cannot access the removable data medium. When backing up, the configuration data cannot be saved on the removable data medium. Fault value (r0949, interpret decimal): 1: The know-how protection as well as the copy protection for the removable data medium is active. Backup is inhibited. 2: The configuration data are only backed up in the Control Unit. See also: r7760 (Write protection/know-how protection status), r9401 (Safely remove memory card status)</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Deactivate the USB connection to the PC and back up the configuration data. Note: The alarm is automatically canceled when disconnecting the USB connection or when removing the removable data medium. See also: r9401 (Safely remove memory card status)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01023</td>
<td>Software timeout (internal)</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>IMMEDIATELY</td>
</tr>
<tr>
<td>Cause:</td>
<td>An internal software timeout has occurred. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>- carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01028</td>
<td>Configuration error</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>The parameterization that was downloaded was generated with a different module type (Order No., MLFB).</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Save parameters in a non-volatile fashion (p0971 = 1).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01030</td>
<td>Sign-of-life failure for master control</td>
</tr>
<tr>
<td>Reaction:</td>
<td>OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>IMMEDIATELY</td>
</tr>
<tr>
<td>Cause:</td>
<td>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.</td>
</tr>
</tbody>
</table>
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!

F01033 Units changeover: Reference parameter value invalid

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: p0505 (Selecting the system of units), p0595 (Technological unit selection)

Remedy:
Set the value of the reference parameter to a number different than 0.0.


F01034 Units changeover: Calculation parameter values after reference value change unsuccessful

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.


Remedy:
Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation.


A01035 (F) ACX: Parameter back-up file corrupted

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):

dddccbbaa hex:
  aa = 01 hex:
  Power up was realized without data backup. The drive is in the factory setting.
  aa = 02 hex:
  The last available internal backup data record was loaded. The parameterization must be checked. It is recommended that the parameterization is downloaded again.
  aa = 03 hex:
  The last available data record from the memory card was loaded. The parameterization must be checked.
  aa = 04 hex:
  An invalid data backup was loaded from the memory card into the drive. The drive is in the factory setting.
  dd, cc, bb:
  Only for internal Siemens troubleshooting.
  See also: p0971 (Save parameters)

Remedy:
- Download the project again with the commissioning software.
- save all parameters (p0971 = 1 or "copy RAM to ROM").
F01036 (A)  ACX: Parameter back-up file missing

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
  - 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 P0971 = 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.

F01038 (A)  ACX: Loading the parameter back-up file unsuccessful

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: An error has occurred when downloading PSxxxyyy.ACX or PTxxxyyy.ACX files from the non-volatile memory.

Fault value (r0949, interpret hexadecimal):
- Byte 1: yyy in the file name PSxxxyyy.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.

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 p0971 = 1 so that all of the parameter files are again completely written to the non-volatile memory.

- replace the memory card or Control Unit.

F01039 (A)  ACX: Writing to the parameter back-up file was unsuccessful

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Writing to at least one parameter back-up file PSxxxyyy.*** in the non-volatile memory was unsuccessful.
- In the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxyyy.*** 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 PSxxxyyy.***
  - a = 000 --> consistency back-up file
  - a = 001 ... 062 --> drive object number
  - a = 099 --> PROFIBUS parameter back-up file
  - b = xxx in the file names PSxxxyyy.***
  - b = 000 --> data save started with p0971 = 1
  - b = 010 --> data save started with p0971 = 10
b = 011 --> data save started with p0971 = 11
b = 012 --> data save started with p0971 = 12

d, c:
Only for internal Siemens troubleshooting.

Remedy:
- check the file attribute of the files (PSxxxyyy.***, CAxxxyyy.***, CCxxxyyy.***) 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.

F01040  Save parameter settings and carry out a POWER ON

Reaction: OFF2

Acknowledge: POWER ON

Cause: A parameter has been changed that requires the parameters to be backed up and the Control Unit to be switched OFF and ON again.

Remedy:
- Save parameters (p0971).
- carry out a POWER ON (power off/on) for the Control Unit.

F01042  Parameter error during project download

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value).

For the specified parameter, it was detected that dynamic limits were exceeded that may possibly depend on other parameters.

Fault value (r0949, interpret hexadecimal):
ccbbaaaa hex
aaaa = Parameter
bb = Index
cc = fault cause

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.
108: Unit unknown.

Additional values:
Only for internal Siemens troubleshooting.

Remedy:
- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.
## Faults and alarms

### List of faults and alarms

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</table>
| **F01043** | Fatal error at project download | OFF2 (OFF1, OFF3) | IMMEDIATELY | A fatal error was detected when downloading a project using the commissioning software. | - use the current version of the commissioning software.  
- modify the offline project and download again (e.g. compare the motor and Power Module in the offline project and on 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 p0970=10,..). |
| **F01044** | CU: Descriptive data error | OFF2 | POWER ON | An error was detected when loading the descriptive data saved in the non-volatile memory. | Replace the memory card or Control Unit. |
| **A01045** | Configuring data invalid | NONE | NONE | An error was detected when evaluating the parameter files PSxxxxxx.ACX, PTxxxxxx.ACX, CAxxxxxx.ACX, or CCxxxxxx.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. | - Check the parameters displayed in r9406 up to r9408, and correct these if required.  
- Restore the factory setting using (p0970 = 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 p0971 = 1. This over-writes the incorrect parameter files in the non-volatile memory – and the alarm is withdrawn. |
| **A01049** | It is not possible to write to file | NONE | NONE | It is not possible to write into a write-protected file (PSxxxxxx.acx). The write request was interrupted. | 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 p0971 to 1). |
### F01054: CU: System limit exceeded

**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]).  
As long as this fault is present, it is not possible to save the parameters (p0971).  
See also: r9976 (System utilization)  
**Remedy:**  
- 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).

### A01064 (F): CU: Internal error (CRC)

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** CRC error in the Control Unit program memory  
**Remedy:**  
- carry out a POWER ON (power off/on) for all components.  
- upgrade firmware to later version.  
- contact the Hotline.

### A01066: Buffer memory: 70% fill level reached or exceeded

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The non-volatile buffer memory for parameter changes is filled to at least 70%.  
This can also occur if the buffer memory is active (p0014 = 1) and parameters are continually changed via a fieldbus system.  
**Remedy:**  
- if required, de-activate and clear the buffer memory (p0014 = 0).  
- if required, clear the buffer memory (p0014 = 2).  
In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:  
- p0971 = 1  
- power down/power up the Control Unit

### A01067: Buffer memory: 100 % fill level reached

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The non-volatile buffer memory for parameter changes is filled to 100%.  
All additional parameter changes will no longer be taken into account in the non-volatile buffer memory. However, parameter changes can still be made in the volatile memory (RAM).  
This can also occur if the buffer memory is active (p0014 = 1) and parameters are continually changed via a fieldbus system.  
**Remedy:**  
- if required, de-activate and clear the buffer memory (p0014 = 0).  
- if required, clear the buffer memory (p0014 = 2).  
In the following cases, the entries in the buffer memory are transferred into the ROM and then the buffer memory is cleared:  
- p0971 = 1  
- power down/power up the Control Unit
**Faults and alarms**

**List of faults and alarms**

---

**F01068**  
**CU: Data memory memory overflow**

**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**

**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).

---

**F01072**  
**Memory card restored from the backup copy**

**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**  
**POWER ON required for backup copy on memory card**

**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).

---

**F01105 (A)**  
**CU: Insufficient memory**

**Reaction:** OFF1  
**Acknowledge:** POWER ON  
**Cause:**  
Too many data sets are configured on this Control Unit.  
Fault value (r0949, interpret decimal):  
Only for internal Siemens troubleshooting.  
**Remedy:**  
- reduce the number of data sets.
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</table>
| F01107 | Save to memory card unsuccessful                      | NONE           | IMMEDIATELY  | A data save to the memory card was not able to be successfully carried out.                     | - try to save again.  
- replace the memory card or Control Unit.                           |
|        |                                                       |                |              | - Memory card is defective.                                                                      |                                                                        |
|        |                                                       |                |              | - Insufficient space on memory card.                                                              |                                                                        |
|        |                                                       |                |              | Fault value (r0949, interpret decimal):                                                           |                                                                        |
|        |                                                       |                |              | 1: The file on the RAM was not able to be opened.                                               |                                                                        |
|        |                                                       |                |              | 2: The file on the RAM was not able to be read.                                                 |                                                                        |
|        |                                                       |                |              | 3: A new directory could not be created on the memory card.                                      |                                                                        |
|        |                                                       |                |              | 4: A new file could not be created on the memory card.                                           |                                                                        |
|        |                                                       |                |              | 5: A new file could not be written on the memory card.                                           |                                                                        |
| F01112 | CU: Power unit not permissible                         | NONE           | IMMEDIATELY  | The connected power unit cannot be used together with this Control Unit.                       | Replace the power unit that is not permissible by a component that is permissible. |
|        |                                                       |                |              | Fault value (r0949, interpret decimal):                                                           |                                                                        |
|        |                                                       |                |              | 1: Power unit is not supported (e.g. PM340).                                                    |                                                                        |
| F01120 (A)| Terminal initialization has failed                    | OFF1 (OFF2)   | IMMEDIATELY  | An internal software error occurred while the terminal functions were being initialized.       | - carry out a POWER ON (power off/on) for all components.  
- upgrade firmware to later version.  
- contact the Hotline.  
- replace the Control Unit. |
|        |                                                       |                |              | Fault value (r0949, interpret hexadecimal):                                                      |                                                                        |
|        |                                                       |                |              | Only for internal Siemens troubleshooting.                                                        |                                                                        |
|        |                                                       |                |              | Fault value (r0949, interpret decimal):                                                           |                                                                        |
|        |                                                       |                |              | 1: DI 1 (term. 6)                                                                               |                                                                        |
|        |                                                       |                |              | 2: DI 3 (term. 8)                                                                               |                                                                        |
| F01122 (A)| Frequency at the measuring probe input too high       | OFF1 (OFF2)   | IMMEDIATELY  | The frequency of the pulses at the measuring probe input is too high.                          | Reduce the frequency of the pulses at the measuring probe input.        |
|        |                                                       |                |              | Fault value (r0949, interpret hexadecimal):                                                      |                                                                        |
|        |                                                       |                |              | Only for internal Siemens troubleshooting.                                                        |                                                                        |
|        |                                                       |                |              | Fault value (r0949, interpret decimal):                                                           |                                                                        |
|        |                                                       |                |              | 1: DI 1 (term. 6)                                                                               |                                                                        |
|        |                                                       |                |              | 2: DI 3 (term. 8)                                                                               |                                                                        |
| F01205 | CU: Time slice overflow                               | OFF2           |              | Insufficient computation time.                                                                  | Contact the Hotline.                                                   |
|        |                                                       |                |              | Fault value (r0949, interpret hexadecimal):                                                      |                                                                        |
|        |                                                       |                |              | Only for internal Siemens troubleshooting.                                                        |                                                                        |
|        |                                                       |                |              | Fault value (r0949, interpret decimal):                                                           |                                                                        |
|        |                                                       |                |              | Only for internal Siemens troubleshooting.                                                        |                                                                        |
| F01250 | CU: CU-EEPROM incorrect read-only data                | NONE (OFF2)    |              | Error when reading the read-only data of the EEPROM in the Control Unit.                       |                                                                        |
|        |                                                       |                |              | Fault value (r0949, interpret hexadecimal):                                                      |                                                                        |
|        |                                                       |                |              | Only for internal Siemens troubleshooting.                                                        |                                                                        |
|        |                                                       |                |              | Fault value (r0949, interpret decimal):                                                           |                                                                        |
Faults and alarms

List of faults and alarms

Remedy: - carry out a POWER ON.
- replace the Control Unit.

A01251  CU: CU-EEPROM incorrect read-write data
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:
- clear the fault memory (p0952 = 0).
- replace the Control Unit.

F01257  CU: Firmware version out of date
Reaction: OFF2
Acknowledge: POWER ON
Cause: The Control Unit firmware is too old.
Fault value (r0949, interpret hexadecimal):
bbbbbaa hex: aa = unsupported component
aa = 01 hex = 1 dec:
The firmware being used does not support the Control Unit.
aa = 02 hex = 2 dec:
The firmware being used does not support the Control Unit.
aa = 03 hex = 3 dec:
The firmware being used does not support the Power Module.
aa = 04 hex = 4 dec:
The firmware being used does not support the Control Unit.
Remedy: Re fault value = 1, 2, 4:
- Upgrade the firmware of the Control Unit.
For fault value = 3:
- Upgrade the firmware of the Control Unit.
- Replace the Power Module by a component that is supported.

F01340  Topology: Too many components on one line
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: For the selected communications clock cycle, too many DRIVE-CLiQ components are connected to one line of the Control Unit.
Fault value (r0949, interpret hexadecimal):
xyy hex: x = fault cause, yy = component number or connection number.
1yy:
The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all read transfers.
2yy:
The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all write transfers.
3yy:
Cyclic communication is fully utilized.
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.
5yy:
Internal buffer overflow for net data of a DRIVE-CLiQ connection.
6yy:
Internal buffer overflow for receive data of a DRIVE-CLiQ connection.
7yy:
Internal buffer overflow for send data of a DRIVE-CLiQ connection.
8yy:
The component clock cycles cannot be combined with one another
900:
The lowest common multiple of the clock cycles in the system is too high to be determined.
901:
The lowest common multiple of the clock cycles in the system cannot be generated with the hardware.
Remedy:
- check the DRIVE-CLiQ connection.
- 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.
Re fault value = 1yy - 4yy in addition:
- 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.
Re fault value = 8yy in addition:
- 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.
Re fault value = 9yy in addition:
- 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.

F01505 (A) BICO: Interconnection cannot be established
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause:
A PROFdrive 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.

F01510 BICO: Signal source is not float type
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.

F01511 (A) BICO: Interconnection with different scalings
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.
## Faults and alarms

### List of faults and alarms

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<tbody>
<tr>
<td>F01512</td>
<td><strong>BICO: No scaling available</strong></td>
<td>OFF2</td>
<td>POWER ON</td>
<td>An attempt was made to determine a conversion factor for a scaling that does not exist. Fault value (r0949, interpret decimal):</td>
<td>Apply scaling or check the transfer value.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.</td>
<td></td>
</tr>
<tr>
<td>F01513</td>
<td><strong>BICO: Interconnection cross DO with different scalings</strong></td>
<td>NONE</td>
<td>IMMEDIATELY</td>
<td>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. 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</td>
<td>Not necessary.</td>
</tr>
<tr>
<td>A01514</td>
<td><strong>BICO: Error when writing during a reconnect</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>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).</td>
<td>Not necessary.</td>
</tr>
<tr>
<td>F01515</td>
<td><strong>BICO: Writing to parameter not permitted as the master control is active</strong></td>
<td>NONE</td>
<td>IMMEDIATELY</td>
<td>When changing the number of CDS or when copying from CDS, the master control is active.</td>
<td>If required, return the master control and repeat the operation.</td>
</tr>
<tr>
<td>A01590</td>
<td><strong>Drive: Motor maintenance interval expired</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>The selected service/maintenance interval for this motor was reached. Alarm value (r2124, interpret decimal): Motor data set number.</td>
<td>carry out service/maintenance and reset the service/maintenance interval.</td>
</tr>
<tr>
<td>Fault Code</td>
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<td>Reaction</td>
<td>Acknowledge</td>
<td>Cause</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>F01600</td>
<td>SI P1: STOP A initiated</td>
<td>OFF2</td>
<td>IMMEDIATELY (POWER ON)</td>
<td>The drive-integrated “Safety Integrated” function on processor 1 has detected an error and initiated a STOP A. - forced checking procedure of the safety shutdown path on processor 1 unsuccessful. - subsequent response to fault F01611 (defect in a monitoring channel). Fault value (r949, interpret decimal): 0: Stop request from processor 2. 1005: Pulses suppressed although STO not selected and there is no internal STOP A present. 1010: Pulses enabled although STO is selected or an internal STOP A is present. 9999: Subsequent response to fault F01611.</td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>Remedy: - select Safe Torque Off and de-select again. For fault value = 9999: - carry out diagnostics for fault F01611.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note: STO: Safe Torque Off</td>
<td></td>
</tr>
<tr>
<td>F01611</td>
<td>SI P1: Defect in a monitoring channel</td>
<td>NONE (OFF1, OFF2, OFF3)</td>
<td>IMMEDIATELY (POWER ON)</td>
<td>The drive-integrated “Safety Integrated” function on processor 1 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F. Fault F01600 (SI P1: STOP A initiated) is output as a consequence of this fault. Fault value (r949, interpret decimal): 0: Stop request from processor 2. 1 ... 999: Number of the cross-compared data that resulted in this fault. This number is also displayed in r9795. 2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits. 3: SI F-DI changeover tolerance time (p9650, p9850). 8: SI PROFIsafe address (p9610, p9810). 9: SI debounce time for STO (p9651, p9851). 1000: Watchdog timer has expired. Within the time of approx. 5 x p9650, alternatively, the following was defined: - Too many signal changes have occurred at the F-DI. - Via PROFIsafe, STO was too frequently initiated (also as subsequent response). 1001, 1002: Initialization error, change timer / check timer. 2000: Status of the STO selection for both monitoring channels are different. 2001: Feedback of the safe pulse suppression on the two monitoring channels are different. 2003: Status of the STO terminal on the processor 1 and processor 2 are different. 6000 ... 6166: PROFIsafe fault values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET). For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions. 6000: An internal software error has occurred (only for internal Siemens troubleshooting). 6064 ... 6071: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver. 6064: Destination address and PROFIsafe address are different (F_Dest_Add). 6065: Destination address not valid (F_Dest_Add). 6066: Source address not valid (F_Source_Add). 6067: Watchdog time not valid (F_WD_Time). 6068: Incorrect SIL level (F_SIL). 6069: Incorrect F-CRC length (F_CRC_Length). 6070: Incorrect F parameter version (F_Param_Version). 6071: CRC error for the F parameters (CRC1). The transferred CRC value of the F parameters does not match the value calculated in the PROFIsafe driver. 6072: F parameterization is inconsistent. 6165: A communications error was identified when receiving the PROFIsafe telegram. The fault may also occur if an inconsistent or out-of-date PROFIsafe telegram has been received after switching the Control Unit off and on or after plugging in the PROFIBUS/PROFINET cable. 6166: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.</td>
<td></td>
</tr>
</tbody>
</table>
**Remedy:**

Re fault values 1 ... 999 described in "Cause":
- check the cross data comparison that resulted in a STOP F.
- carry out a POWER ON (power off/on).

For fault value = 1000:
- check the wiring of the F-DI (contact problems).

- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.

Re fault value = 1001, 1002:
- carry out a POWER ON (power off/on).

For fault value = 2000, 2001, 2003:
- check the tolerance time F-DI changeover and if required, increase the value (p9650/p9850).
- check the wiring of the F-DI (contact problems).
- check the causes of the STO selection in r9772.

For fault value = 6000:
- carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
- replace Control Unit.

For fault value = 6064:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave.
- check the setting of the PROFIsafe address on processor 1 (p9610) and on processor 2 (p9810).

For fault value = 6065:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave. It is not permissible for the destination address to be either 0 or FFFF!

For fault value = 6066:
- check the setting of the value in the F parameter F_Source_Add at the PROFIsafe slave. It is not permissible for the source address to be either 0 or FFFF!

For fault value = 6067:
- check the setting of the value in the F parameter F_WD_Time at the PROFIsafe slave. It is not permissible for the watch time to be 0!

For fault value = 6068:
- check the setting of the value in the F parameter F_SIL at the PROFIsafe slave. The SIL level must correspond to SIL2!

For fault value = 6069:
- check the setting of the value in the F parameter F_CRC_Length at the PROFIsafe slave. The setting of the CRC2 length is 2-byte CRC in the V1 mode and 3-byte CRC in the V2 mode!

For fault value = 6070:
- check the setting of the value in the F parameter F_Par_Version at the PROFIsafe slave. The value for the F parameter version is 0 in the V1 mode and 1 in the V2 mode!

For fault value = 6071:
- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and, if required, update.

For fault value = 6072:
- check the settings of the values for the F parameters and, if required, correct.

The following combinations are permissible for F parameters F_CRC_Length and F_Par_Version:

- F_CRC_Length = 2-byte CRC and F_Par_Version = 0
- F_CRC_Length = 3-byte CRC and F_Par_Version = 1

For fault value = 6165:
- if the fault occurs after powering up or after inserting the PROFIBUS/PROFINET cable, acknowledge the fault.
- check the configuration and communication at the PROFIsafe slave.
- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.

For fault value = 6166:
- check the configuration and communication at the PROFIsafe slave.
- check the setting of the value for F parameter F_WD_Time on the PROFIsafe slave and increase if necessary.
- evaluate diagnostic information in the F host.
- check PROFIsafe connection.

Re fault values that are described in "Cause":
- carry out a POWER ON (power off/on).
- contact the Hotline.
- replace Control Unit.

Note:
F-DI: Failsafe Digital Input
STO: Safe Torque Off
**N01620 (F, A)**

**SI P1: Safe Torque Off active**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The "Safe Torque Off" (STO) function has been selected on processor 1 using the input terminal and is active.  
**Note:** This message does not result in a safety stop response.  
**Remedy:** Not necessary.  

**Note:** STO: Safe Torque Off

---

**F01625**

**SI P1: Sign-of-life error in safety data**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The drive-integrated "Safety Integrated" function on processor 1 has detected an error in the sign-of-life of the safety data and initiated a STOP A.  
- there is a communication error between processor 1 and processor 2 or communication has failed.  
- a time slice overflow of the safety software has occurred.  
**Fault value (r0949, interpret decimal):** Only for internal Siemens troubleshooting.  
**Remedy:**  
- select Safe Torque Off and de-select again.  
- carry out a POWER ON (power off/on).  
- check whether additional faults are present and if required, perform diagnostics.  
- check the electrical cabinet design and cable routing for EMC compliance

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**F01649**

**SI P1: Internal software error**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** An internal error in the Safety Integrated software on processor 1 has occurred.  
**Note:** This fault results in a STOP A that cannot be acknowledged.  
**Fault value (r0949, interpret hexadecimal):** Only for internal Siemens troubleshooting.  
**Remedy:**  
- carry out a POWER ON (power off/on).  
- re-commission the "Safety Integrated" function and carry out a POWER ON.  
- contact the Hotline.  
- replace Control Unit.

---

**F01650**

**SI P1: Acceptance test required**

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The drive-integrated "Safety Integrated" function on processor 1 requires an acceptance test.  
**Note:** This fault results in a STOP A that can be acknowledged.  
**Fault value (r0949, interpret decimal):**  
130: Safety parameters for processor 2 not available.  
**Note:** This fault value is always output when Safety Integrated is commissioned for the first time.  
1000: Reference and actual checksum on processor 1 are not identical (booting).  
- at least one checksum-checked piece of data is defective.  
2000: Reference and actual checksum on processor 1 are not identical (commissioning mode).  
- reference checksum incorrectly entered on processor 1 (p9799 not equal to r9798).  
2001: Reference and actual checksum on processor 2 are not identical (commissioning mode).  
- reference checksum incorrectly entered on processor 2 (p9899 not equal to r9898).  
2002: Enable of safety-related functions between the processor 1 and processor 2 differ (p9601 not equal to p9801).  
2003: Acceptance test is required as a safety parameter has been changed.  
2004: An acceptance test is required because a project with enabled safety-functions has been downloaded.  
2005: The Safety logbook has identified that a functional safety checksum has changed. An acceptance test is required.  
2020: Error when saving the safety parameters for the processor 2.
Faults and alarms

List of faults and alarms

9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

Remedy:
For fault value = 130:
- carry out safety commissioning routine.
For fault value = 1000:
- again carry out safety commissioning routine.
- replace the memory card or Control Unit.
- Using STARTER, activate the safety parameters for the drive involved (change settings, copy parameters, activate settings).
For fault value = 2000:
- check the safety parameters on processor 1 and adapt the reference checksum (p9799).
For fault value = 2001:
- check the safety parameters on processor 2 and adapt the reference checksum (p9899).
For fault value = 2002:
- enable the safety-related functions on processor 1 and check processor 2 (p9601 = p9801).
Re fault value = 2003, 2004, 2005:
- Carry out an acceptance test and generate an acceptance report.
The fault with fault value 2005 can only be acknowledged when the "STO" function is de-selected.
For fault value = 2020:
- again carry out safety commissioning routine.
- replace the memory card or Control Unit.
For fault value = 9999:
- carry out diagnostics for the other safety-related fault that is present.
Note:
STO: Safe Torque Off
See also: p9799 (SI setpoint checksum SI parameters (processor 1)), p9899 (SI setpoint checksum SI parameters (processor 2))

F01651 SI P1: Synchronization safety time slices unsuccessful
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The "Safety Integrated" function requires synchronization of the safety time slices between processor 1 and processor 2. This synchronization was unsuccessful.
Note: This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
- Only for internal Siemens troubleshooting.
Remedy:
Carry out a POWER ON (power off/on).

F01653 SI P1: PROFIBUS/PROFINET configuration error
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: There is a PROFIBUS/PROFINET configuration error for using Safety Integrated monitoring functions with a higher-level control.
Note: For safety functions that have been enabled, this fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
- 200: A safety slot for receive data from the control has not been configured.
- 210, 220: The configured safety slot for the receive data from the control has an unknown format.
- 230: The configured safety slot for the receive data from the F-PLC has the incorrect length.
- 250: A PROFIsafe slot is configured in the higher-level F control, however PROFIsafe is not enabled in the drive.
- 300: A safety slot for the send data to the control has not been configured.
- 310, 320: The configured safety slot for the send data to the control has an unknown format.
- 330: The configured safety slot for the send data to the F-PLC has the incorrect length.
- 331: The configured safety slot for the send data to the F-PLC has the incorrect length.
Remedy:
The following generally applies:
- check and, if necessary, correct the PROFIBUS/PROFINET configuration of the safety slot on the master side.
- upgrade the Control Unit software.
For fault value = 250:
- remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.
Re fault value = 231, 331:
- configure PROFINet telegram 30 in the F-PLC.

**A01654 (F)**

**SI P1: Deviating PROFINet configuration**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:** The configuration of a PROFINet telegram in the higher-level control (F-PLC) does not match the parameterization in the drive.

Note:
This message does not result in a safety stop response.

**Alarm value (r2124, interpret decimal):**
1: A PROFINet telegram is configured in the higher-level control, however PROFINet is not enabled in the drive (p9601.3).
2: PROFINet is parameterized in the drive; however, a PROFINet telegram has not been configured in the higher-level control.

**Remedy:** The following generally applies:
- check and, if necessary, correct the PROFINet configuration in the higher-level control.

Re alarm value = 1:
- remove the PROFINet configuring in the higher-level F control or enable PROFINet in the drive.

Re alarm value = 2:
- configure the PROFINet telegram to match the parameterization in the higher-level F-control.

**F01655**

**SI P1: Align monitoring functions**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** An error has occurred when aligning the Safety Integrated monitoring functions on processor 1 and processor 2. No common set of supported SI monitoring functions was able to be determined.

- there is a communication error between processor 1 and processor 2 or communication has failed.

Note:
This fault results in a STOP A that cannot be acknowledged.

**Fault value (r0949, interpret hexadecimal):**
Only for internal Siemens troubleshooting.

**Remedy:**
- carry out a POWER ON (power off/on).
- check the electrical cabinet design and cable routing for EMC compliance

**F01656**

**SI P1: Parameter processor 2 parameter error**

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** When accessing the Safety Integrated parameters for the processor 2 in the non-volatile memory, an error has occurred.

Note:
This fault results in a STOP A that can be acknowledged.

**Fault value (r0949, interpret decimal):**
129: Safety parameters for processor 2 corrupted.
131: Internal software error
132: Communication errors when uploading or downloading the safety parameters.
255: Internal software error on the Control Unit.

**Remedy:**
- re-commission the safety functions.
- replace the memory card or Control Unit.

For fault value = 129:
- activate the safety commissioning mode (p0010 = 95).
- adapt the PROFINet address (p9610).
- start the copy function for SI parameters (p9700 = D0 hex).
- acknowledge data change (p9701 = DC hex).
- exit the safety commissioning mode (p0010 = 0).
- save all parameters (p0071 = 1 or "copy RAM to ROM").
- carry out a POWER ON (power off/on) for the Control Unit.

For fault value = 132:
- check the electrical cabinet design and cable routing for EMC compliance
F01658  **SI P1: PROFlsafe telegram number not suitable**

**Reaction:**  
OFF2

**Acknowledge:**  
IMMEDIATELY (POWER ON)

**Cause:**  
The PROFIsafe telegram number in p60022 is unsuitable for the enabled safety functions.

**Possible causes:**  
- When PROFIsafe is not enabled (p9601.3 = 0), then it is not permissible to select a PROFIsafe telegram in p60022.
- When PROFIsafe is enabled (p9601.3 = 1), then a PROFIsafe telegram must be selected in p60022.

**Note:**  
This fault does not result in a safety stop response.

**Possible causes:**  
- When PROFIsafe is not enabled (p9601.3 = 0), then it is not permissible to select a PROFIsafe telegram in p60022.
- When PROFIsafe is enabled (p9601.3 = 1), then a PROFIsafe telegram must be selected in p60022.

**Remedy:**  
Select the telegram number that matches the Safety functions that have been enabled.

---

F01659  **SI P1: Write request for parameter rejected**

**Reaction:**  
OFF2

**Acknowledge:**  
IMMEDIATELY (POWER ON)

**Cause:**  
The write request for one or several Safety Integrated parameters on processor 1 was rejected.

**Note:**  
This fault does not result in a safety stop response.

**Fault value (r0949, interpret decimal):**
1: The Safety Integrated password is not set.
2: A reset of the drive parameters was selected. However, the Safety Integrated parameters were not reset, as Safety Integrated is presently enabled.
3: The interconnected STO input is in the simulation mode.
10: An attempt was made to enable the STO function although this cannot be supported.
14: An attempt was made to enable the PROFIsafe communications although this cannot be supported.
15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.
18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported.
20: An attempt was made to simultaneously enable both the drive-integrated motion monitoring functions via integrated F-DI and STO via terminals, even though these cannot be supported at the same time.
21: An attempt was made to enable the Safety Integrated functions although these cannot be supported by the connected Power Module.
26: At a digital input of the Control Unit, an attempt was made to activate the simulation mode (p0795), which is used by Safety Integrated (p10049).

**See also:**  
p0970 (Reset drive parameters), p3900 (Completion of quick commissioning), r9771 (SI common functions (processor 2))

**Remedy:**

- For fault value = 1:
  - set the Safety Integrated password (p9761).

- For fault value = 2:
  - do not enable Safety Integrated (p9501, p9601) or reset safety parameters (p0970 = 5), then reset the drive parameters again.

- For fault value = 3:
  - end the simulation mode for the digital input (p0795).

- Re fault value = 10, 14, 15, 18, 20:
  - check whether there are faults in the safety function alignment (F01655, F30655) and if required, carry out diagnostics for the faults involved.
  - use a Control Unit that supports the required function.

- For fault value = 21:
  - use a Power Module that supports the Safety Integrated functions.

- For fault value = 26:
  - check whether p10049 is set. Also check p10006 and p10009. Check whether p10046, p10047 a test top of the FDO with a read back input is parameterized.

**Note:**  
STO: Safe Torque Off

See also: p9601 (SI enable functions integrated in the drive (processor 1)), p9761 (SI password input), p9801 (SI enable functions integrated in the drive (processor 2))
F01660  SI P1: Safety-related functions not supported
Reaction:                          OFF2
Acknowledge:                     IMMEDIATELY (POWER ON)
Cause:                           The Power Module does not support the safety-related functions. Safety Integrated cannot be commissioned.
Note:                            This fault does not result in a safety stop response.
Remedy:                          - use a Power Module that supports the safety-related functions.

F01662  Error internal communications
Reaction:                          OFF2
Acknowledge:                     POWER ON
Cause:                            A module-internal communication error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:                          - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

F01663  SI P1: Copying the SI parameters rejected
Reaction:                          OFF2
Acknowledge:                     IMMEDIATELY (POWER ON)
Cause:                           In p9700, the value 208 is saved or entered offline.
This is the reason that when booting, an attempt is made to copy SI parameters from processor 1 to processor 2.
However, no safety-relevant function has been selected on processor 1 (p9601 = 0). This is the reason that copying
is not possible.
Note:                            This fault does not result in a safety stop response.
See also:                        p9700 (SI copy function)
Remedy:                          - Set p9700 to 0.
- Check p9601 and if required, correct.
- Restart the copying function by entering the corresponding value into p9700.

F01665  SI P1: System is defective
Reaction:                          OFF2
Acknowledge:                     IMMEDIATELY
Cause:                           A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).
Fault value (r0949, interpret hexadecimal):
200000 hex, 400000 hex, 8000yy hex (yy any):
- Fault in the actual booting/operation.
Additional values:
- defect before the last time that the system booted.
Remedy:                          - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
Re fault value = 200000 hex, 400000 hex, 8000yy hex (yy any):
- ensure that the Control Unit is connected to the Power Module.

A01693 (F)  SI Motion P1: Safety parameter setting changed, POWER ON required
Reaction:                          NONE
Acknowledge:                     NONE
Cause:                           Safety parameters have been changed; these will only take effect following a POWER ON.
Notice:                           All changed parameters of the safety motion monitoring functions will only take effect following a POWER ON.
Alarm value (r2124, interpret decimal):
Parameter number of the safety parameter which has changed, necessitating a POWER ON.
Remedy:                          - execute the function "Copy RAM to ROM".
- carry out a POWER ON (power off/on).
## Faults and alarms

### List of faults and alarms

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
<th>Reaction</th>
<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01698 (F)</td>
<td>SI P1: Commissioning mode active</td>
<td>NONE</td>
<td>NONE</td>
<td>The commissioning of the &quot;Safety Integrated&quot; function is selected. This message is withdrawn after the safety functions have been commissioned. Note: - This message does not result in a safety stop response. - In the safety commissioning mode, the &quot;STO&quot; function is internally selected. See also: p0010 (Drive commissioning parameter filter)</td>
<td>Not necessary.</td>
</tr>
<tr>
<td>A01699 (F)</td>
<td>SI P1: Shutdown path must be tested</td>
<td>NONE</td>
<td>NONE</td>
<td>The time set in p9659 for the forced checking procedure of the safety shutdown paths has been exceeded. The safety shutdown paths must be re-tested. After the next time the &quot;STO&quot; function is de-selected, the message is withdrawn and the monitoring time is reset. Note: - This message does not result in a safety stop response. - The test must be performed within a defined, maximum time interval (p9659, maximum of 9000 hours) in order to comply with the requirements as laid down in the standards for timely fault detection and the conditions to calculate the failure rates of safety functions (PFH value). Operation beyond this maximum time period is permissible if it can be ensured that the forced checking procedure is performed before persons enter the hazardous area and who are depending on the safety functions correctly functioning. See also: p9659 (SI forced checking procedure timer)</td>
<td>Select STO and then de-select again. Note: STO: Safe Torque Off</td>
</tr>
<tr>
<td>A01796 (F, N)</td>
<td>SI P1: Wait for communication</td>
<td>NONE</td>
<td>NONE</td>
<td>The drive waits for communication to be established to execute the safety-relevant motion monitoring functions. Note: In this state, the pulses are safely suppressed. Alarm value (r2124, interpret decimal): 3: Wait for communication to be established to PROFIsafe F-Host.</td>
<td>If, after a longer period of time, the message is not automatically withdrawn, the following checks have to be made: - Check any other PROFIsafe communication messages/signals present and evaluate them. - Check the operating state of the F-Host. - Check the communication connection to the F Host. See also: p9601 (SI enable functions integrated in the drive (processor 1)), p9801 (SI enable functions integrated in the drive (processor 2))</td>
</tr>
<tr>
<td>A01900 (F)</td>
<td>PROFIBUS: Configuration telegram error</td>
<td>NONE</td>
<td>NONE</td>
<td>A PROFIBUS master attempts to establish a connection using an incorrect configuring telegram. Alarm value (r2124, interpret decimal): 2: Too many PZD data words for input or output. The number of possible PZD is specified by the number of indices in r2050/p2051. 3: Uneven number of bytes for input or output. 211: Unknown parameterizing block. 501: PROFIsafe parameter error (e.g. F_dest). Additional values: Only for internal Siemens troubleshooting.</td>
<td></td>
</tr>
</tbody>
</table>

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Remedy:
- Check the bus configuration on the master and the slave sides.
- Re alarm value = 2:
- Check the number of data words for input and output.
- Re alarm value = 211:
- Ensure offline version <= online version.
- Re alarm value = 501:
- Check the set PROFIsafe address (p9610).

F01910 (N, A) Fieldbus interface setpoint timeout
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: The reception of setpoints from the fieldbus interface has been interrupted.
- bus connection interrupted.
- communication partner switched off.
For PROFIBUS:
- PROFIBUS master set into the STOP state.
See also: p2040 (Fieldbus interface monitoring time), p2047 (PROFIBUS additional monitoring time)
Remedy:
- Ensure bus connection has been established and switch on communication peer.
- if required, adapt p2040.
For PROFIBUS:
- set the PROFIBUS master to the RUN state.
- slave redundancy: For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.

A01920 (F) PROFIBUS: Interruption cyclic connection
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.

A01945 PROFIBUS: Connection to the Publisher failed
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.
See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

F01946 (A) PROFIBUS: Connection to the Publisher aborted
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: 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)
### List of Faults and Alarms

#### Fault F01951: CU SYNC: Synchronization application clock cycle missing
- **Reaction:** IMMEDIATELY (POWER ON)
- **Acknowledge:** IMMEDIATELY (POWER ON)
- **Cause:** Internal synchronization of the application cycles 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 Control Unit software.

#### Fault A01953: CU SYNC: Synchronization not completed
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** After the drive system was powered up, synchronization between the basic 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).

#### Fault A02050: Trace: Start not possible
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** The trace has already been started.
- **Remedy:** Stop the trace and, if necessary, start again.

#### Fault A02055: Trace: Recording time too short
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** The trace duration is too short. The minimum is twice the value of the trace clock cycle.
- **Remedy:** Check the selected recording time and, if necessary, adjust.

#### Fault A02056: Trace: Recording cycle too short
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** The selected recording clock cycle is lower than the basic clock cycle 500µs.
- **Remedy:** Increase the value for the trace cycle.

#### Fault A02057: Trace: Time slice clock cycle invalid
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** The time slice clock cycle selected does not match any of the existing time slices.
- **Remedy:** Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.

#### Fault A02058: Trace: Time slice clock cycle for endless trace not valid
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** The selected time slice clock cycle cannot be used for the endless trace.
- **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.

#### Fault A02059: Trace: Time slice clock cycle for 2 x 8 recording channels not valid
- **Reaction:** NONE
- **Acknowledge:** NONE
- **Cause:** The selected time slice clock cycle cannot be used for more than 4 recording channels.
## List of faults and alarms

### Remedy:

Enter the clock cycle of an existing time slice with a cycle time \( \geq 4 \text{ ms} \) or reduce the number of recording channels to 4 per trace.

The existing time slices can be read out via p7901.

### A02060

**Trace: Signal to be traced missing**

| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | - a signal to be traced was not specified.  
- the specified signals are not valid. |
| Remedy: | - specify the signal to be traced.  
- check whether the relevant signal can be traced. |

### A02061

**Trace: Invalid signal**

| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | - the specified signal does not exist.  
- the specified signal can no longer be traced (recorded). |
| Remedy: | - specify the signal to be traced.  
- check whether the relevant signal can be traced. |

### A02062

**Trace: Invalid trigger signal**

| 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. |
| Remedy: | Specify a valid trigger signal. |

### A02063

**Trace: Invalid data type**

| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The specified data type to select a signal using a physical address is invalid. |
| Remedy: | Use a valid data type. |

### A02070

**Trace: Parameter cannot be changed**

| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The trace parameter settings cannot be changed when the trace is active. |
| Remedy: | - stop the trace before parameterization.  
- if required, start the trace. |

### A02075

**Trace: Pretrigger time too long**

| Reaction: | NONE |
| Acknowledge: | NONE |
| Cause: | The selected pretrigger time must be shorter than the trace time. |
| Remedy: | Check the pretrigger time setting and change if necessary. |

### F02080

**Trace: Parameterization deleted due to unit changeover**

| 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. |
## List of faults and alarms

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Reaction</th>
<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>A02097</td>
<td><strong>MTrace: multiple trace cannot be activated</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>The following functions or settings are not permissible in conjunction with a multiple trace:</td>
<td>- Deactivate multiple trace.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- measuring function.</td>
<td>- Deactivate function or setting that is not permissible.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- long-time trace</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- trigger condition &quot;immediate recording start&quot; (IMMEDIATE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- trigger condition &quot;start with function generator&quot; (FG_START).</td>
<td></td>
</tr>
<tr>
<td>A02098</td>
<td><strong>MTrace: cannot be saved</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>It is not possible to save the measurement results of a multiple trace on the memory card.</td>
<td>- insert or remove the memory card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A multiple trace is not started or is canceled.</td>
<td>- use a larger memory card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Alarm value (r2124, interpret decimal):</td>
<td>- configure the trace with a longer trace time or use an endless trace</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1: memory card cannot be accessed (not inserted or blocked by a mounted USB drive).</td>
<td>- avoid saving parameters while the multiple trace is running.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3: data save operation to slow. A second trace has been completed before the measurement results of the first trace were able to be saved.</td>
<td>Block writing measurement result files to the card, so that this alarm is output with alarm value 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4: data save operation canceled (e.g. a file required for the save operation was no longer able to be found).</td>
<td>- check whether other functions are presently accessing measurement result files of the multiple trace.</td>
</tr>
<tr>
<td>A02099</td>
<td><strong>Trace: Insufficient Control Unit memory</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>The memory space still available on the Control Unit is no longer sufficient for the trace function.</td>
<td>- reduce the trace time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- increase the trace clock cycle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- reduce the number of signals to be traced.</td>
</tr>
<tr>
<td>A02150</td>
<td><strong>OA: Application cannot be loaded</strong></td>
<td>NONE</td>
<td>NONE</td>
<td>The system was not able to load an OA application.</td>
<td>- carry out a POWER ON (power off/on) for all components.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Alarm value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.</td>
<td>- upgrade firmware to later version.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only for internal Siemens troubleshooting.</td>
<td>- contact the Hotline.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note:</td>
<td>- replace the Control Unit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OA: Open Architecture</td>
<td></td>
</tr>
<tr>
<td>F02151</td>
<td><strong>OA: Internal software error</strong></td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>An internal software error has occurred within an OA application.</td>
<td>- carry out a POWER ON (power off/on) for all components.</td>
</tr>
<tr>
<td>(A)</td>
<td></td>
<td></td>
<td></td>
<td>Fault value (r949, interpret hexadecimal): Only for internal Siemens troubleshooting.</td>
<td>- upgrade firmware to later version.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only for internal Siemens troubleshooting.</td>
<td>- contact the Hotline.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- replace the Control Unit.</td>
</tr>
</tbody>
</table>
List of faults and alarms

Note:
OA: Open Architecture

F02152 (A)  OA: Insufficient memory
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.
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

F03000  NVRAM fault on action
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.
Remedy:    - Perform the remedy according to the results of the troubleshooting.
            - If necessary, start the action again.

F03001  NVRAM checksum incorrect
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.

F03505 (N, A)  CU: Analog input wire breakage
Reaction:    OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause:       The wire-break monitoring for an analog input has responded.
The input current of the analog input has undershot the threshold value parameterized in p0761[0...3].
p0756[0]: analog input 0 (only CU240D-2)
p0756[1]: analog input 1 (only CU240D-2)
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:
p0756[0...1] = 1 (2 ... 10 V with monitoring)
Remedy:     Check the connection to the signal source for interruptions.
            Check the magnitude of the injected current - it is possible that the infed signal is too low.
The input current measured by the analog input can be read in r0752[x].
### A03510 (F, N) CU: Calibration data not plausible

<table>
<thead>
<tr>
<th>Reaction:</th>
<th>NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>During booting, the calibration data for the analog inputs is read and checked with respect to plausibility. At least one calibration data point was determined to be invalid.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>- power down/power up the power supply for the Control Unit. If it reoccurs, replace the module. In principle, operation could continue. The analog channel involved possibly does not achieve the specified accuracy.</td>
</tr>
</tbody>
</table>

### A05000 (N) Power unit: Overtemperature heat sink AC inverter

<table>
<thead>
<tr>
<th>Reaction:</th>
<th>NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>The alarm threshold for overtemperature at the inverter heat sink has been reached. The response is set using p0290. If the temperature of the heat sink increases by an additional 5 K, then fault F30004 is initiated.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check the following: - is the ambient temperature within the defined limit values? - have the load conditions and the load duty cycle been appropriately dimensioned? - has the cooling failed?</td>
</tr>
</tbody>
</table>

### A05001 (N) Power unit: Overtemperature depletion layer chip

<table>
<thead>
<tr>
<th>Reaction:</th>
<th>NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached. Note: - The response is set using p0290. - If the depletion layer temperature increases by an additional 15 K, then fault F30025 is triggered.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check the following: - is the ambient temperature within the defined limit values? - have the load conditions and the load duty cycle been appropriately dimensioned? - has the cooling failed? - pulse frequency too high? See also: r0037 (Power unit temperatures), p0290 (Power unit overload response)</td>
</tr>
</tbody>
</table>

### A05002 (N) Power unit: Air intake overtemperature

<table>
<thead>
<tr>
<th>Reaction:</th>
<th>NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>For chassis power units, the following applies: The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 °C (hysteresis 2 K). The response is set using p0290. If the air intake temperature increases by an additional 13 K, then fault F30035 is output.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check the following: - is the ambient temperature within the defined limit values? - has the fan failed? Check the direction of rotation.</td>
</tr>
</tbody>
</table>

### A05004 (N) Power unit: Rectifier overtemperature

<table>
<thead>
<tr>
<th>Reaction:</th>
<th>NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>The alarm threshold for the overtemperature of the rectifier has been reached. The response is set using p0290. If the temperature of the rectifier increases by an additional 5 K, then fault F30037 is triggered.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check the following: - is the ambient temperature within the defined limit values? - have the load conditions and the load duty cycle been appropriately dimensioned? - has the fan failed? Check the direction of rotation. - has a phase of the line supply failed? - is an arm of the supply (incoming) rectifier defective?</td>
</tr>
</tbody>
</table>
A05006 (N)  Power unit: Overtemperature thermal model
Reaction: NONE
Acknowledge: NONE
Cause: The temperature difference between the chip and heat sink has exceeded the permissible limit value (blocksize power units only). Depending on p0290, an appropriate overload response is initiated. See also: r0037 (Power unit temperatures)
Remedy: Not necessary. If the alarm does not disappear automatically and the temperature continues to rise, this can result in fault F30024. See also: p0290 (Power unit overload response)

F06310 (A)  Supply voltage (p0210) incorrectly parameterized
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The measured DC voltage lies outside the tolerance range after pre-charging has been completed. The following applies for the tolerance range: 1.16 * p0210 < r0070 < 1.6 * p0210
Note: The fault can only be acknowledged when the drive is powered down. See also: p0210 (Drive unit line supply voltage)
Remedy: - check the parameterized supply voltage and if required change (p0210). - check the line supply voltage. See also: p0210 (Drive unit line supply voltage)

A06921 (N)  Braking resistor phase unsymmetry
Reaction: NONE
Acknowledge: NONE
Cause: The three resistors of the braking chopper are not symmetrical.
Remedy: - check the feeder cables to the braking resistors. - If required, increase the value for detecting dissymmetry (p1364).

F06922  Braking resistor phase failure
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A phase failure for the brake resistor was detected. Fault value (r0949, interpret decimal): 11: Phase U 12: Phase V 13: Phase W
Remedy: Check the feeder cables to the braking resistors.

F07011  Drive: Motor overtemperature
Reaction: OFF2 (NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: KTY: The motor temperature has exceeded the fault threshold (p0605). The response parameterized in p0610 becomes active. PTC or bimetallic NC contact: The response threshold of 1650 Ohm was exceeded or the NC contact opened. The response parameterized in p0610 becomes active. Possible causes:
- Motor is overloaded
- motor ambient temperature too high.
- Wire break or sensor not connected Fault value (r0949, interpret decimal): See also: p0604 (Mot_temp_mod 2/KTY alarm threshold), p0605 (Mot_temp_mod 1/2 threshold), p0612 (Mot_temp_mod activation), p0625 (Motor ambient temperature)
Faults and alarms

List of faults and alarms

Remedy:
- Reduce the motor load.
- Check the ambient temperature and the motor ventilation.
- Check the wiring and the connection of the PTC or bimetallic NC contact.

See also: p0604 (Mot_temp_mod 2/KTY alarm threshold), p0605 (Mot_temp_mod 1/2 threshold), p0612 (Mot_temp_mod activation), p0625 (Motor ambient temperature)

A07012 (N) Drive: Motor temperature model 1 overtemperature
Reaction: NONE
Acknowledge: NONE
Cause: The thermal I2t motor model for synchronous motors identified that the alarm threshold was exceeded.
See also: r0034 (Motor utilization), p0605 (Mot_temp_mod 1/2 threshold), p0611 (I2t motor model thermal time constant), p0612 (Mot_temp_mod activation)
Remedy:
- Check the motor load and if required, reduce.
- Check the thermal time constant (p0611).
- Check the alarm threshold for motor temperature model 1 (I2t) (p0605).

See also: r0034 (Motor utilization), p0605 (Mot_temp_mod 1/2 threshold), p0611 (I2t motor model thermal time constant), p0612 (Mot_temp_mod activation)

A07014 (N) Drive: Motor temperature model configuration alarm
Reaction: NONE
Acknowledge: NONE
Cause: A fault has occurred in the configuration of the motor temperature model.
Alarm value (r2124, interpret decimal):
1: All motor temperature models: It is not possible to save the model temperature
See also: p0610 (Motor overtemperature response)
Remedy:
- Set the response for motor overtemperature to "Alarm and fault, no reduction of I_max" (p0610 = 2).

See also: p0610 (Motor overtemperature response)

A07015 Drive: Motor temperature sensor alarm
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected when evaluating the temperature sensor set in p0601.
A timer is started with the error. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 0.2 s after alarm A07015.
Possible causes:
- Wire breakage or sensor not connected (KTY: R > 2120 Ohm).
- Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Remedy:
- Make sure that the sensor is connected correctly.
- Check the parameterization (p0601).

See also: r0035 (Motor temperature), p0601 (Motor temperature sensor type)

F07016 Drive: Motor temperature sensor fault
Reaction: OFF1 (NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: An error was detected when evaluating the temperature sensor set in p0601.
Possible causes:
- Wire breakage or sensor not connected (KTY: R > 2120 Ohm).
- Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
Note:
If alarm A07015 is present, a timer is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 0.2 s after alarm A07015.
Remedy:
- Make sure that the sensor is connected correctly.
- Check the parameterization (p0601).

See also: r0035 (Motor temperature), p0601 (Motor temperature sensor type)
**List of faults and alarms**

### F07080  Drive: Incorrect control parameter

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY (POWER ON)

**Cause:** The closed-loop control parameters have been parameterized incorrectly (e.g. p0356 = L_spread = 0). Fault value (r0949, interpret decimal):
The fault value includes the parameter number involved. The following parameter numbers only occur as fault values for vector drives:
p0310, for synchronous motors: p0341, p0344, p0350, p0357
The following parameter numbers do not occur as fault values for synchronous motors:
p0354, p0358, p0360
See also: p0310, p0311, p0341, p0344, p0350, p0354, p0356, p0357, p0358, p0360, p0640, p1082, p1300

**Remedy:**
Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0).
See also: p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0640, p1082

### F07082  Macro: Execution not possible

**Reaction:** NONE

**Acknowledge:** IMMEDIATELY

**Cause:** The macro cannot be executed.
Fault value (r0949, interpret hexadecimal):
ccccbbbaa 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 (Macro drive unit), p1000 (Speed setpoint selection)

### F07083  Macro: ACX file not found

**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 (Macro drive unit), p1000 (Speed setpoint selection)

**Remedy:**
- check whether the file is saved in the appropriate directory on the memory card.
### List of faults and alarms

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F07084</td>
<td>Macro: Condition for WaitUntil not fulfilled</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>IMMEDIATELY</td>
</tr>
<tr>
<td>Cause:</td>
<td>The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts.</td>
</tr>
<tr>
<td></td>
<td>Parameter number for which the condition was set.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check and correct the conditions for the WaitUntil loop.</td>
</tr>
<tr>
<td>F07086</td>
<td>Units changeover: Parameter limit violation due to reference value change</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>IMMEDIATELY</td>
</tr>
<tr>
<td>Cause:</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>The values of the parameters were set to the corresponding violated minimum limit/maximum limit or to the factory setting.</td>
</tr>
<tr>
<td></td>
<td>Possible causes:</td>
</tr>
<tr>
<td></td>
<td>- the steady-state minimum limit/maximum limit or that defined in the application was violated.</td>
</tr>
<tr>
<td></td>
<td>Fault value (r0949, parameter):</td>
</tr>
<tr>
<td></td>
<td>Diagnostics parameter to display the parameters that were not able to be re-calculated.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check the adapted parameter value and if required correct.</td>
</tr>
<tr>
<td>F07088</td>
<td>Units changeover: Parameter limit violation due to units changeover</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>IMMEDIATELY</td>
</tr>
<tr>
<td>Cause:</td>
<td>A changeover of units was initiated. This resulted in a violation of a parameter limit</td>
</tr>
<tr>
<td></td>
<td>Possible causes for the violation of a parameter limit:</td>
</tr>
<tr>
<td></td>
<td>- When rounding off a parameter corresponding to its decimal places, the steady-state minimum limit or maximum limit was violated.</td>
</tr>
<tr>
<td></td>
<td>- inaccuracies for the data type &quot;FloatingPoint&quot;.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Fault value (r0949, interpret decimal):</td>
</tr>
<tr>
<td></td>
<td>Diagnostics parameter to display all parameters whose value had to be adapted.</td>
</tr>
<tr>
<td></td>
<td>See also: p0100 (IEC/NEMA mot stds), p0505 (Selecting the system of units), p0595 (Technological unit selection)</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Check the adapted parameter values and if required correct.</td>
</tr>
<tr>
<td>A07089</td>
<td>Changing over units: Function module activation is blocked because the units have been changed over</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>An attempt was made to activate a function module. This is not permissible if the units have already been changed over.</td>
</tr>
<tr>
<td></td>
<td>See also: p0100 (IEC/NEMA mot stds), p0505 (Selecting the system of units)</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Restore units that have been changed over to the factory setting.</td>
</tr>
<tr>
<td>A07200</td>
<td>Drive: Master control ON command present</td>
</tr>
<tr>
<td>Reaction:</td>
<td>NONE</td>
</tr>
<tr>
<td>Acknowledge:</td>
<td>NONE</td>
</tr>
<tr>
<td>Cause:</td>
<td>The ON/OFF1 command is present (no 0 signal).</td>
</tr>
<tr>
<td></td>
<td>The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control.</td>
</tr>
<tr>
<td>Remedy:</td>
<td>Switch the signal via binector input p0840 (current CDS) or control word bit 0 via the master control to 0.</td>
</tr>
</tbody>
</table>
F07220 (N, A) Drive: Master control by PLC missing

**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.

F07320 Drive: Automatic restart interrupted

**Reaction:**
OFF2

**Acknowledge:**
IMMEDIATELY

**Cause:**
- The specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt.
- there is no active ON command.
- the monitoring time for the power unit has expired.
- when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically powered up again.

Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.

**Remedy:**
- increase the number of restart attempts (p1211).
- increase the delay time in p1212 and/or the monitoring time in p1213.
- issue an ON command (p0840).
- Reduce the delay time for resetting the start counter p1213[1] so that fewer faults are registered in the time interval.

A07321 Drive: Automatic restart active

**Reaction:**
NONE

**Acknowledge:**
NONE

**Cause:**
The automatic restart (AR) is active. When the line supply returns and/or the causes of the existing faults are removed the drive is automatically restarted. The pulses are enabled and the motor starts to rotate.
For p1210 = 26, the alarm after the line supply returns is also displayed if there is no fault and there is no ON command. Restarting is realized with the delayed setting of the ON command.

**Remedy:**
- the automatic restart (AR) should, if required, be inhibited (p1210 = 0).
- an automatic restart can be directly interrupted by withdrawing the power-on command (BI: p0840).
- for p1210 = 26: by withdrawing the OFF2-/OFF3 control commands.

F07330 Flying restart: Measured search current too low

**Reaction:**
OFF2 (NONE, OFF1)

**Acknowledge:**
IMMEDIATELY

**Cause:**
During a flying restart, it was identified that the search current reached is too low. It is possible that the motor is not connected.

**Remedy:**
Check the motor feeder cables.

F07331 Flying restart: Function not supported

**Reaction:**
OFF2 (NONE, OFF1)

**Acknowledge:**
IMMEDIATELY

**Cause:**
It is not possible to power up with the motor rotating (no flying restart). In the following cases, the "flying restart" function is not supported:
- Perm.-magnet synch. motors (PEM): operation with U/f char. and sensorless vector control.

**Remedy:**
De-activate the "flying restart" function (p1200 = 0).
A07400 (N)  Drive: DC link voltage maximum controller active

Reaction: NONE
Acknowledge: NONE

Cause: The DC link voltage controller has been activated because the upper switch-in threshold has been exceeded (r1242, r1282).
- The ramp-down times are automatically increased in order to maintain the DC link voltage (r0070) within the permissible limits. There is a system deviation between the setpoint and actual speeds. When the DC link voltage controller is switched out (disabled), this is the reason that the ramp-function generator output is set to the speed actual value.

See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller configuration (vector control)), p1280 (Vdc controller configuration (U/f))

Remedy:
- If the controller is not to intervene:
  - increase the ramp-down times.
  - switch-off the Vdc_max controller (p1240 = 0 for vector control, p1280 = 0 for U/f control).
- If the ramp-down times are not to be changed:
  - use a chopper or regenerative feedback unit.

A07401 (N)  Drive: DC link voltage maximum controller de-activated

Reaction: NONE
Acknowledge: NONE

Cause: The Vdc_max controller can no longer maintain the DC link voltage (r0070) below the limit value (r1242, r1282) and was therefore switched out (disabled).
- the line supply voltage is permanently higher than specified for the power unit.
- the motor is permanently in the regenerative mode as a result of a load that is driving the motor.

Remedy:
- check whether the input voltage is within the permissible range.
- check whether the load duty cycle and load limits are within the permissible limits.

A07402 (N)  Drive: DC link voltage minimum controller active

Reaction: NONE
Acknowledge: NONE

Cause: The DC link voltage controller has been activated as the lower switch-in threshold has been undershot (r1246, r1286).
- The kinetic energy of the motor is used to buffer the DC link. The drive is therefore braked.

See also: r0056 (Status word, closed-loop control), p1240 (Vdc controller configuration (vector control)), p1280 (Vdc controller configuration (U/f))

Remedy:
The alarm disappears when power supply returns.

F07404  Drive: DC link voltage monitoring Vdc_Max

Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY

Cause: The monitoring of the DC link voltage p1284 has responded (only U/f control).

Remedy:
- check the line supply voltage.
- check the braking module.
- adapt the device supply voltage (p0210).
- adapt the DC link voltage monitoring (p1284).

F07405 (N, A)  Drive: Kinetic buffering minimum speed not reached

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: During kinetic buffering the speed fell below minimum speed (p1257 or p1297 for vector drives with U/f control) and the line supply did not return.

Remedy:
Check the speed threshold for the Vdc_min controller (kinetic buffering) (p1257, p1297).
See also: p1257 (Vdc_min controller speed threshold)
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<tr>
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<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>F07406 (N, A)</td>
<td>Drive: Kinetic buffering maximum time exceeded</td>
<td>OFF3</td>
<td>IMMEDIATELY</td>
<td>The maximum buffer time (p1255 and p1295 for vector drives with U/f control) has been exceeded without the line supply having returned.</td>
<td>Check the time threshold for Vdc-min controller (kinetic buffering) (p1255, p1295). See also: p1255 (Vdc_min controller time threshold)</td>
</tr>
<tr>
<td>A07409</td>
<td>Drive: U/f control, current limiting controller active</td>
<td>NONE</td>
<td>NONE</td>
<td>The current limiting controller of the U/f control was activated because the current limit was exceeded.</td>
<td>The alarm automatically disappears after one of the following measures: - increase current limit (p0640). - reduce the load. - slow down the ramp up to the setpoint speed.</td>
</tr>
<tr>
<td>F07410</td>
<td>Drive: Current controller output limited</td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>The condition &quot;I_act = 0 and Uq_set_1 longer than 16 ms at its limit&quot; is present and can be caused by the following: - motor not connected or motor contactor open. - motor data and motor configuration (star-delta) do not match. - no DC link voltage present. - power unit defective. - the &quot;flying restart&quot; function is not activated.</td>
<td>- connect the motor or check the motor contactor. - check the motor parameterization and the connection type (star-delta). - check the DC link voltage (r0070). - check the power unit. - activate the &quot;flying restart&quot; function (p1200).</td>
</tr>
<tr>
<td>F07426 (A)</td>
<td>Technology controller actual value limited</td>
<td>OFF1</td>
<td>IMMEDIATELY</td>
<td>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.</td>
<td>- 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 reference quantity), p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)</td>
</tr>
<tr>
<td>A07428 (N)</td>
<td>Technology controller parameterizing error</td>
<td>NONE</td>
<td>NONE</td>
<td>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.</td>
<td>Set the output limit in p2291 higher than in p2292. See also: p2291 (Technology controller maximum limiting), p2292 (Technology controller minimum limiting)</td>
</tr>
</tbody>
</table>
## Faults and alarms

### List of faults and alarms

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
<th>Reaction</th>
<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>F07435 (N)</td>
<td>Drive: Setting the ramp-function generator for sensorless vector control</td>
<td>OFF2 (IASC/DCBRK, NONE, OFF1, OFF3)</td>
<td>IMMEDIATELY</td>
<td>During operation with sensorless vector control (r1407.1) the ramp-function generator was stopped (p1141). An internal setting command of the ramp-function generator output caused the set setpoint speed to be frozen.</td>
<td>- de-activate the holding command for the ramp-function generator (p1141).&lt;br&gt;- suppress the fault (p2101, p2119). This is necessary if the ramp-function generator is held using jogging and the speed setpoint is simultaneously inhibited (r0898.6).</td>
</tr>
<tr>
<td>A07530</td>
<td>Drive: Drive Data Set DDS not present</td>
<td>NONE</td>
<td>NONE</td>
<td>The selected drive data set is not available. 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), r0837 (Drive Data Set DDS selected)</td>
<td>- select the existing drive data set.&lt;br&gt;- set up additional drive data sets.</td>
</tr>
<tr>
<td>A07531</td>
<td>Drive: Command Data Set CDS not present</td>
<td>NONE</td>
<td>NONE</td>
<td>The selected command data set is not available (p0836 &gt; 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)</td>
<td>- select the existing command data set.&lt;br&gt;- set up additional command data sets.</td>
</tr>
<tr>
<td>F07800</td>
<td>Drive: No power unit present</td>
<td>IMMEDIATELY</td>
<td>IMMEDIATELY</td>
<td>The power unit parameters cannot be read or no parameters are stored in the power unit.&lt;br&gt;It is possible that the DRIVE-CLiQ cable between the Control Unit and power unit is interrupted or defective. Note: This fault also occurs if an incorrect topology was selected in the commissioning software and this parameterization is then downloaded to the Control Unit.</td>
<td>- carry out a POWER ON (power off/on) for all components.&lt;br&gt;- check the DRIVE-CLiQ cable between the Control Unit and power unit.&lt;br&gt;- Check the power unit and replace if necessary.&lt;br&gt;- check the Control Unit, and if required replace it.&lt;br&gt;- after correcting the topology, the parameters must be again downloaded using the commissioning software.</td>
</tr>
<tr>
<td>F07801</td>
<td>Drive: Motor overcurrent</td>
<td>OFF2 (NONE, OFF1, OFF3)</td>
<td>IMMEDIATELY</td>
<td>The permissible motor limit current was exceeded.&lt;br&gt;- effective current limit set too low.&lt;br&gt;- current controller not correctly set.&lt;br&gt;- U/f operation: Up ramp was set too short or the load is too high.&lt;br&gt;- U/f operation: Short-circuit in the motor cable or ground fault.&lt;br&gt;- U/f operation: Motor current does not match current of power unit.&lt;br&gt;- Switch to rotating motor without flying restart function (p1200).&lt;br&gt;Note: Limit current = 2 x minimum (p0640, 4 x p0305 x p0306) &gt;= 2 x p0305 x p0306</td>
<td>- check the current limits (p0640).&lt;br&gt;- U/f control: Check the current limiting controller (p1340 ... p1346).&lt;br&gt;- increase the up ramp (p1120) or reduce the load.&lt;br&gt;- check the motor and motor cables for short-circuit and ground fault.&lt;br&gt;- check the motor for the star-delta configuration and rating plate parameterization.&lt;br&gt;- check the power unit and motor combination.&lt;br&gt;- Choose &quot;flying restart&quot; function (p1200) if switched to rotating motor.</td>
</tr>
</tbody>
</table>
Faults and alarms

List of faults and alarms

F07802 Drive: Infeed or power unit not ready

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause:
After an internal power-on command, the infeed or drive does not signal ready.
- monitoring time is too short.
- DC link voltage is not present.
- associated infeed or drive of the signaling component is defective.
- supply voltage incorrectly set.

Remedy:
- ensure that there is a DC link voltage. Check the DC link busbar. Enable the infeed.
- replace the associated infeed or drive of the signaling component.
- check the line supply voltage setting (p0210).

A07805 (N) Drive: Power unit overload I2t

Reaction: NONE

Acknowledge: NONE

Cause:
Alarm threshold for I2t overload of the power unit exceeded.
The response parameterized in p0290 becomes active.
See also: p0290 (Power unit overload response)

Remedy:
- reduce the continuous load.
- adapt the load duty cycle.
- check the assignment of the motor and power unit rated currents.

F07806 Drive: Regenerative power limit exceeded (F3E)

Reaction: OFF2 (IASC/DCBRK)

Acknowledge: IMMEDIATELY

Cause:
For blocksize power units, types PM250 and PM260, the regenerative rated power r0206[2] was exceeded for more than 10 s.
See also: r0206 (Rated power unit power), p1531 (Power limit regenerative)

Remedy:
- increase the down ramp.
- reduce the driving load.
- use a power unit with a higher regenerative feedback capability.
- for vector control, the regenerative power limit in p1531 can be reduced so that the fault is no longer triggered.

F07807 Drive: Short-circuit/ground fault detected

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause:
A phase-phase short-circuit or ground fault was detected at the motor-side output terminals of the converter.
Fault value (r0949, interpret decimal):
1: Short-circuit, phases U-V
2: Short-circuit, phases U-W
3: Short-circuit, phases V-W
4: Ground fault with overcurrent
1xxxx: Ground fault with current in phase U detected (xxxx = component of the current in phase V in per mille)
2xxxx: Ground fault with current in phase V detected (xxxx = component of the current in phase U in per mille)
Note:
Also when interchanging the line and motor cables is identified as a motor-side short circuit.
Connecting to a motor that is either not de-energized or partially de-energized is possibly detected as ground fault.

Remedy:
- check the motor-side converter connection for a phase-phase short-circuit.
- rule-out interchanged line and motor cables.
- check for a ground fault.
For a ground fault:
- do not enable the pulses when connecting to a rotating motor without the "Flying restart" function activated (p1200).
- increase the de-energization time (p0347).
- If required, deactivate the monitoring (p1901).
**F07808 (A)**  
**HF damping module: damping not ready**  
**Reaction:** OFF2 (NONE, OFF1, OFF3)  
**Acknowledge:** IMMEDIATELY  
**Cause:** When switching on or in the switched-on state, the HF damping module does not return a ready signal.  
**Remedy:**  
- Check the DRIVE-CLiQ wiring to the HF damping module.  
- Check the 24 V supply voltage.  
- If required, replace the HF damping module.  
**Note:**  
HF Damping Module

**F07810**  
**Drive: Power unit EEPROM without rated data**  
**Reaction:** NONE  
**Acknowledge:** IMMEDIATELY  
**Cause:** No rated data are stored in the power unit EEPROM.  
See also: p0205 (Power unit application), r0206 (Rated power unit power), r0207 (Rated power unit current), r0208 (Rated power unit line supply voltage), r0209 (Power unit maximum current)  
**Remedy:** Replace the power unit or inform Siemens Customer Service.

**A07850 (F)**  
**External alarm 1**  
**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The BICO signal for "external alarm 1" was triggered.  
The condition for this external alarm is fulfilled.  
See also: p2112 (External alarm 1)  
**Remedy:** Eliminate the causes of this alarm.

**F07860 (A)**  
**External fault 1**  
**Reaction:** OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The BICO signal "external fault 1" was triggered.  
See also: p2106 (External fault 1)  
**Remedy:** Eliminate the causes of this fault.

**F07900 (N, A)**  
**Drive: Motor blocked**  
**Reaction:** OFF2 (NONE, OFF1, OFF3, STOP2)  
**Acknowledge:** IMMEDIATELY  
**Cause:** Motor has been operating at the torque limit at a low speed for a longer period of time and below the set speed threshold.  
This signal can also be triggered if the speed is oscillating and the speed controller output repeatedly goes to its limit.  
It may also be the case that thermal monitoring of the power unit reduces the current limit (see p0290), thereby causing the motor to decelerate.  
**Remedy:**  
- Check that the motor can freely move.  
- Check the effective torque limit (r1538, r1539).  
- Check the direction of rotation enable signals for a flying restart of the motor (p1110, p1111).  
- For U/f control: check the current limits and acceleration times (p0640, p1120).

**F07901**  
**Drive: Motor overspeed**  
**Reaction:** OFF2 (IASC/DCBRK)  
**Acknowledge:** IMMEDIATELY  
**Cause:**  
The maximum permissible speed was either positively or negatively exceeded.  
The maximum permissible positive speed is formed as follows: Minimum (p1082)  
The maximum permissible negative speed is formed as follows: Maximum (-p1082)  
**Remedy:**  
The following applies for a positive direction of rotation:  
- Check r1084 and if required, correct p1082.  
The following applies for a negative direction of rotation:  
- Check r1087 and if required, correct p1082.  
Activate pre-control of the speed limiting controller (bit 7 = 1).
Increase the hysteresis for the overspeed signal. This upper limit is dependent upon the maximum motor speed p0322 and the maximum speed p1082 of the setpoint channel.

**F07902 (N, A)**

**Drive: Motor stalled**

**Reaction:**
OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

**Acknowledge:**
IMMEDIATELY

**Cause:**
The system has identified that the motor has stalled for a time longer than is set. Fault value (r0949, interpret decimal):
1: Reserved.
2: Stall detection using r1408.12 (p1745) or via (r0084 - r0083).

**Remedy:**
Steps should always be taken to ensure that both motor data identification and the rotating measurement were carried out (see p1900, r3925).
- check whether the drive stalls solely due to the load in controlled mode or when the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.
- if the motor excitation time (p0346) was significantly reduced and the drive stalls when it is switched on and run immediately, p0346 should be increased again.
- check whether the motor cables are disconnected (see A07929).
- check the current limits (p0640, r0067, r0289). If the current limits are too low, then the drive cannot be magnetized.
- If the fault occurs with fault value 2 when the motor accelerates very quickly to the field weakening range, the deviation between the flux setpoint and flux actual value can be reduced and, in turn, the message prevented, by reducing p1596 or p1553.

**A07910 (N)**

**Drive: Motor overtemperature**

**Reaction:**
NONE

**Acknowledge:**
NONE

**Cause:**
KTY or no sensor:
The measured motor temperature or the temperature of the motor temperature model 2 has exceeded the alarm threshold (p0604). The response parameterized in p0610 becomes active.
PTC or bimetallic NC contact:
The response threshold of 1650 Ohm was exceeded or the NC contact opened.
Alarm value (r2124, interpret decimal):
11: No output current reduction.
12: Output current reduction active.
See also: p0604 (Mot_temp_mod 2/KTY alarm threshold), p0610 (Motor overtemperature response)

**Remedy:**
- check the motor load.
- check the motor ambient temperature.
- check KTY84.
- check overtemperatures of the motor temperature model 2.
See also: p0612 (Mot_temp_mod activation), p0625 (Motor ambient temperature)

**A07927**

**DC braking active**

**Reaction:**
NONE

**Acknowledge:**
NONE

**Cause:**
The motor is braked with DC current. DC braking is active.
1) A message with response DCBRK is active. The motor is braked with the braking current set in p1232 for the duration set in p1233. If the standstill threshold is fallen below, then braking is prematurely canceled.
2) DC braking has been activated at binector input p1230 with the DC braking set (p1230 = 4). Braking current p1232 is injected until this binector input becomes inactive.

**Remedy:**
Not necessary.
The alarm automatically disappears once DC braking has been executed.

**A07929 (F)**

**Drive: No motor detected**

**Reaction:**
NONE

**Acknowledge:**
NONE

**Cause:**
The absolute current value is so small after enabling the inverter pulses that no motor is detected.

**Note:**
In the case of vector control and an induction motor, this alarm is followed by the fault F07902.
Faults and alarms

List of faults and alarms

Remedy:  
- check the motor feeder cables.  
- check the voltage boost of the U/f control (p1310).  
- carry out a standstill measurement to set the stator resistance (p0350).  

F07950 (A) Motor parameter incorrect  
Reaction: NONE  
Acknowledge: IMMEDIATELY  
Cause: The motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor)  
Fault value (r0949, interpret decimal):  
Parameter number involved.  
See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0316, p0320, p0322, p0323  
Remedy: Compare the motor data with the rating plate data and if required, correct.  

F07967 Drive: Pole position identification internal fault  
Reaction: OFF2 (NONE, OFF1)  
Acknowledge: IMMEDIATELY  
Cause: A fault has occurred during the pole position identification routine. Only for internal Siemens troubleshooting.  
Remedy: Carry out a POWER ON.  

F07968 Drive: Lq-Ld measurement incorrect  
Reaction: OFF2  
Acknowledge: IMMEDIATELY  
Cause: A fault has occurred during the Lq-Ld measurement.  
Fault value (r0949, interpret decimal):  
10: Stage 1: The ratio between the measured current and zero current is too low.  
12: Stage 1: The maximum current was exceeded.  
15: Second harmonic too low.  
16: Drive converter too small for the measuring technique.  
17: Abort due to pulse inhibit.  
Remedy: For fault value = 10:  
Check whether the motor is correctly connected. Replace the power unit involved.  
De-activate technique (p1909).  
For fault value = 12:  
Check whether motor data have been correctly entered.  
De-activate technique (p1909).  
For fault value = 16:  
De-activate technique (p1909).  
For fault value = 17:  
Repeat technique.  

F07969 Drive: Incorrect pole position identification  
Reaction: OFF2  
Acknowledge: IMMEDIATELY  
Cause: A fault has occurred during the pole position identification routine.  
Fault value (r0949, interpret decimal):  
1: Current controller limited  
2: Motor shaft locked.  
10: Stage 1: The ratio between the measured current and zero current is too low.  
11: Stage 2: The ratio between the measured current and zero current is too low.  
12: Stage 1: The maximum current was exceeded.  
13: Stage 2: The maximum current was exceeded.  
14: Current difference to determine the +d axis too low.  
15: Second harmonic too low.  
16: Drive converter too small for the measuring technique.  
17: Abort due to pulse inhibit.  
18: First harmonic too low.  
20: Pole position identification requested with the motor shaft rotating and activated "flying restart" function.
**Remedy:**

For fault value = 1:
- Check whether the motor is correctly connected.
- Check whether motor data have been correctly entered.
- Replace the power unit involved.

For fault value = 2:
- Bring the motor into a no-load condition.

For fault value = 10:
- Check whether the motor is correctly connected.
- Replace the power unit involved.

For fault value = 11:
- Check whether the motor is correctly connected.
- Replace the power unit involved.

For fault value = 12:
- Check whether motor data have been correctly entered.

For fault value = 13:
- Check whether motor data have been correctly entered.

For fault value = 17:
- Repeat technique.

For fault value = 20:
- Before carrying out a pole position identification routine ensure that the motor shaft is absolutely stationary (zero speed).

---

**A07976**

**Drive: Fine encoder calibration activated**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
The alarm indicates the phases of the fine encoder calibration using the alarm value.

Alarm value (interpret decimal):
1: Fine encoder calibration active.
2: Rotating measurement started (set the setpoint speed > 40 % rated motor speed).
3: Rotating measurement lies within the speed and torque range.
4: Rotating measurement successful: pulse inhibit can be initiated to accept the values.
5: Fine encoder calibration is calculated.
10: Speed too low, rotating measurement interrupted.
12: Torque too high, rotating measurement interrupted.

**Remedy:**
- Re alarm value = 10:
  - Increase the speed.
- Re alarm value = 12:
  - Bring the drive into a no-load condition.

---

**A07980**

**Drive: Rotating measurement activated**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
The rotating measurement (automatic speed controller optimization) is activated.

The rotating measurement is carried out at the next power-on command.

Note:
During the rotating measurement it is not possible to save the parameters (p0971).

See also: p1960 (Rotating measurement selection)

**Remedy:**
- Not necessary.

The alarm disappears automatically after the speed controller optimization has been successfully completed or for the setting p1900 = 0.

---

**A07981**

**Drive: Enable signals for the rotating measurement missing**

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
The rotating measurement cannot be started due to missing enable signals.

For p1959.13 = 1, the following applies:
- enable signals for the ramp-function generator missing (see p1140 ... p1142).
- enable signals for the speed controller integrator missing (see p1476, p1477).

**Remedy:**
- acknowledge faults that are present.
- establish missing enable signals.

See also: r0002 (Drive operating display), r0046 (Missing enable sig)
F07983 Drive: Rotating measurement saturation characteristic

**Reaction:**
OFF1 (NONE, OFF2)

**Acknowledge:** IMMEDIATELY

**Cause:**
A fault has occurred while determining the saturation characteristic.
Fault value (r0949, interpret decimal):
1: The speed did not reach a steady-state condition.
2: The rotor flux did not reach a steady-state condition.
3: The adaptation circuit did not reach a steady-state condition.
4: The adaptation circuit was not enabled.
5: Field weakening active.
6: The speed setpoint was not able to be approached as the minimum limiting is active.
7: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
8: The speed setpoint was not able to be approached as the maximum limiting is active.
9: Several values of the determined saturation characteristic are not plausible.
10: Saturation characteristic could not be sensibly determined because load torque too high.

**Remedy:**
For fault value = 1:
- the total drive moment of inertia is far higher than that of the motor (p0341, p0342).
De-select rotating measurement (p1960), enter the moment of inertia p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement.
Re fault value = 1 ... 2:
- increase the measuring speed (p1961) and repeat the measurement.
Re fault value = 1 ... 4:
- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).
For fault value = 5:
- the speed setpoint (p1961) is too high. Reduce the speed.
For fault value = 6:
- adapt the speed setpoint (p1961) or minimum limiting (p1080).
For fault value = 7:
- adapt the speed setpoint (p1961) or suppression (skip) bandwidths (p1091 ... p1092, p1101).
For fault value = 8:
- adapt the speed setpoint (p1961) or maximum limit (p1082, p1083 and p1086).
Re fault value = 9, 10:
- the measurement was carried out at an operating point where the load torque is too high. Select a more suitable operating point, either by changing the speed setpoint (p1961) or by reducing the load torque. The load torque may not be varied while making measurements.

**Note:**
The saturation characteristic identification routine can be disabled using p1959.1.
See also: p1959 (Rotating measurement configuration)

F07984 Drive: Speed controller optimization, moment of inertia

**Reaction:**
OFF1 (NONE, OFF2)

**Acknowledge:** IMMEDIATELY

**Cause:**
A fault has occurred while identifying the moment of inertia.
Fault value (r0949, interpret decimal):
1: The speed did not reach a steady-state condition.
2: The speed setpoint was not able to be approached as the minimum limiting is active.
3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
4: The speed setpoint was not able to be approached as the maximum limiting is active.
5: It is not possible to increase the speed by 10% as the minimum limiting is active.
6: It is not possible to increase the speed by 10% as the suppression (skip) bandwidth is active.
7: It is not possible to increase the speed by 10% as the maximum limiting is active.
8: The torque difference after the speed setpoint step is too low in order to be able to still reliably identify the moment of inertia.
9: Too few data to be able to reliably identify the moment of inertia.
10: After the setpoint step, the speed either changed too little or in the incorrect direction.
11: The identified moment of inertia is not plausible.
Remedy: For fault value = 1:
- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).
Re fault value = 2, 5:
- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).
Re fault value = 3, 6:
- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1092, p1101).
Re fault value = 4, 7:
- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).
For fault value = 8:
- the total drive moment of inertia is far higher than that of the motor (refer to p0341, p0342). De-select rotating measurement (p1960), enter the moment of inertia p0342, re-calculate the speed controller p0340 = 4 and repeat the measurement.
For fault value = 9:
- check the moment of inertia (p0341, p0342). After the change, re-calculate (p0340 = 3 or 4).
For fault value = 10:
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
Note:
The moment of inertia identification routine can be disabled using p1959.2.
See also: p1959 (Rotating measurement configuration)

F07985 Drive: Speed controller optimization (oscillation test)
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: A fault has occurred during the vibration test.
Fault value (r0949, interpret decimal):
1: The speed did not reach a steady-state condition.
2: The speed setpoint was not able to be approached as the minimum limiting is active.
3: The speed setpoint was not able to be approached as the suppression (skip) bandwidth is active.
4: The speed setpoint was not able to be approached as the maximum limiting is active.
5: Torque limits too low for a torque step.
6: No suitable speed controller setting was found.
Remedy: For fault value = 1:
- check the motor parameters (rating plate data). After the change: Calculate p0340 = 3.
- check the moment of inertia (p0341, p0342). After the change: Calculate p0340 = 3.
- carry out a motor data identification routine (p1910).
- if required, reduce the dynamic factor (p1967 < 25 %).
For fault value = 2:
- adapt the speed setpoint (p1965) or adapt the minimum limit (p1080).
For fault value = 3:
- adapt the speed setpoint (p1965) or suppression (skip) bandwidths (p1091 ... p1092, p1101).
For fault value = 4:
- adapt the speed setpoint (p1965) or maximum limit (p1082, p1083 and p1086).
For fault value = 5:
- increase the torque limits (e.g. p1520, p1521).
For fault value = 6:
- reduce the dynamic factor (p1967).
- disable the vibration test (p1959.4 = 0) and repeat the rotating measurement.
See also: p1959 (Rotating measurement configuration)

F07986 Drive: Rotating measurement ramp-function generator
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: During the rotating measurements, problems with the ramp-function generator occurred.
Fault value (r0949, interpret decimal):
1: The positive and negative directions are inhibited.
Remedy: For fault value = 1:
Enable the direction (p1110 or p1111).
### Faults and alarms

#### List of faults and alarms

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
<th>Reaction</th>
<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>F07988</td>
<td>Drive: Rotating measurement, no configuration selected</td>
<td>OFF2 (NONE, OFF1)</td>
<td>IMMEDIATELY</td>
<td>When configuring the rotating measurement (p1959), no function was selected.</td>
<td>Select at least one function for automatic optimization of the speed controller (p1959). See also: p1959 (Rotating measurement configuration)</td>
</tr>
<tr>
<td>F07990</td>
<td>Drive: Incorrect motor data identification</td>
<td>OFF2 (NONE, OFF1)</td>
<td>IMMEDIATELY</td>
<td>A fault has occurred during the identification routine.</td>
<td>Fault value (r0949, interpret decimal):</td>
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<td></td>
<td>1: Current limit value reached.</td>
<td>1: Current limit value reached.</td>
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<td>2: Identified stator resistance lies outside the expected range 0.1 ... 100% of Zn.</td>
<td>2: Identified stator resistance lies outside the expected range 0.1 ... 100% of Zn.</td>
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<td>3: Identified rotor resistance lies outside the expected range 0.1 ... 100% of Zn.</td>
<td>3: Identified rotor resistance lies outside the expected range 0.1 ... 100% of Zn.</td>
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<td>4: Identified stator reactance lies outside the expected range 50 ... 500% of Zn.</td>
<td>4: Identified stator reactance lies outside the expected range 50 ... 500% of Zn.</td>
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<td>5: Identified magnetizing reactance lies outside the expected range 50 ... 500% of Zn.</td>
<td>5: Identified magnetizing reactance lies outside the expected range 50 ... 500% of Zn.</td>
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<td>6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s.</td>
<td>6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s.</td>
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<td>7: Identified total leakage reactance lies outside the expected range 4 ... 50% of Zn.</td>
<td>7: Identified total leakage reactance lies outside the expected range 4 ... 50% of Zn.</td>
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<td>8: Identified stator leakage reactance lies outside the expected range 2 ... 50% of Zn.</td>
<td>8: Identified stator leakage reactance lies outside the expected range 2 ... 50% of Zn.</td>
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<td>9: Identified rotor leakage reactance lies outside the expected range 2 ... 50% of Zn.</td>
<td>9: Identified rotor leakage reactance lies outside the expected range 2 ... 50% of Zn.</td>
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<td>10: Motor has been incorrectly connected.</td>
<td>10: Motor has been incorrectly connected.</td>
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<td>11: Motor shaft rotates.</td>
<td>11: Motor shaft rotates.</td>
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<td>12: Ground fault detected.</td>
<td>12: Ground fault detected.</td>
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<td></td>
<td>20: Identified threshold voltage of the semiconductor devices lies outside the expected range 0 ... 10 V.</td>
<td>20: Identified threshold voltage of the semiconductor devices lies outside the expected range 0 ... 10 V.</td>
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<td>30: Current controller in voltage limiting.</td>
<td>30: Current controller in voltage limiting.</td>
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<td>40: At least one identification contains errors. The identified parameters are not saved to prevent inconsistencies.</td>
<td>40: At least one identification contains errors. The identified parameters are not saved to prevent inconsistencies.</td>
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<tr>
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<td>50: The selected sampling time is too low for the motor identification (p0115[0]).</td>
<td>50: The selected sampling time is too low for the motor identification (p0115[0]).</td>
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<td>Note:</td>
<td>Note:</td>
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<td>Percentage values are referred to the rated motor impedance:</td>
<td>Percentage values are referred to the rated motor impedance:</td>
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<td></td>
<td>Zn = Vmot.nom / sqrt(3) / Imot,nom</td>
<td>Zn = Vmot.nom / sqrt(3) / Imot,nom</td>
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<td>Remedy:</td>
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<td>Re fault value = 1 ... 40:</td>
<td>Re fault value = 1 ... 40:</td>
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<td></td>
<td>- check whether motor data have been correctly entered in p0300, p0304 ... p0311.</td>
<td>- check whether motor data have been correctly entered in p0300, p0304 ... p0311.</td>
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<td></td>
<td>- is there an appropriate relationship between the motor power rating and that of the power unit? The ratio of the power unit to the rated motor current should not be less than 0.5 and not be greater than 4.</td>
<td>- is there an appropriate relationship between the motor power rating and that of the power unit? The ratio of the power unit to the rated motor current should not be less than 0.5 and not be greater than 4.</td>
</tr>
<tr>
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<td></td>
<td>- check connection type (star-delta).</td>
<td>- check connection type (star-delta).</td>
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<td></td>
<td></td>
<td>Re fault value = 4, 7:</td>
<td>Re fault value = 4, 7:</td>
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<td>- check whether the inductance in p0233 is correctly set.</td>
<td>- check whether the inductance in p0233 is correctly set.</td>
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<td></td>
<td>- check whether motor has been correctly connected (star-delta).</td>
<td>- check whether motor has been correctly connected (star-delta).</td>
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<td>Re fault value = 11 in addition:</td>
<td>Re fault value = 11 in addition:</td>
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<td></td>
<td></td>
<td>- Deactivate oscillation monitoring (p1909.7 = 1).</td>
<td>- Deactivate oscillation monitoring (p1909.7 = 1).</td>
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<td>For fault value = 12:</td>
<td>For fault value = 12:</td>
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<td>- check the power cable connections.</td>
<td>- check the power cable connections.</td>
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<td>- check the motor.</td>
<td>- check the motor.</td>
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<td>- check the CT.</td>
<td>- check the CT.</td>
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<td>For fault value = 50:</td>
<td>For fault value = 50:</td>
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<td></td>
<td>- Perform a motor data identification with a higher sampling time, and after this, change to the required higher sampling time (p0115[0]).</td>
<td>- Perform a motor data identification with a higher sampling time, and after this, change to the required higher sampling time (p0115[0]).</td>
</tr>
<tr>
<td>A07991 (N)</td>
<td>Drive: Motor data identification activated</td>
<td>NONE</td>
<td>NONE</td>
<td>The motor data identification routine is activated.</td>
<td>The motor data identification routine is activated.</td>
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<td></td>
<td>The motor data identification routine is carried out at the next power-on command.</td>
<td>The motor data identification routine is carried out at the next power-on command.</td>
</tr>
<tr>
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<td></td>
<td>Once motor data identification has been completed or de-activated, the option to save the parameter assignment will be made available again.</td>
<td>Once motor data identification has been completed or de-activated, the option to save the parameter assignment will be made available again.</td>
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<td></td>
<td>See also: p1910 (Motor data identification selection)</td>
<td>See also: p1910 (Motor data identification selection)</td>
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<td>Remedy:</td>
<td>Remedy:</td>
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<td></td>
<td></td>
<td>Not necessary.</td>
<td>Not necessary.</td>
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<td></td>
<td>The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1900 = 0.</td>
<td>The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1900 = 0.</td>
</tr>
</tbody>
</table>
# A07994 (F, N)
**Drive: motor data identification not performed**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The "vector control" mode has been selected and a motor data identification has still not been performed.  
The alarm is initiated when changing the drive data set (see r0051) in the following cases:  
- vector control is parameterized in the actual drive data set (p1300 >= 20).  
and  
- motor data identification has still not been performed in the actual drive data set (see r3925).  
**Note:**  
For SINAMICS G120, a check is made and an alarm is output also when exiting commissioning and when the system powers up.  
**Remedy:**  
- Perform motor data identification (see p1900).  
- If required, parameterize "U/f control" (p1300 < 20).  
- switch over to a drive data set, in which the conditions do not apply.

---

# F08010 (N, A)
**CU: Analog-to-digital converter**

**Reaction:** OFF1 (IASC/DCCBRK, NONE, OFF2, OFF3, STOP1, STOP2)  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The analog-to-digital converter on the Control Unit has not supplied any converted data.  
**Remedy:**  
- check the power supply.  
- replace Control Unit.

---

# F08501 (N, A)
**PROFINET: Setpoint timeout**

**Reaction:** OFF3 (IASC/DCCBRK, NONE, OFF1, OFF2, STOP1, STOP2)  
**Acknowledge:** IMMEDIATELY  
**Cause:** The reception of setpoints from PROFINET has been interrupted.  
- bus connection interrupted.  
- controller switched off.  
- controller set into the STOP state.  
**Remedy:**  
- Restore the bus connection and set the controller to RUN.  
- check the set monitoring time if the error persists.

---

# F08502 (A)
**PROFINET: Monitoring time sign-of-life expired**

**Reaction:** OFF1 (OFF2, OFF3)  
**Acknowledge:** IMMEDIATELY  
**Cause:** The monitoring time for the sign-of-life counter has expired.  
The connection to the PROFINET interface was interrupted.  
**Remedy:**  
- carry out a POWER ON (power off/on).  
- contact the Hotline.

---

# A08511 (F)
**PROFINET: Receive configuration data invalid**

**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.  
2: Too many PZD data words for output or input to a drive object. Maximum of 12 words are possible.  
3: Uneven number of bytes for input or output.  
501: PROFIsafe parameter error (e.g. F_dest).  
**Remedy:**  
Check the receive configuration data.  
Re alarm value = 2:  
- Check the number of data words for output and input to a drive object.  
Re alarm value = 501:  
- Check the set PROFIsafe address (p9610).
### A08526 (F) PROFINET: No cyclic connection

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** There is no connection to a PROFINET controller.  
**Remedy:** Establish the cyclic connection and activate the controller with cyclic operation. Check the parameters "Name of Station" and "IP of Station" (r61000, r61001).

### A08565 PROFINET: Consistency error affecting adjustable parameters

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** A consistency error was detected when activating the configuration (p8925 = 1) for the PROFINET interface. The currently set configuration has not been activated.  
Possible causes:  
- IP address, subnet mask or default gateway is not correct  
- IP address or station name used twice in the network  
- station name contains invalid characters, etc.  
See also: p8920 (PN Name of Station), p8921 (PN IP address of station), p8922 (PN Default Gateway of Station), p8923 (PN Subnet Mask of Station)  
**Remedy:** Check the required interface configuration (p8920 and following), correct if necessary, and activate (p8925 = 1).  
See also: p8925 (PN interface configuration)

### F08700 (A) CAN: Communications error

**Reaction:** OFF3 (NONE, OFF1, OFF2)  
**Acknowledge:** IMMEDIATELY  
**Cause:** A CAN communications error has occurred.  
Fault value (r0949, interpret decimal):  
1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller.  
- bus cable short circuit.  
- incorrect baud rate.  
- incorrect bit timing.  
2: The master no longer interrogated the CAN node status longer than for its "life time". The "life time" is obtained from the "guard time" (p8604[0]) multiplied by the "life time factor" (p8604[1]).  
- bus cable interrupted.  
- bus cable not connected.  
- incorrect baud rate.  
- incorrect bit timing.  
- master fault.  
Note:  
The fault response can be set as required using p8641.  
See also: p8604 (CAN life guarding), p8641 (CAN Abort Connection Option Code)  
**Remedy:**  
- check the bus cable  
- check the baud rate (p8622).  
- check the bit timing (p8623).  
- check the master.  
The CAN controller must be manually restarted with p8608 = 1 after the cause of the fault has been resolved!  
See also: p8608 (CAN Clear Bus Off Error), p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

### F08701 CAN: NMT state change

**Reaction:** OFF3  
**Acknowledge:** IMMEDIATELY  
**Cause:** A CANopen NMT state transition from "operational" to "pre-operational" or after "stopped".  
Fault value (r0949, interpret decimal):  
1: CANopen NMT state transition from "operational" to "pre-operational".  
2: CANopen NMT state transition from "operational" to "stopped".  
Note:  
In the NMT state "pre-operational", process data cannot be transferred and in the NMT state "stopped", no process data and no service data can be transferred.  
**Remedy:** Not necessary.  
Acknowledge the fault and continue operation.
F08702 (A) CAN: RPDO Timeout
Reaction: OFF3 (NONE, OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: The monitoring time of the CANopen RPDO telegram has expired because the bus connection was either interrupted or the CANopen Master was switched-off.
See also: p8699 (CAN: RPDO monitoring time)
Remedy:
- check the bus cable
- check the master.
- If required, increase the monitoring time (p8699).

A08751 (N) CAN: Telegram loss
Reaction: NONE
Acknowledge: NONE
Cause: The CAN controller has lost a receive message (telegram).
Remedy: Reduce the cycle times of the receive messages.

A08752 CAN: Error counter for error passive exceeded
Reaction: NONE
Acknowledge: NONE
Cause: The error counter for the send or receive telegrams has exceeded the value 127.
Remedy:
- check the bus cable
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
See also: p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

A08753 CAN: Message buffer overflow
Reaction: NONE
Acknowledge: NONE
Cause: A message buffer overflow.
Alarm value (r2124, interpret decimal):
1: Non-cyclic send buffer (SDO response buffer) overflow.
2: Non-cyclic receive buffer (SDO receive buffer) overflow.
3: Cyclic send buffer (PDO send buffer) overflow.
Remedy:
- check the bus cable.
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
Re alarm value = 2:
- reduce the cycle times of the SDO receive messages.
- SDO request from master only after SDO feedback for previous SDO request.
See also: p8622 (CAN bit rate), p8623 (CAN Bit Timing selection)

A08754 CAN: Incorrect communications mode
Reaction: NONE
Acknowledge: NONE
Cause: In the "operational" mode, an attempt was made to change parameters p8700 ... p8737.
Remedy: Change to the "pre-operational" or "stopped" mode.

A08755 CAN: Obj cannot be mapped
Reaction: NONE
Acknowledge: NONE
Cause: The CANopen object is not provided for the Process Data Object (PDO) Mapping.
Remedy: Use a CANopen object intended for the PDO mapping or enter 0.
The following objects can be mapped in the Receive Process Data Object (RPDO) or Transmit Process Data Object (TPDO):
- RPDO: 6040 hex, 6060 hex, 60FF hex, 6071 hex; 5800 hex - 580F hex; 5820 hex - 5827 hex
- TPDO: 6041 hex, 6061 hex, 6063 hex, 6069 hex, 60B hex, 606C hex, 6074 hex; 5810 hex - 581F hex; 5830 hex - 5837 hex
Only sub-index 0 of the specified objects can be mapped.

Note:
As long as A08755 is present, the COB-ID cannot be set to valid.

A08756  CAN: Number of mapped bytes exceeded
---
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The number of bytes of the mapped objects exceeds the telegram size for net data. A max. of 8 bytes is permissible.
**Remedy:** Map fewer objects or objects with a smaller data type.
See also: p8710, p8711, p8712, p8713, p8714, p8715, p8716, p8717, p8730, p8731, p8732, p8733, p8734, p8735, p8736, p8737

A08757  CAN: Set COB-ID invalid
---
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** For online operation, the appropriate COB-ID must be set invalid before mapping.
Example:
Mapping for RPDO 1 should be changed (p8710[0]).
--> set p8700[0] = C00006E0 hex (invalid COB-ID)
--> set p8710[0] as required.
--> p8700[0] enter a valid COB-ID
**Remedy:** Set the COB-ID to invalid.

A08759  CAN: PDO COB-ID already available
---
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** An existing PDO COB-ID was allocated.
**Remedy:** Select another PDO COB-ID.

A08760  CAN: maximum size of the PZD IF exceeded
---
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The maximum size of the PZD interface exceeded.
Fault value 1: receiving
Fault value 2: sending
Deleting the alarm:
- Power Off/On
- Warm restart
- CANopen NMT state change
- reset alarm with p2111
**Remedy:** Map fewer process data in PDO.

A08800  PROFlenergy energy-saving mode active
---
**Reaction:** NONE
**Acknowledge:** NONE
**Cause:** The PROFlenergy energy-saving mode is active
Alarm value (r2124, interpret decimal):
Mode ID of the active PROFlenergy energy-saving mode.
See also: r5600 (Pe energy saving mode ID)
**Remedy:** The alarm automatically disappears when the energy-saving mode is exited.
Note:
After receiving the PROFlenergy command "End_Pause" via PROFINET, the energy-saving mode is exited.
<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Description</th>
<th>Reaction</th>
<th>Acknowledge</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>A08802</td>
<td>PROFenergy not possible to switch off incremental encoder supply</td>
<td>NONE</td>
<td>NONE</td>
<td>The incremental encoder is used for the closed-loop position control. This means that its power supply cannot be switched off during the PROFenergy energy-saving mode, otherwise it would lose its position actual value. Alarm value (r2124, interpret decimal): Encoder number</td>
<td>The alarm automatically disappears when the energy-saving mode is exited. Note: After receiving the PROFenergy command &quot;End_Pause&quot; via PROFINET, the energy-saving mode is exited.</td>
</tr>
<tr>
<td>F13009</td>
<td>Licensing OA application not licensed</td>
<td>OFF1</td>
<td>IMMEDIATELY</td>
<td>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.</td>
<td>- enter and activate the license key for OA applications under license (p9920, p9921). - if necessary, de-activate unlicensed OA applications (p4956).</td>
</tr>
<tr>
<td>F13100</td>
<td>Know-how protection: Copy protection error</td>
<td>OFF1</td>
<td>IMMEDIATELY</td>
<td>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. 1: An invalid memory card is inserted (not SIEMENS). 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 memory card copy protection)</td>
<td>Re fault value = 0, 1: - 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 memory card copy protection)</td>
</tr>
<tr>
<td>F13101</td>
<td>Know-how protection: Copy protection cannot be activated</td>
<td>NONE</td>
<td>IMMEDIATELY</td>
<td>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. 1: An invalid memory card is inserted (not SIEMENS). Note: KHP: Know-How Protection</td>
<td>- Insert a valid memory card. - Try to activate copy protection again (p7765). See also: p7765 (KHP memory card copy protection)</td>
</tr>
</tbody>
</table>
Faults and alarms

List of faults and alarms

<table>
<thead>
<tr>
<th>Fault Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>F13102</td>
<td><strong>Know-how protection: Consistency error of the protected data</strong></td>
<td>OFF1</td>
<td>IMMEDIATELY</td>
<td>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</td>
<td>- Replace the project on the memory card or replace project files for download from the memory card. - Restore the factory setting and download again.</td>
</tr>
<tr>
<td>F30001</td>
<td><strong>Power unit: Overcurrent</strong></td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>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 current of motor much greater than that of power unit. - High discharge and post-charging current for line supply voltage interruptions. - High post-charging currents for overload when motoring and DC link voltage dip. - Short-circuit currents at power-on due to the missing line reactor. - power cables are not correctly connected. - power cables exceed the maximum permissible length. - power unit defective. - line phase interrupted. 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.</td>
<td>- 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. - check the line supply quality. - Reduce motor load. - Correct connection of 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. - check the line supply phases.</td>
</tr>
</tbody>
</table>
F30002  Power unit: DC link voltage overvoltage

Reaction:  OFF2
Acknowledge:  IMMEDIATELY

Cause:  The power unit has detected an overvoltage condition in the DC link.
- motor regenerates too much energy.
- line supply voltage too high.
- line phase interrupted.
- DC-link voltage control switched off.
- dynamic response of DC-link voltage controller excessive or insufficient.
Fault value (r0949, interpret decimal):
DC link voltage at the time of trip [0.1 V].

Remedy:
- increase the ramp-down time (p1121).
- set the rounding times (p1130, p1136). This is particularly recommended in U/f operation to relieve the DC link voltage controller with rapid ramp-down times of the ramp-function generator.
- Activate the DC link voltage controller (p1240, p1280).
- adapt the dynamic response of the DC-link voltage controller (p1243, p1247, p1283, p1287).
- check the line supply voltage and setting in p0210.
- check and correct the phase assignment at the power unit.
- check the line supply phases.

See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller configuration (vector control))

F30003  Power unit: DC link voltage undervoltage

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 phase interrupted.

Note:
The monitoring threshold for the DC link undervoltage is the minimum of the following values:
- for a calculation, refer to p0210.

Remedy:
- check the line supply voltage
- check the line supply phases.

See also: p0210 (Drive unit line supply voltage)

F30004  Power unit: Overtemperature heat sink AC inverter

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.
See also: p1800 (Pulse frequency setpoint)
*F30005  Power unit: Overload I2t*

**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.
- reduce the current limit (p0640).
- during operation with U/f characteristic: reduce the integral time of the current limiting controller (p1341).

See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

*F30011  Power unit: Line phase failure in main circuit*

**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 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.

**Remedy:**
- check the main circuit fuses.
- Check whether a single-phase load is distorting the line voltages.
- check the motor feeder cables.

*F30012  Power unit: Temperature sensor heat sink wire breakage*

**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*

**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
### List of faults and alarms

#### F30015 (N, A) Power unit: Phase failure motor cable

**Reaction:** OFF2 (NONE, OFF1, OFF3)

**Acknowledge:** IMMEDIATELY

**Cause:**
- A phase failure in the motor feeder cable was detected.
- The motor is correctly connected, but the drive has stalled in U/f control. In this case, a current of 0 A is possibly measured in one phase due to asymmetry of the currents.
- The motor is correctly connected, however the closed-speed control is instable and therefore an oscillating torque is generated.

**Note:**
Chassis power units do not feature phase failure monitoring.

**Remedy:**
- check the motor feeder cables.
- increase the ramp-up or ramp-down time (p1120) if the drive has stalled in U/f control.
- check the speed controller settings.

#### A30016 (N) Power unit: Load supply switched out

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
- The DC link voltage is too low.

**Alarm value (r2124, interpret decimal):**
DC link voltage at the time of trip [0.1 V].

**Remedy:**
Under certain circumstances, the AC line supply is not switched on.

#### F30017 Power unit: Hardware current limit has responded too often

**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.
- 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:**
- check the motor data.
- 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

**Reaction:** OFF2

**Acknowledge:** IMMEDIATELY

**Cause:**
- Power unit has detected a ground fault.
- Ground fault in the power cables.
- Winding fault or ground fault at the motor.
- CT defective.
- when the brake is applied, this causes the hardware DC current monitoring to respond.

**Fault value (r0949, interpret decimal):**
Absolute value, summation current [32767 = 271 % rated current].
Faults and alarms

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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).
See also: p0287 (Ground fault monitoring thresholds)

F30022 Power unit: Monitoring U_ce
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.

F30024 Power unit: Overtemperature thermal model
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature difference between the heat sink and chip 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.
See also: r0037 (Power unit temperatures)
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.
- reduce the pulse frequency if this is higher than the rated pulse frequency.
- if DC braking is active: reduce braking current (p1232).

F30025 Power unit: Chip overtemperature
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.
See also: r0037 (Power unit temperatures)

F30027 Power unit: Precharging DC link time monitoring

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 DC link has either a ground fault or a short-circuit.
8) Pre-charging circuit may be defective.

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: Reserved.

```
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.
Bit 9: Reserved.
Bit 10: Overcurrent detected.
Bit 11: Reserved.
Bit 12: Reserved.
Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit.
Bit 14: Undervoltage detected.

See also: p0210 (Drive unit line supply voltage)

Remedy:
In general:
- check the line supply voltage at the input terminals.
- check the line supply voltage setting (p0210).
- wait 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 capacitance of the DC link and, if necessary, reduce it in accordance with the maximum permissible DC link capacitance (see relevant Equipment Manual).
Faults and alarms

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Re 7):
- check the DC link for a ground fault or short circuit.
See also: p0210 (Drive unit line supply voltage)

A30030 Power unit: Internal overtemperature alarm
Reaction: NONE
Acknowledge: NONE
Cause: The temperature inside the converter has exceeded the permissible limit value of the alarm threshold.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
Fault value (r0949, 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
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
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
---|---
**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.

A30034  |  Power unit: Internal overtemperature
---|---
**Reaction:** | NONE
**Acknowledge:** | NONE
**Cause:** The alarm threshold for internal overtemperature has been reached.
If the temperature inside the unit continues to increase, fault F30036 may be triggered.
- ambient temperature might be too high.
- insufficient cooling, fan failure.
**Fault value (r0949, interpret decimal):** Only for internal Siemens troubleshooting.
**Remedy:**
- check the ambient temperature.
- check the fan for the inside of the unit.

F30035  |  Power unit: Air intake overtemperature
---|---
**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.

F30036  |  Power unit: Internal overtemperature
---|---
**Reaction:** OFF2
**Acknowledge:** IMMEDIATELY
**Cause:** The temperature inside the drive converter has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
**Fault value (r0949, interpret decimal):** Only for internal Siemens troubleshooting.
**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 once the permissible temperature limit minus 5 K has been fallen below.
Faults and alarms

List of faults and alarms

F30037  
**Power unit: Rectifier overtemperature**

**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.

A30042  
**Power unit: Fan has reached the maximum operating hours**

**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).

A30049  
**Power unit: Internal fan faulty**

**Reaction:** NONE  
**Acknowledge:** NONE  
**Cause:** The internal fan has failed.

**Remedy:** Check the internal fan and replace if necessary.

F30052  
**EEPROM data error**

**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 is inconsistent.  
- 1: EEPROM data is not compatible to the firmware of the Control Unit.

**Remedy:** Replace power unit module.
<table>
<thead>
<tr>
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<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>A30054 (F)</td>
<td>Power unit: Undervoltage when opening the brake</td>
<td>NONE</td>
<td>NONE</td>
<td>When the brake is being opened, it is detected that the power supply voltage is less than 24 V - 10% = 21.6V. Alarm value (r2124, interpret decimal): Supply voltage fault [0.1 V]. Example: Alarm value = 195 --&gt; voltage = 19.5 V</td>
<td>Check the 24 V voltage for stability and value.</td>
</tr>
<tr>
<td>F30055</td>
<td>Power unit: Braking chopper overcurrent</td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>An overcurrent condition has occurred in the braking chopper.</td>
<td>- check whether the braking resistor has a short circuit. For an external braking resistor, check whether the resistor may have been dimensioned too small. Note: The braking chopper is only enabled again at pulse enable after the fault has been acknowledged.</td>
</tr>
<tr>
<td>A30057</td>
<td>Power unit: Line asymmetry</td>
<td>NONE</td>
<td>NONE</td>
<td>Frequencies have been detected on the DC link voltage that would suggest line asymmetry or failure of a line phase. It is also possible that a motor phase has failed. Fault F30011 is output if the alarm is present and at the latest after 5 minutes. The precise duration depends on the power unit type and the particular frequencies. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting.</td>
<td>- check the line phase connection. - check the motor feeder cable connections. If there is no phase failure of the line or motor, then line asymmetry is involved. - reduce the power in order to avoid fault F30011.</td>
</tr>
<tr>
<td>F30059</td>
<td>Power unit: Internal fan faulty</td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>The internal power unit fan has failed and is possibly defective.</td>
<td>Check the internal fan and replace if necessary.</td>
</tr>
<tr>
<td>F30071</td>
<td>No new actual values received from the Power Module</td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>More than one actual value telegram from the power unit module has failed.</td>
<td>Check the interface (adjustment and locking) to the power unit module.</td>
</tr>
<tr>
<td>F30072</td>
<td>Setpoints can no longer be transferred to the Power Module</td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>More than one setpoint telegram was not able to be transferred to the power unit module.</td>
<td>Check the interface (adjustment and locking) to the power unit module.</td>
</tr>
</tbody>
</table>
### F30074 (A) Communication error between the Control Unit and Power Module

**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. The Control Unit executes an automatic warm restart to accept the new calibration data.  
**Remedy:**  
For fault value = 0 and 20A hex:  
Insert the Control Unit on an appropriate Power Module and continue operation. If required, carry out a POWER ON of the Control Unit.  
For fault value = 1 hex:  
Carry out a POWER ON of the Control Unit.  

### F30080 Power unit: Current increasing too quickly

**Reaction:** OFF2  
**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: rated current of motor much greater than that of power unit.  
- power cables are not correctly connected.  
- power cables exceed the maximum permissible length.  
- power unit defective.  
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.  
- 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.  

### F30081 Power unit: Switching operations too frequent

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY  
**Cause:** The power unit has executed too many switching operations for current limitation.  
- closed-loop control is incorrectly parameterized.  
- motor has a short-circuit or fault to ground (frame).  
- U/f operation: rated current of motor much greater than that of power unit.  
- power cables are not correctly connected.  
- power cables exceed the maximum permissible length.  
- power unit defective.
**Faults and alarms**

**List of faults and alarms**

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.
- 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.

**F30105 PU: Actual value sensing fault**

Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).
The incorrect actual value channels are displayed in the following diagnostic parameters.
Remedy: Evaluate the diagnostic parameters.
If the actual value channel is incorrect, check the components and if required, replace.

**A30502 Power unit: DC link overvoltage**

Reaction: NONE
Acknowledge: NONE
Cause: The power unit has detected overvoltage in the DC link on a pulse inhibit.
- device connection voltage too high.
- line reactor incorrectly dimensioned.
Alarm value (r0949, interpret decimal):
DC link voltage [1 bit = 100 mV].
See also: r0070 (Actual DC link voltage)
Remedy:
- check the device supply voltage (p0210).
- check the dimensioning of the line reactor.
See also: p0210 (Drive unit line supply voltage)

**F30600 SI P2: STOP A initiated**

Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function on processor 2 has detected an error and initiated a STOP A.
- forced checking procedure of the safety shutdown path via processor 2 unsuccessful.
- subsequent response to fault F30611 (defect in a monitoring channel).
Fault value (r0949, interpret decimal):
0: Stop request from processor 1.
1005: Pulses suppressed although STO not selected and there is no internal STOP A present.
1010: Pulses enabled although STO is selected or an internal STOP A is present.
9999: Subsequent response to fault F30611.
Remedy:
Select Safe Torque Off and de-select again.
For fault value = 9999:
- carry out diagnostics for fault F30611.
Note:
STO: Safe Torque Off
Faults and alarms
List of faults and alarms

F30611 (A)  SI P2: Defect in a monitoring channel
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-integrated "Safety Integrated" function on processor 2 has detected a fault in the crosswise data comparison between the two monitoring channels and has initiated a STOP F.
As a consequence of this fault, fault F30600 (SI P2: STOP A initiated) is output.
Fault value (r0949, interpret decimal):
0: Stop request from processor 1.
1 ... 999:
Number of the cross-compared data that resulted in this fault. This number is also displayed in r9795.
2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.
3: SI F-DI changeover tolerance time (p9650, p9850).
8: SI PROFIsafe address (p9610, p9810).
9: SI debounce time for STO (p9651, p9851).
1000: Watchdog timer has expired.
Within the time of approx. 5 x p9650, alternatively, the following was defined:
- Too many signal changes have occurred at the F-DI.
- Via PROFIsafe, STO was too frequently initiated (also as subsequent response).
1001, 1002: Initialization error, change timer / check timer.
2000: Status of the STO selection for both monitoring channels are different.
2001: Feedback of the safe pulse suppression on the two monitoring channels are different.
2003: Status of the STO terminal on the processor 1 and processor 2 are different.
6000 ... 6999:
Error in the PROFIsafe control.
For these fault values, the failsafe control signals (failsafe values) are transferred to the safety functions.
The significance of the individual message values is described in safety fault F01611.
Remedy: Re fault values 1 ... 999 described in "Cause":
- check the cross data comparison that resulted in a STOP F.
- carry out a POWER ON (power off/on).
For fault value = 1000:
- check the wiring of the F-DI (contact problems).
- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.
Re fault value = 1001, 1002:
- carry out a POWER ON (power off/on).
Re fault value = 2000, 2001, 2003:
- check the tolerance time F-DI changeover and if required, increase the value (p9650/p9850).
- check the wiring of the F-DI (contact problems).
- check the causes of the STO selection in r9772.
Re fault value = 6000 ... 6999:
Refer to the description of the message values in safety fault F01611.
Re fault values that are described in "Cause":
- carry out a POWER ON (power off/on).
- contact the Hotline.
- replace Control Unit.
Note: F-DI: Failsafe Digital Input
STO: Safe Torque Off

N30620 (F, A)  SI P2: Safe Torque Off active
Reaction: NONE
Acknowledge: NONE
Cause: The "Safe Torque Off" (STO) function has been selected on processor 2 using the input terminal and is active.
Note: This message does not result in a safety stop response.
Remedy: Not necessary.
Note: STO: Safe Torque Off
### F30625 SI P2: Sign-of-life error in safety data

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The drive-integrated "Safety Integrated" function on processor 2 has detected an error in the sign-of-life of the safety data and initiated a STOP A.  
- there is a communication error between processor 1 and processor 2 or communication has failed.  
- a time slice overflow of the safety software has occurred.  
  
  Fault value (r0949, interpret decimal):  
  Only for internal Siemens troubleshooting.  
**Remedy:**  
- select Safe Torque Off and de-select again.  
- carry out a POWER ON (power off/on).  
- check whether additional faults are present and if required, perform diagnostics.  
- check the electrical cabinet design and cable routing for EMC compliance

### F30649 SI P2: Internal software error

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** An internal error in the Safety Integrated software on processor 2 has occurred.  
**Note:** This fault results in a STOP A that cannot be acknowledged.  
  
  Fault value (r0949, interpret hexadecimal):  
  Only for internal Siemens troubleshooting.  
**Remedy:**  
- carry out a POWER ON (power off/on).  
- re-commission the "Safety Integrated" function and carry out a POWER ON.  
- contact the Hotline.  
- replace Control Unit.

### F30650 SI P2: Acceptance test required

**Reaction:** OFF2  
**Acknowledge:** IMMEDIATELY (POWER ON)  
**Cause:** The drive-integrated "Safety Integrated" function on processor 2 requires an acceptance test.  
**Note:**  
  
  This fault results in a STOP A that can be acknowledged.  
  
  Fault value (r0949, interpret decimal):  
  130: Safety parameters for processor 2 not available.  
  1000: Reference and actual checksum on processor 2 are not identical (booting).  
  - at least one checksum-checked piece of data is defective.  
  - Safety parameters set offline and loaded into the Control Unit.  
  2000: Reference and actual checksum on processor 2 are not identical (commissioning mode).  
  - reference checksum incorrectly entered on processor 2 (p9899 not equal to r9898).  
  2003: Acceptance test is required as a safety parameter has been changed.  
  9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.  
  
**Remedy:**  
- For fault value = 130:  
  - carry out safety commissioning routine.  
- For fault value = 1000:  
  - again carry out safety commissioning routine.  
  - replace the memory card or Control Unit.  
  - Using STARTER, activate the safety parameters for the drive involved (change settings, copy parameters, activate settings).  
- For fault value = 2000:  
  - check the safety parameters on processor 2 and adapt the reference checksum (p9899).  
- For fault value = 2003:  
  - Carry out an acceptance test and generate an acceptance report.  
- For fault value = 9999:  
  - carry out diagnostics for the other safety-related fault that is present.  
  
See also: p9799 (SI setpoint checksum SI parameters (processor 1)), p9899 (SI setpoint checksum SI parameters (processor 2))
### List of faults and alarms

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<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>F30651</td>
<td>SI P2: Synchronization with Control Unit unsuccessful</td>
<td>OFF2</td>
<td>IMMEDIATELY (POWER ON)</td>
<td>The drive-integrated &quot;Safety Integrated&quot; function requires synchronization of the safety time slices on processor 1 and processor 2. This synchronization was unsuccessful.</td>
<td>This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.</td>
<td>- carry out a POWER ON (power off/on).</td>
</tr>
<tr>
<td>F30655</td>
<td>SI P2: Align monitoring functions</td>
<td>OFF2</td>
<td>IMMEDIATELY (POWER ON)</td>
<td>An error has occurred when aligning the Safety Integrated monitoring functions on processor 1 and processor 2. No common set of supported SI monitoring functions was able to be determined.</td>
<td>This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.</td>
<td>- carry out a POWER ON (power off/on). - check the electrical cabinet design and cable routing for EMC compliance</td>
</tr>
<tr>
<td>F30656</td>
<td>SI P2: Parameter processor 2 parameter error</td>
<td>OFF2</td>
<td>IMMEDIATELY (POWER ON)</td>
<td>When accessing the Safety Integrated parameters for the processor 2 in the non-volatile memory, an error has occurred.</td>
<td>This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 129: Safety parameters for processor 2 corrupted. 131: Internal software error on processor 1. 255: Internal software error on processor 2.</td>
<td>- re-commission the safety functions. - replace the memory card or Control Unit.</td>
</tr>
<tr>
<td>F30659</td>
<td>SI P2: Write request for parameter rejected</td>
<td>OFF2</td>
<td>IMMEDIATELY (POWER ON)</td>
<td>The write request for one or several Safety Integrated parameters on processor 2 was rejected.</td>
<td>This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 10: An attempt was made to enable the STO function although this cannot be supported. 15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported. 16: An attempt was made to enable the PROFIsafe communications although this cannot be supported. 18: An attempt was made to enable the PROFIsafe function for Basic Functions although this cannot be supported. 20: An attempt was made to simultaneously enable both the drive-integrated motion monitoring functions via integrated F-DI and STO via terminals, even though these cannot be supported at the same time. See also: r9771 (SI common functions (processor 1)), r9871 (SI common functions (processor 2))</td>
<td>Re fault value = 10, 15, 16, 18: - check whether there are faults in the safety function alignment (F01655, F30655) and if required, carry out diagnostics for the faults involved. - use a Control Unit that supports the required function. Note: STO: Safe Torque Off</td>
</tr>
</tbody>
</table>
F30662  Error in internal communications
Reaction: OFF2
Acknowledge: POWER ON
Cause: A module-internal communication error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

F30664  Error while booting
Reaction: OFF2
Acknowledge: POWER ON
Cause: An error has occurred during booting.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

F30665  SI P2: System is defective
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A system defect was detected before the last boot or in the actual one. The system might have been rebooted (reset).
Fault value (r0949, interpret hexadecimal):
200000 hex, 400000 hex:
- Fault in the actual booting/operation.
Additional values:
- defect before the last time that the system booted.
Remedy: - carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.
 Re fault value = 400000 hex:
- ensure that the Control Unit is connected to the Power Module.

A30693 (F)  SI P2: Safety parameter settings changed, POWER ON required
Reaction: NONE
Acknowledge: NONE
Cause: Safety parameters have been changed; these will only take effect following a POWER ON.
Notice:
All changed parameters of the safety motion monitoring functions will only take effect following a POWER ON.
Alarm value (r2124, interpret decimal):
Parameter number of the safety parameter which has changed, necessitating a POWER ON.
Remedy: - execute the function "Copy RAM to ROM".
- carry out a POWER ON (power off/on).

N30800 (F)  Power unit: Group signal
Reaction: OFF2
Acknowledge: NONE
Cause: The power unit has detected at least one fault.
Remedy: Evaluate the other messages that are presently available.

F30802  Power unit: Time slice overflow
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred.
Faults and alarms

List of faults and alarms

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  
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.

F30805  
Power unit: EPROM checksum error  
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  
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  
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.

F30850  
Power unit: Internal software error  
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.  
Remedy:  
- replace power unit.  
- if required, upgrade the firmware in the power unit.  
- contact the Hotline.

F30875  
Power unit DRIVE-CLiQ (CU): Supply voltage failed  
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.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Acknowledge</th>
<th>Cause</th>
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</tr>
</thead>
<tbody>
<tr>
<td>F30903</td>
<td>Power unit: I2C bus error occurred</td>
<td>OFF2</td>
<td>IMMEDIATELY</td>
<td>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.</td>
<td>Re fault value = 80000000 hex: - upgrade firmware to later version. Re fault value = 00000001 hex ... 0000FFFF hex: - replace the module.</td>
</tr>
<tr>
<td>A30920</td>
<td>Temperature sensor fault</td>
<td>NONE</td>
<td>NONE</td>
<td>When evaluating the temperature sensor, an error occurred. Alarm value (r2124, interpret decimal): 1: Wire breakage or sensor not connected (KTY: R &gt; 2120 Ohm). 2: Measured resistance too low (PTC: R &lt; 20 Ohm, KTY: R &lt; 50 Ohm).</td>
<td>- make sure that the sensor is connected correctly. - replace the sensor.</td>
</tr>
<tr>
<td>F30950</td>
<td>Power unit: Internal software error</td>
<td>OFF2</td>
<td>POWER ON</td>
<td>An internal software error has occurred. Fault value (r0949, interpret decimal): Information about the fault source. Only for internal Siemens troubleshooting.</td>
<td>- If necessary, upgrade the firmware in the power unit to a later version. - contact the Hotline.</td>
</tr>
<tr>
<td>A30999</td>
<td>Power unit: Unknown alarm</td>
<td>NONE</td>
<td>NONE</td>
<td>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.</td>
<td>If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.</td>
</tr>
</tbody>
</table>

Remedy:
- replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).
Faults and alarms

List of faults and alarms

**F34950** VSM: Internal software error

**Reaction:** OFF2

**Acknowledge:** POWER ON

**Cause:**
- An internal software error in the Voltage Sensing Module (VSM) 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 Voltage Sensing Module to a later version.
- Contact the Hotline.

**F35950** TM: Internal software error

**Reaction:** OFF2 (NONE)

**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 Terminal Module to a later version.
- Contact the Hotline.

**F36950** Hub: Internal software error

**Reaction:** OFF2 (NONE)

**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 required, upgrade the firmware in the DRIVE-CLiQ hub module to a more recent version.
- Contact the Hotline.

**A50001 (F)** PROFINET configuration error

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
- A PROFINET controller attempts to establish a connection using an incorrect configuring telegram. The "Shared Device" function has been activated (p8929 = 2).
- Alarm value (r2124, interpret decimal):
  - 10: A/F-CPU configures mixed PZD/PROFIsafe telegram.
  - 13: F-CPU and PROFIsafe is not activated (p9601.3).
  - 15: PROFIsafe telegram of the F-CPU does not match the setting in p9501.30.
- See also: p9601 (SI enable functions integrated in the drive (processor 1))

**Remedy:**
- Check the configuration of the PROFINET controllers as well as the p8929 setting.

**A50010 (F)** PROFINET Name of Station invalid

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
- PROFINET Name of Station is invalid.

**Remedy:**
- Correct the name of the station (p8920) and activate (p8925 = 2).
- See also: p8920 (PN Name of Station)

**A50020 (F)** PROFINET: Second controller missing

**Reaction:** NONE

**Acknowledge:** NONE

**Cause:**
- The PROFINET function "Shared Device" has been activated (p8929 = 2). However, only the connection to a PROFINET controller is present.

**Remedy:**
- Check the configuration of the PROFINET controllers as well as the p8929 setting.
Appendix

Contents

A.1 ASCII table (excerpt)  A-514
The following table includes the decimal and hexadecimal notation of selected ASCII characters.

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<th>Hexadecimal</th>
<th>Character</th>
<th>Decimal</th>
<th>Hexadecimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
<td>32</td>
<td>20</td>
<td>H</td>
<td>72</td>
<td>48</td>
</tr>
<tr>
<td>-</td>
<td>45</td>
<td>2D</td>
<td>I</td>
<td>73</td>
<td>49</td>
</tr>
<tr>
<td>0</td>
<td>48</td>
<td>30</td>
<td>J</td>
<td>74</td>
<td>4A</td>
</tr>
<tr>
<td>1</td>
<td>49</td>
<td>31</td>
<td>K</td>
<td>75</td>
<td>4B</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>32</td>
<td>L</td>
<td>76</td>
<td>4C</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
<td>33</td>
<td>M</td>
<td>77</td>
<td>4D</td>
</tr>
<tr>
<td>4</td>
<td>52</td>
<td>34</td>
<td>N</td>
<td>78</td>
<td>4E</td>
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<tr>
<td>5</td>
<td>53</td>
<td>35</td>
<td>O</td>
<td>79</td>
<td>4F</td>
</tr>
<tr>
<td>6</td>
<td>54</td>
<td>36</td>
<td>P</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>55</td>
<td>37</td>
<td>Q</td>
<td>81</td>
<td>51</td>
</tr>
<tr>
<td>8</td>
<td>56</td>
<td>38</td>
<td>R</td>
<td>82</td>
<td>52</td>
</tr>
<tr>
<td>9</td>
<td>57</td>
<td>39</td>
<td>S</td>
<td>83</td>
<td>53</td>
</tr>
<tr>
<td>A</td>
<td>65</td>
<td>41</td>
<td>T</td>
<td>84</td>
<td>54</td>
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<td>B</td>
<td>66</td>
<td>42</td>
<td>U</td>
<td>85</td>
<td>55</td>
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<td>C</td>
<td>67</td>
<td>43</td>
<td>V</td>
<td>86</td>
<td>56</td>
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<tr>
<td>D</td>
<td>68</td>
<td>44</td>
<td>W</td>
<td>87</td>
<td>57</td>
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<td>E</td>
<td>69</td>
<td>45</td>
<td>X</td>
<td>88</td>
<td>58</td>
</tr>
<tr>
<td>F</td>
<td>70</td>
<td>46</td>
<td>Y</td>
<td>89</td>
<td>59</td>
</tr>
<tr>
<td>G</td>
<td>71</td>
<td>47</td>
<td>Z</td>
<td>90</td>
<td>5A</td>
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<td>Alternating Current</td>
</tr>
<tr>
<td>A/D</td>
<td>Analog-Digital converter</td>
</tr>
<tr>
<td>ADR</td>
<td>Address</td>
</tr>
<tr>
<td>AFM</td>
<td>Additional Frequency Modulation</td>
</tr>
<tr>
<td>AG</td>
<td>Programmable controller</td>
</tr>
<tr>
<td>AI</td>
<td>Analog Input</td>
</tr>
<tr>
<td>AK</td>
<td>Request identifier</td>
</tr>
<tr>
<td>AO</td>
<td>Analog Output</td>
</tr>
<tr>
<td>AOP</td>
<td>Advanced Operator Panel</td>
</tr>
<tr>
<td>ASIC</td>
<td>Application-Specific Integrated Circuit</td>
</tr>
<tr>
<td>ASP</td>
<td>Analog Setpoint</td>
</tr>
<tr>
<td>ASVM</td>
<td>Asymmetric Space Vector Modulation</td>
</tr>
<tr>
<td>BCC</td>
<td>Block Check Character</td>
</tr>
<tr>
<td>BCD</td>
<td>Binary-Coded Decimal</td>
</tr>
<tr>
<td>BI</td>
<td>Binector Input</td>
</tr>
<tr>
<td>BIA</td>
<td>BG-Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td>BICO</td>
<td>Binector/Connector</td>
</tr>
<tr>
<td>BO</td>
<td>Binector Output</td>
</tr>
<tr>
<td>BOP</td>
<td>Basic Operator Panel</td>
</tr>
<tr>
<td>C</td>
<td>Commissioning</td>
</tr>
<tr>
<td>CB</td>
<td>Communication Board</td>
</tr>
<tr>
<td>CCW</td>
<td>Counter-Clockwise</td>
</tr>
<tr>
<td>CDS</td>
<td>Command Data Set</td>
</tr>
<tr>
<td>CI</td>
<td>Connector Input</td>
</tr>
<tr>
<td>CM</td>
<td>Configuration Management</td>
</tr>
<tr>
<td>CMD</td>
<td>Command</td>
</tr>
<tr>
<td>CO</td>
<td>Connector Output</td>
</tr>
<tr>
<td>CO/BO</td>
<td>Connector Output / Binector Output</td>
</tr>
<tr>
<td>COM</td>
<td>Common contact on a changeover contact (terminal is connected to NO or NC)</td>
</tr>
<tr>
<td>CU</td>
<td>Control Unit</td>
</tr>
<tr>
<td>CW</td>
<td>Clockwise</td>
</tr>
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<th>Meaning</th>
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</thead>
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<td>Digital-Analog converter</td>
</tr>
<tr>
<td>DC</td>
<td>Direct Current</td>
</tr>
<tr>
<td>DDS</td>
<td>Drive Data Set</td>
</tr>
<tr>
<td>DI</td>
<td>Digital Input</td>
</tr>
<tr>
<td>DIP</td>
<td>DIP switch</td>
</tr>
<tr>
<td>DO</td>
<td>Digital Output</td>
</tr>
<tr>
<td>DP</td>
<td>Distributed I/Os</td>
</tr>
<tr>
<td>DS</td>
<td>Drive State</td>
</tr>
<tr>
<td>EEC</td>
<td>European Economic Community</td>
</tr>
<tr>
<td>EEPROM</td>
<td>Electrically Erasable Programmable Read-Only Memory</td>
</tr>
<tr>
<td>ELCB</td>
<td>Earth Leakage Circuit Breaker</td>
</tr>
<tr>
<td>EMC</td>
<td>Electromagnetic Compatibility</td>
</tr>
<tr>
<td>EMF</td>
<td>Electromagnetic Force</td>
</tr>
<tr>
<td>ES</td>
<td>Engineering System</td>
</tr>
<tr>
<td>ECD</td>
<td>Equivalent Circuit Diagram</td>
</tr>
<tr>
<td>FAQ</td>
<td>Frequently Asked Questions</td>
</tr>
<tr>
<td>FB</td>
<td>Function Block</td>
</tr>
<tr>
<td>FCC</td>
<td>Field Current Control</td>
</tr>
<tr>
<td>FCL</td>
<td>Fast Current Limitation</td>
</tr>
<tr>
<td>FF</td>
<td>Fixed Frequency</td>
</tr>
<tr>
<td>FFB</td>
<td>Free Function Block</td>
</tr>
<tr>
<td>FLB</td>
<td>Flat-top modulation</td>
</tr>
<tr>
<td>FOC</td>
<td>Field-Oriented Control</td>
</tr>
<tr>
<td>FP</td>
<td>Function diagram</td>
</tr>
<tr>
<td>FREQ</td>
<td>Frequency</td>
</tr>
<tr>
<td>FSA</td>
<td>Frame Size A</td>
</tr>
<tr>
<td>FSB</td>
<td>Frame Size B</td>
</tr>
<tr>
<td>FSC</td>
<td>Frame Size C</td>
</tr>
<tr>
<td>FSD</td>
<td>Frame Size D</td>
</tr>
<tr>
<td>FSE</td>
<td>Frame Size E</td>
</tr>
<tr>
<td>FSF</td>
<td>Frame Size F</td>
</tr>
<tr>
<td>GSD</td>
<td>Generic Station Description</td>
</tr>
<tr>
<td>GSG</td>
<td>Getting Started Guide</td>
</tr>
<tr>
<td>GUI ID</td>
<td>Global Unique Identifier</td>
</tr>
<tr>
<td>HIW</td>
<td>Main actual value</td>
</tr>
<tr>
<td>HMI</td>
<td>Human Machine Interface</td>
</tr>
<tr>
<td>HO</td>
<td>High Overload (constant torque)</td>
</tr>
<tr>
<td>HSW</td>
<td>Main setpoint</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Meaning</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>HTL</td>
<td>High-Level Transistor Logic</td>
</tr>
<tr>
<td>I</td>
<td></td>
</tr>
<tr>
<td>IASC</td>
<td>Internal Armature Short-Circuit</td>
</tr>
<tr>
<td>IBN</td>
<td>Commissioning</td>
</tr>
<tr>
<td>IGBT</td>
<td>Insulated Gate Bipolar Transistor</td>
</tr>
<tr>
<td>I/O</td>
<td>Input/Output</td>
</tr>
<tr>
<td>IOP</td>
<td>Intelligent Operator Panel</td>
</tr>
<tr>
<td>J</td>
<td></td>
</tr>
<tr>
<td>JOG</td>
<td>Jogging</td>
</tr>
<tr>
<td>K</td>
<td></td>
</tr>
<tr>
<td>KDV</td>
<td>Data cross-check</td>
</tr>
<tr>
<td>KIB</td>
<td>Kinetic buffering</td>
</tr>
<tr>
<td>L</td>
<td></td>
</tr>
<tr>
<td>LCD</td>
<td>Liquid Crystal Display</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
</tr>
<tr>
<td>LGE</td>
<td>Length</td>
</tr>
<tr>
<td>LO</td>
<td>Light Overload (variable torque)</td>
</tr>
<tr>
<td>LSTO</td>
<td>Latched Safe Torque Off</td>
</tr>
<tr>
<td>LWL</td>
<td>Fiber-optic cable</td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>MHB</td>
<td>Motor Holding Brake</td>
</tr>
<tr>
<td>MLP</td>
<td>Multi-Language Package</td>
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<td>MOP</td>
<td>Motorized Potentiometer</td>
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<tr>
<td>N</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>Normally Closed contact</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
<tr>
<td>NO</td>
<td>Normally Open contact</td>
</tr>
<tr>
<td>O</td>
<td></td>
</tr>
<tr>
<td>OLM</td>
<td>Optical Link Module</td>
</tr>
<tr>
<td>OLP</td>
<td>Optical Link Plug</td>
</tr>
<tr>
<td>OP</td>
<td>Operator Panel</td>
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<tr>
<td>OPI</td>
<td>Operating Instructions</td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
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<td>P1</td>
<td>CPU 1</td>
</tr>
<tr>
<td>P2</td>
<td>CPU 2</td>
</tr>
<tr>
<td>Pe</td>
<td>PROFienergy</td>
</tr>
<tr>
<td>PID</td>
<td>Proportional Integral Differential</td>
</tr>
<tr>
<td>PKE</td>
<td>Parameter identifier</td>
</tr>
<tr>
<td>PIV</td>
<td>Parameter Identifier Value</td>
</tr>
<tr>
<td>PLC</td>
<td>Programmable Logic Controller</td>
</tr>
<tr>
<td>PM</td>
<td>Power Module</td>
</tr>
<tr>
<td>PM-IF</td>
<td>Power Module Interface</td>
</tr>
<tr>
<td>PPO</td>
<td>Parameter Process Data Object</td>
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<th>Meaning</th>
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<tr>
<td>PTC</td>
<td>Positive Temperature Coefficient</td>
</tr>
<tr>
<td>PWE</td>
<td>Parameter value</td>
</tr>
<tr>
<td>PWM</td>
<td>Pulse-Width Modulation</td>
</tr>
<tr>
<td>pxxxx</td>
<td>Writable parameters</td>
</tr>
<tr>
<td>PZD</td>
<td>Process data</td>
</tr>
<tr>
<td>Q</td>
<td>Quick Commissioning</td>
</tr>
<tr>
<td>R</td>
<td>Random Access Memory</td>
</tr>
<tr>
<td>RCCB</td>
<td>Residual Current Circuit Breaker</td>
</tr>
<tr>
<td>RCD</td>
<td>Residual Current Device</td>
</tr>
<tr>
<td>RFG</td>
<td>Ramp-Function Generator</td>
</tr>
<tr>
<td>RFI</td>
<td>Radio Frequency Interference</td>
</tr>
<tr>
<td>ROM</td>
<td>Read-Only Memory</td>
</tr>
<tr>
<td>RPM</td>
<td>Revolutions Per Minute</td>
</tr>
<tr>
<td>rxxxx</td>
<td>Read-only parameters of analog signals</td>
</tr>
<tr>
<td>RZM</td>
<td>Space vector modulation</td>
</tr>
<tr>
<td>S</td>
<td>Safe Brake Control</td>
</tr>
<tr>
<td>SLS</td>
<td>Safely-Limited Speed</td>
</tr>
<tr>
<td>SLVC</td>
<td>Sensorless Vector Control</td>
</tr>
<tr>
<td>SOL</td>
<td>Serial Option Link</td>
</tr>
<tr>
<td>SS1</td>
<td>Safe Stop 1</td>
</tr>
<tr>
<td>STO</td>
<td>Safe Torque Off</td>
</tr>
<tr>
<td>STW</td>
<td>Control word</td>
</tr>
<tr>
<td>STX</td>
<td>Start of Text</td>
</tr>
<tr>
<td>SVM</td>
<td>Space Vector Modulation</td>
</tr>
<tr>
<td>TTL</td>
<td>Transistor-Transistor Logic</td>
</tr>
<tr>
<td>USS</td>
<td>Universal serial interface</td>
</tr>
<tr>
<td>V</td>
<td>Voltage/frequency</td>
</tr>
<tr>
<td>VC</td>
<td>Vector Control</td>
</tr>
<tr>
<td>VT</td>
<td>Variable Torque</td>
</tr>
<tr>
<td>AR</td>
<td>Automatic Restart</td>
</tr>
<tr>
<td>Z</td>
<td>Status word</td>
</tr>
<tr>
<td>ZUSW</td>
<td>Additional setpoint</td>
</tr>
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