

SIEMENS

SINUMERIK

SINUMERIK 828D, SINAMICS S120 Parameter description

Parameter Manual

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Valid for
Control
SINUMERIK 828D
Software

CNC software, Version 4.7 SP2
SINAMICS S120 Booksize and Combi, Version 4.7


10/2015


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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.

 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.

 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.


If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

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

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Preface

SINUMERIK documentation

The SINUMERIK documentation is organized in the following categories:

- General documentation
- User documentation
- Manufacturer/service documentation

Additional information

You can find information on the following topics at www.siemens.com/motioncontrol/docu:

- Ordering documentation/overview of documentation
- Additional links to download documents
- Using documentation online (find and search in manuals/information)

Please send any questions about the technical documentation (e.g. suggestions for improvement, corrections) to the following address:

docu.motioncontrol@siemens.com

My Documentation Manager (MDM)

Under the following link you will find information to individually compile OEM-specific machine documentation based on the Siemens content:

www.siemens.com/mdm

Training

For information about the range of training courses, refer under:

- www.siemens.com/sitrain
SITRAIN - Siemens training for products, systems and solutions in automation technology
- www.siemens.com/sinustrain
SinuTrain - training software for SINUMERIK

FAQs

You can find Frequently Asked Questions in the Service&Support pages under Product Support. <http://support.automation.siemens.com>

SINUMERIK

You can find information on SINUMERIK under the following link:

www.siemens.com/sinumerik

Target group

This documentation is intended for project engineers, commissioning engineers, machine operators and service and maintenance personnel.

Benefits

The intended target group can use the Parameter Manual to test and commission the system or the plant professionally and safely.

Utilization phase: Installation and commissioning phase

Standard scope

This documentation only describes the functionality of the standard version. Additions or revisions made by the machine manufacturer are documented by the machine manufacturer.

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

For the sake of simplicity, this documentation does not contain all detailed information about all types of the product and cannot cover every conceivable case of installation, operation, or maintenance.

Technical Support

You will find telephone numbers for other countries for technical support in the Internet under <http://www.siemens.com/automation/service&support>

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Fundamental safety instructions

1.1 General safety instructions

 **WARNING**

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

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

- Observe the safety instructions given in the hardware documentation.
- Consider the residual risks for the risk evaluation.

 **WARNING**

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

As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.

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

1.2 Industrial security

Note

Industrial security

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

For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action (e.g. cell protection concept) and integrate each component into a holistic, state-of-the-art industrial security concept. Third-party products that may be in use should also be considered. For more information about industrial security, visit this address (<http://www.siemens.com/industrialsecurity>).

To stay informed about product updates as they occur, sign up for a product-specific newsletter. For more information, visit this address (<http://support.automation.siemens.com>).



WARNING

Danger as a result of unsafe operating states resulting from software manipulation

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

- Keep the software up to date.
You will find relevant information and newsletters at this address (<http://support.automation.siemens.com>).
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.
You will find further information at this address (<http://www.siemens.com/industrialsecurity>).
- Make sure that you include all installed products into the holistic industrial security concept.

Explanation of list of parameters

2.1 Structure of the parameter descriptions for SINAMICS

Basic structure of the parameter descriptions

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

Example

The parameter list (see SINAMICS parameters (Page 21)) has the following structure:

----- Start of the example

Parameter number	BICO: Full parameter name / abbreviated name			
pxxx[0...n]				
Drive object (function module)	Can be changed into: C1(x)	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: EDS, p140		
	P group:	Unit group: -	Unit selection: p0100	
	Not for motor type: FEM	Scaling: p0200	Expert list: 1	
	Min.	Max	Factory setting	
	0.00 [Nm]	10.00. [Nm]	0.00 [Arms]	
Description:	Text			
Value:	0: Name and meaning of value 0 1: Name and meaning of value 1 2: Name and meaning of value 2 etc.			
Recommendation:	Text			
Index:	[0] = Name and meaning of bit 0 [1] = Name and meaning of bit 1 [2] = Name and meaning of bit 2 etc.			
Bit array:	Bit signal name	1 signal	0 signal	FP
	[00] = Name and meaning of bit 0	Yes	No	
	[01] = Name and meaning of bit 1	Yes	No	
	[02] = Name and meaning of bit 2	Yes	No	
	etc.			
Dependency:	Text See also: pxxxx,rxxxx See also: Fxxxx, Axxxx			

2.1 Structure of the parameter descriptions for SINAMICS

Danger:



Warning:



Caution:



Safety-related text with warning triangle

Caution:

Notice:

Safety-related text without warning triangle

Note:

Information which might be useful.

----- End of the example

2.2 Meaning of the parameter descriptions

Parameter number

The parameter number consists of a leading "p" or "r", followed by the parameter number and the index (optional).

Examples of the representation in the parameter list:

- p...
Adjustable parameter (read and write parameter)
- r...
Display parameters (read only)
- p0918
Adjustable parameter 918
- p0099[0...3]
Adjustable parameter 99, indices 0 to 3
- p1001[0...n]
Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944
Display parameter 944

Other examples of the notation used in the documentation:

- p1070[1]
Adjustable parameter 1070, index 1
- p2098[1].3
Adjustable parameter 2098, index 1 bit 3
- r0945[2](3)
Display parameter 945, index 2 of drive object 3
- p0795.4
Adjustable parameter 795, bit 4
- r2129.0...15
Display parameter 2129 with bit array (maximum 16 bit)

The following applies to adjustable parameters:

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

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

Linked parameterization is initiated, for example, as a result of the following actions and parameters:

- Executing macros
p0015, p0700, p1000, p1500
- Setting a PROFIBUS telegram (BICO interconnections)
p0922
- Setting component lists
p0230, p0300, p0301, p0400
- Automatically calculating and preassigning
p0112, p0340, p0578, p3900
- Restore factory settings
p0970

The following applies to display parameters:

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

Note

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

BICO: Full parameter name / abbreviated name

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

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

Note

A Connector Input (CI) cannot be interconnected with just any Connector Output (CO, signal source).

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

Drive object (function module)

A drive object (DO) is an independent, "self-contained" functional unit with its own parameters, faults messages, and alarms.

For each parameter, it is specified in which drive object this parameter is located and for which function module.

A parameter can belong to a single, multiple, or all drive objects.

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

Drive object (function module)	Type	Meaning
A_INF_828	103	Active Infeed closed-loop control Closed-loop controlled, self-commutated infeed/regenerative feedback unit for generating a constant DC-link voltage.
A_INF_828 (line transformer)		Active Infeed closed-loop control with "line transformer" function module
A_INF_828 (Brk Mod Ext)		Active Infeed closed-loop control with "Brk Mod Ext?" function module
A_INF_828 (Master/Slave)		Active Infeed closed-loop control with "Master/Slave" function module
A_INF_828 (Parallel)		Active Infeed closed-loop control with "Parallel?" function module
A_INF_828 (Recooling unit)		Active Infeed closed-loop control with "Cooling unit" function module
B_INF_828	103	Basic Infeed closed loop control Uncontrolled infeed unit (without energy recovery) to rectify the line voltage for the DC link.
B_INF_828 (Brk Mod Ext)		Basic Infeed closed-loop control with "Brk Mod Ext?" function module
B_INF_828 (Parallel)		Basic Infeed closed-loop control with "Parallel?" function module
		Basic Infeed closed-loop control with "Cooling unit" function module
CU_I_COMBI	102	Control Unit SINAMICS Integrated Combi
CU_I_828	103	Control Unit SINAMICS Integrated Booksize
CU_LINK	254	Object for Controller Extension 32 (CX32)
CU_NX_828	103	
HUB	150	DMC20 DRIVE-CLiQ Hub Module
SERVO_COMBI	102	Servo drive
SERVO_COMBI (Safety rot)		Servo drive with "Safety rot?" function module
SERVO_828	103	Servo drive
SERVO_828 (Safety rot)		Servo drive with "Safety rot?" function module
SI_INF_COMBI	102	
SI_INF_COMBI (Brk Mod Ext)		
S_INF_828 (Parallel)		
S_INF_828	103	
S_INF_828 (Brk Mod Ext)		
S_INF_828 (Recooling unit)		
TM120	207	Terminal Module 120
TM54F_MA	205	Terminal Module 54F Master
TM54F_SL	206	Terminal Module 54F Slave

Can be changed

A "-" character indicates that the parameter can be changed in any object state and that the change will become effective immediately.

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

The following states may be specified:

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

Note

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

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

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

Calculated

Specifies whether the parameter is influenced by automatic calculations.

The calculation attribute defines which activities influence the parameter.

The following attributes apply:

- CALC_MOD_ALL
 - p0340 = 1
 - Project download with commissioning software and send from p0340 = 3
- CALC_MOD_CON
 - p0340 = 4
- CALC_MOD_EQU
 - p0340 = 2
- CALC_MOD_LIM_REF
 - p0340 = 1, 3, 5
 - p0578 = 1
- CALC_MOD_REG
 - p0340 = 1, 3

Note

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

After p1910 = 1, p0340 = 3 is automatically called.

Access level

Specifies the access level required so that the parameter can be displayed and/or modified. The required access level can be set via parameter p0003.

The system uses the following access levels:

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

Please contact your local Siemens office for the password for parameters with access level 4 (Service).

Note

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

Data types

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:

Data type (abbreviated name)	Data type (full name)	Meaning
I8	Integer8	8-bit integer number
I16	Integer16	16-bit integer number
I32	Integer32	32-bit integer number
U8	Unsignet8	8 bits without sign
U16	Unsignet16	16 bits without sign
U32	Unsigned32	32 bits without sign
Float	FloatingPoint32	32-bit floating point number

Dynamic index

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

- Data set (if this is 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] -> main setpoint [command data set 0]
p1070[1] -> main setpoint [command data set 1], etc.
- "DDS, p0180" (Drive Data Set, DDS count)
- "EDS, p0140" (Encoder Data Set, EDS count)
- "MDS, p0130" (Motor Data Set, MDS count)
- "PDS, p0120" (Power unit Data Set, PDS count)
- "p2615" (traversing blocks count)

Note

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

/FH1/ SINAMICS S120 Function Manual Drive Functions Chapter "Data Sets"

P group (only when accessing via BOP (Basic Operator Panel))

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

Unit, unit group and unit selection

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

For parameters where the unit can be changed, "Unit Group" and "Unit Selection" specify which group this parameter belongs and which parameter can be used to change the unit.

Example:

Unit group: 7_1, Unit selection: p0505

The parameter belongs to Unit Group 7_1 and the unit can be changed using p0505.

Note

Detailed information on changing units can be found in the following references:

/FH1/SINAMICS S120 Function Manual

/BA3/SINAMICS S150 Operating Instructions

Parameter values

- Min.
Minimum value of the parameter [unit]
- Max
Maximum value of the parameter [unit]
- Factory setting
Value when delivered [unit]
When commissioned for the first time, it is possible that another value is visible for certain parameters (e.g.p1800).
Reason:
The setting of these parameters is determined by the operating environment of the Control Unit (e.g.depending on the device type, macro, Power Module).

Not for motor type

Specifies for which motor type this parameter has no significance

ASM: Asynchronous motor (induction motor)

FEM: Separately excited synchronous motor

PEM: Permanent-magnet synchronous motor

REL: Reluctance motor/SIEMOSYN motor

Scaling

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

2.2 Meaning of the parameter descriptions

The following reference variables are possible:

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

Expert list

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

- 1: Parameter does exist in the expert list.
- 0: Parameter does not exist in the expert list.

Note

Users assume full responsibility for using parameters marked "Expert list: 0" (parameter does not exist in the expert list).

These parameters and their functionalities have not been tested and no further user documentation is available for them (e.g. description of functions).

Further, for these parameters, support through "Technical Support" (hotline) is no longer guaranteed.

Description

Explanation of the function of a parameter.

Values

Lists the possible values of a parameter.

Recommendation

Information about recommended settings.

Index

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

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

- **Min, Max:**
The adjustment range and unit apply to all indices.
- **Factory setting:**
When all indices have the same factory setting, index 0 is specified with the unit to represent all indices.
When the indices have different factory settings, they are all listed individually with the unit.

Bit array

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

- Bit number and signal name
- Meaning with signal states 0 and 1

Dependency

Conditions that must be fulfilled in conjunction with this parameter.

Also includes special effects that can occur between this parameter and others.

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

SINAMICS parameters

All objects: A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL

r0002	Control Unit operating display / CU op_display		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 117	Default: -

Description:	Operating display for the Control Unit (CU).		
Value:	0:	Operation	
	10:	Ready	
	20:	Wait for run-up	
	25:	Wait for automatic FW update of DRIVE-CLiQ components	
	31:	Commissioning software download active	
	33:	Remove/acknowledge topology error	
	34:	Exit commissioning mode	
	35:	Carry out first commissioning	
	70:	Initialization	
	80:	Reset active	
	99:	Internal software error	
	101:	Specify topology	
	111:	Insert drive object	
	112:	Delete drive object	
	113:	Change drive object number	
	114:	Change component number	
	115:	Run parameter download	
	117:	Delete component	

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

r0002	Drive operating display / Drv op_display		
HLA_828	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 250	Default: -
Description:	Operating display for the drive.		
Value:	0:	Operation - everything enabled	
	10:	Operation - set "enable setpoint" = "1" (p1142, p1152)	

- 12: Operation - RFG frozen, set "RFG start" = "1" (p1141)
- 13: Operation - set "enable RFG" = "1" (p1140)
- 14: Operation - shutoff valve opens, SS2, STOP C
- 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
- 21: Ready for operation - set "Operation enable" = "1" (p0852)
- 23: Ready - set "System pressure available" = "1" (p0864)
- 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)
- 44: Switching on inhibited - connect 24 V to terminal EP (hardware)
- 45: Switching on inhibited - rectify fault, acknowledge fault, STO
- 46: Switching on inhibited - exit comm mode (p0009, p0010)
- 60: Drive object de-activated/not operational
- 70: Initialization
- 200: Wait for booting/partial booting
- 250: Device signals a topology error

Dependency: See also: r0046

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

Note
 OC: Operating condition
 EP: Enable Pulses (pulse enable)
 RFG: Ramp-function generator
 COMM: Commissioning
 MotID: Motor data identification
 SS2: Safe Stop 2
 STO: Safe Torque Off

r0002

Drive operating display / Drv op_display

SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	250	-

Description: Operating display for the drive.

- Value:**
- 0: Operation - everything enabled
 - 10: Operation - set "enable setpoint" = "1" (p1142, p1152)
 - 11: Operation - set "enable speed controller" = "1" (p0856)
 - 12: Operation - RFG frozen, set "RFG start" = "1" (p1141)
 - 13: Operation - set "enable RFG" = "1" (p1140)
 - 14: Oper. - MotID, excit. running and/or brake opens, SS2, STOP C
 - 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 - armature short-circ./DC brake act. (p1230, p1231)
21:	Ready for operation - set "Operation enable" = "1" (p0852)
22:	Ready for operation - de-magnetizing running (p0347)
23:	Ready for operation - set "Infeed operation" = "1" (p0864)
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)
44:	Switching on inhibited - connect 24 V to terminal EP (hardware)
45:	Switching on inhibited - rectify fault, acknowledge fault, STO
46:	Switching on inhibited - exit comm mode (p0009, p0010)
60:	Drive object de-activated/not operational
70:	Initialization
200:	Wait for booting/partial booting
250:	Device signals a topology error

Dependency: See also: r0046

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

Note

OC: Operating condition
EP: Enable Pulses (pulse enable)
RFG: Ramp-function generator
COMM: Commissioning
MotID: Motor data identification
SS2: Safe Stop 2
STO: Safe Torque Off

r0002**Infeed operating display / INF op_display**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -**Calculation:** -**Access level:** 1**Data type:** Integer16**Dynamic index:** -**Function plan:** -**P group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

250

-

Description:

Operating display for the infeed.

Value:

0:	Operation - everything enabled
21:	Ready for operation - set "Operation enable" = "1" (p0852)
31:	Ready for switching on - pre-charge running (p0857)
32:	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)
44:	Switching on inhibited - connect 24 V to terminal EP (hardware)
45:	Switching on inhibited - remove fault cause, acknowledge fault
46:	Switching on inhibited - exit comm mode (p0009, p0010)
60:	Infeed de-activated/not operational
70:	Initialization

- 200: Wait for booting/partial booting
- 250: Device signals a topology error

Dependency: See also: r0046

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

Note
OC: Operating condition
EP: Enable Pulses (pulse enable)
COMM: Commissioning

r0002

Infeed operating display / INF op_display

B_INF_828

Changeable: -	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	250	-

Description: Operating display for the infeed.

- Value:**
- 0: Operation - everything enabled
 - 31: Ready for switching on - pre-charge running (p0857)
 - 32: 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)
 - 44: Switching on inhibited - connect 24 V to terminal EP (hardware)
 - 45: Switching on inhibited - remove fault cause, acknowledge fault
 - 46: Switching on inhibited - exit comm mode (p0009, p0010)
 - 60: Infeed de-activated/not operational
 - 70: Initialization
 - 200: Wait for booting/partial booting
 - 250: Device signals a topology error

Dependency: See also: r0046

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

Note
OC: Operating condition
COMM: Commissioning

r0002

TM120 operating display / TM120 op_display

TM120

Changeable: -	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	250	-

Description: Operating display for Terminal Module 120 (TM120)

- Value:**
- 0: Module in cyclic operation
 - 40: Module not in cyclic operation

50:	Alarm
60:	Fault
70:	Initialization
120:	Module de-activated
200:	Wait for booting/partial booting
250:	Device signals a topology error

NOTICE

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

r0002 TM150 operating display / TM150 op_display

TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	250	-

Description: Operating display for Terminal Module 150 (TM150)

Value:

0:	Module in cyclic operation
40:	Module not in cyclic operation
50:	Alarm
60:	Fault
70:	Initialization
120:	Module de-activated
200:	Wait for booting/partial booting
250:	Device signals a topology error

NOTICE

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

r0002 TM54F operating display / TM54F op_display

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	250	-

Description: Operating display for Terminal Module 54F (TM54F).

Value:

0:	Module in cyclic operation
40:	Module not in cyclic operation
50:	Alarm
60:	Fault
70:	Initialization
120:	Module de-activated
200:	Wait for booting/partial booting
250:	Device signals a topology error

r0002	DRIVE-CLiQ Hub Module operating display / Hub op_display		
HUB	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	250	-

Description: Operating display for the DRIVE-CLiQ Hub Module.

- Value:**
- 0: Module in cyclic operation
 - 40: Module not in cyclic operation
 - 50: Alarm
 - 60: Fault
 - 70: Initialization
 - 120: Module de-activated
 - 200: Wait for booting/partial booting
 - 250: Device signals a topology error

NOTICE

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

p0003	BOP access level / BOP acc_level		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1, T, U	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	1	4	1

Description: Sets the access level for reading and writing parameters via the Basic Operator Panel (BOP).

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

Note

A higher set access level also includes the lower one.

Access level 1 (standard):

Parameters for simplest possible operations.

Access level 2 (extended):

Parameters to operate the basic functions of the drive unit.

Access level 3 (experts):

Expert know-how is required for these parameters (e.g. BICO parameterization).

Access level 4 (service):

For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).

p0005[0...1]	BOP operating display selection / BOP op_disp sel		
HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	[0] 2 [1] 0
Description:	Sets the parameter number and parameter index for display for p0006 = 2, 4 for the Basic Operator Panel (BOP). Examples for the SERVO drive object: p0005[0] = 21, p0005[1] = 0: Actual speed smoothed (r0021) p0005[0] = 25, p0005[1] = 0: Output voltage smoothed (r0025)		
Index:	[0] = Parameter number [1] = Parameter index		
Dependency:	See also: p0006		
	Note		
	Procedure:		
	1.		
	The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object.		
	If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.		
	2.		
	The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.		
p0006	BOP operating display mode / BOP op_disp mode		
HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	4	4	4
Description:	Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".		
Value:	4: p0005		
Dependency:	See also: p0005		
	Note		
	Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object.		
	Mode 4 is available for all drive objects.		
p0009	Device commissioning parameter filter / Dev comm par_filt		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1, T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10000	1
Description:	Sets the device and basic drive commissioning. By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.		

Value:	0:	Ready
	1:	Device configuration
	2:	Defining the drive type/function module
	3:	Drive base configuration
	4:	Data set base configuration
	29:	Device download
	30:	Parameter reset
	50:	OA application configuration
	55:	OA application installation
	101:	Topology input
	111:	Insert drive object
	112:	Delete drive object
	113:	Change drive object number
	114:	Change component number
	115:	Parameter download
	117:	Delete component
	10000:	Ready (asynchron)

NOTICE

For p0009 = 10000 the following applies:
--

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

Note

The drives can only be powered up outside the device commissioning (the inverter enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010).

p0009 = 1: Device configuration

At the first commissioning of the device, after booting, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic sampling time in p0110).

p0009 = 2: Defines the drive type / function module

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

p0009 = 3: Drive basic configuration

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

p0009 = 4: Data set basic configuration

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

p0009 = 29: Device download

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

p0009 = 30: Parameter reset

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

p0009 = 50: OA application configuration

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

p0009 = 55: OA application installation

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

p0009 = 101: Topology input

In this state, the DRIVE-CLiQ target topology can be entered using p9902 and p9903.

p0009 = 111: Insert drive object

This state allows a new drive object to be inserted using p9911.

p0009 = 112: Delete drive object

This state allows existing drive objects to be deleted using p9912 after the device has been commissioned for the first time.

p0009 = 113: Change drive object number

This state allows the drive object number of existing drive objects to be changed using p9913 after the device has been commissioned for the first time.

p0009 = 114: Change component number

This state allows the component number of existing components to be changed using p9914 after the device has been commissioned for the first time.

p0009 = 115: Parameter download

This state allows the complete device and drive commissioning using the parameter services.

p0009 = 117: Delete component

This state allows components to be deleted using p9917 after the device has been commissioned for the first time.

p0010	Drive commissioning parameter filter / Drv comm. par_filt		
HLA_828	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10000	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: Valve commissioning 3: Cylinder commissioning 4: Encoder commissioning 5: Technological application/units 11: Function modules 15: Data sets 17: Basic positioner commissioning 25: Position control commissioning 29: Only Siemens int 30: Parameter reset 95: Safety Integrated commissioning 10000: Ready with immediate feedback signal		
	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.		

p0010	Drive commissioning parameter filter / Drv comm. par_filt		
SERVO_828, SERVO_COMBI	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 2800, 2818
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10000	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 4: Encoder commissioning 5: Technological application/units 15: Data sets 17: Basic positioner commissioning 25: Position control commissioning 29: Only Siemens int		

30:	Parameter reset
95:	Safety Integrated commissioning
10000:	Ready with immediate feedback signal

NOTICE

For p0010 = 10000 the following applies:

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

Note

The 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.

p0010 = 10000 corresponds to p0010 = 0. Unlike with p0010 = 0, the parameter modification is applied immediately and the calculations are made in the background. Further parameter modifications cannot be made while the calculations are being performed.

p0010

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Infeed commissioning parameter filter / INF comm par_filt

Changeable: C2(1), T

Data type: Integer16

P group: All groups

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

30

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

1

Description:

Sets the parameter filter to commission an infeed unit.

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
5:	Technological application/units
29:	Only Siemens int
30:	Parameter reset

Note

The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0.

For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0.

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

p0010

TM120

TM120 commissioning parameter filter / TM120 com par_filt

Changeable: C2(1), T

Data type: Integer16

P group: All groups

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

30

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the parameter filter for commissioning a Terminal Module 120 (TM120).

Setting this parameter filters out the parameters that can be written into in the various commissioning steps.

For the BOP, this setting also causes the read access operations to be filtered.

Value:

0:	Ready
29:	Only Siemens int

30: Parameter reset
Dependency: See also: p0970

Note

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

p0010 TM150 TM150 commissioning parameter filter / TM150 com par_filt

TM150 Changeable: C2(1), T Data type: Integer16 P group: All groups Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 30	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: 0
---	--	--

Description: Sets the parameter filter for commissioning a Terminal Module 150 (TM150).
 Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
 For the BOP, this setting also causes the read access operations to be filtered.

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

Dependency: See also: p0970

Note

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

p0010 TM54F_MA TM54F commissioning parameter filter / TM54F com par_filt

TM54F_MA Changeable: C2(1), T Data type: Integer16 P group: All groups Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 95	Access level: 1 Function plan: 2847 Unit selection: - Expert list: 1 Default: 0
--	--	---

Description: Sets the parameter filter for commissioning a Terminal Module 54F (TM54F).
 Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
 For the BOP, this setting also causes the read access operations to be filtered.

Value:
 0: Ready
 29: Only Siemens int
 30: Parameter reset
 95: Safety Integrated commissioning

Dependency: See also: p0970

Note

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

p0013[0...49] HUB, TM120, TM150, TM54F_MA, TM54F_SL BOP user-defined list / BOP list

HUB, TM120, TM150, TM54F_MA, TM54F_SL Changeable: T, U Data type: Unsigned16 P group: Functions Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 65535	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
--	---	--

- Description:** Sets the required parameters to read and write via the Basic Operator Panel (BOP).
 Activation:
 1. p0003 = 3 (expert).
 2. p0013[0...49] = requested parameter number
 3. If required, enter p0011 = password in order to prevent non-authorized de-activation.
 4. p0016 = 1 --> activates the selected user-defined list.
 De-activation/change:
 1. p0003 = 3 (expert).
 2. If required, p0012 = p0011, in order to be authorized to change or de-activate the list.
 3. If required p0013[0...49] = required parameter number.
 4. p0016 = 1 --> activates the modified user-defined list.
 5. p0003 = 0 --> de-activates the user-defined list.
- Dependency:** See also: p0009, p0976

Note

The following parameters can be read and written on the Control Unit drive object:

- p0003 (access stage)
- p0009 (device commissioning, parameter filter)
- p0012 (BOP password acknowledgment (p0013))

The following applies for the user-defined list:

- password protection is only available on the drive object Control Unit and is valid for all of the drive objects.
- p0013 cannot be included in the user-defined list for all drive objects.
- p0003, p0009, p0011, p0012, p0976 cannot, for the drive object Control Unit, be included in the user-defined list.
- the user-defined list can be cleared and de-activated "restore factory setting".

A value of 0 means: Entry is empty.

p0015

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Macro drive unit / Macro drv unit

Changeable: C1

Data type: Unsigned32

P group: -

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

999999

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

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

- Dependency:** See also: p0700, p1000, p1500, r8570

NOTICE

After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.
 When executing a specific macro, the corresponding programmed settings are made and become active.

Note

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

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

p0015 Macro drive object / Macro DO

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI,
TM120, TM150

Changeable: C2(1)
Data type: Unsigned32
P group: Commands
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
999999

Access level: 1
Function plan: -
Unit selection: -
Expert list: 1
Default:
0

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

Dependency: See also: p0700, p1000, p1500, r8570

NOTICE
After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.
When executing a specific macro, the corresponding programmed settings are made and become active.
No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

Note
The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.
Macros available as standard are described in the technical documentation of the particular product.

r0018 Control Unit firmware version / CU FW version

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -
Data type: Unsigned32
P group: -
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
4294967295

Access level: 1
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays the firmware version of the Control Unit.
Dependency: See also: r0128, r0148, r0158, r0197, r0198

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

r0020 Velocity setpoint smoothed / v_set smth

HLA_828

Changeable: -
Data type: FloatingPoint32
P group: Displays, signals
Not for motor type: -
Min:
- [m/min]

Calculation: -
Dynamic index: -
Unit group: 4_1
Scaling: p2000
Max:
- [m/min]

Access level: 2
Function plan: -
Unit selection: p0505
Expert list: 1
Default:
- [m/min]

Description: Displays the actual smoothed velocity setpoint at the velocity controller input.
Dependency: See also: 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 velocity setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0020	Speed setpoint smoothed / n_set smth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5020, 6799
	P group: Displays, signals	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Displays the currently smoothed speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator).		
Dependency:	See also: 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 velocity smoothed / v_act smooth		
HLA_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [m/min]	Max: - [m/min]	Default: - [m/min]
Description:	Displays the smoothed actual value of the cylinder velocity.		
Dependency:	See also: 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).		
r0021	CO: Actual speed smoothed / n_act smooth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4700, 4710
	P group: Displays, signals	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Displays the smoothed actual value of the motor speed.		
Dependency:	See also: 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).		

r0022	Actual velocity smoothed / v_act smooth		
HLA_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]
Description:	Displays the smoothed actual value of the cylinder velocity.		
Dependency:	See also: 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).		

r0022	Speed actual value rpm smoothed / n_act rpm smooth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4700, 4710
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	Displays the smoothed actual value of the motor speed.		
	r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over.		
Dependency:	See also: 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).		

r0024	Output frequency smoothed / f_outp smooth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5300, 5730, 6300, 6799
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [Hz]	- [Hz]	- [Hz]
Description:	Displays the smoothed converter frequency.		
Dependency:	See also: 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).		

r0024	CO: Line supply frequency smoothed / f_line smooth		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [Hz]	Max: - [Hz]	Default: - [Hz]
Description:	Displays the smoothed line supply frequency.		
Dependency:	See also: r0066		
	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 line frequency is available smoothed (r0024) and unsmoothed (r0066).		
	A positive sign of the frequency is obtained when the line supply phases U, V and W are connected with the correct phase sequence.		
	A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.		
r0025	CO: Output voltage smoothed / U_outp smooth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730, 6300, 6799
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]
Description:	Displays the smoothed output voltage of the power unit.		
Dependency:	See also: 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).		
r0025[0...3]	CO: Input voltage smoothed / U_inp smooth		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]
Description:	Displays the smoothed actual value of the input voltage.		
Index:	[0] = Voltage at input terminals of power unit from line supply model [1] = Voltage at VSM or at input terminals of the line filter [2] = Voltage of the voltage source from the line supply model [3] = Smoothed voltage of voltage source from line supply model		
Dependency:	See also: r0072		

Note

Smoothing time constant = 300 ms

The signals are not suitable as process quantity and may only be used as display quantities.

The input voltages are available smoothed (r0025) and unsmoothed (r0072).

For r0025[0]:

Pulsed voltage at the line supply input terminals of the power unit. The value is calculated from the modulation depth r0074 and is therefore only correct in the closed-loop controlled mode and when the pulses are enabled.

For r0025[1]:

Absolute voltage at the input terminals of the line filter or the connection point of a VSM. The value is calculated from the VSM measured values r3661 and r3662 and is therefore equal to 0 if a VSM is not connected.

For r0025[2]:

Estimated value for the voltage of the voltage source that is calculated in the voltage model of the line supply PLL.

For r0025[3]:

Smoothed display value of the filtered source voltage from r0072[3].

r0026

SERVO_828,
SERVO_COMBI

CO: DC link voltage smoothed / Vdc smooth

Changeable: -

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: -

Function plan: 5730, 8750, 8850, 8950

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: p2001

Expert list: 1

Min:

Max:

Default:

- [V]

- [V]

- [V]

Description:

Displays the smoothed actual value of the DC link voltage.

Dependency:

See also: r0070

NOTICE

For SINAMICS S120 AC Drive (AC/AC) the following applies:

When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) 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

SERVO, VECTOR: 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

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

CO: DC link voltage smoothed / Vdc smooth

Changeable: -

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: -

Function plan: 5730, 6799, 8750, 8850, 8950

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: p2001

Expert list: 1

Min:

Max:

Default:

- [V]

- [V]

- [V]

Description:

Displays the smoothed actual value of the DC link voltage.

Dependency:

See also: r0070

NOTICE

This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

Note

A_INF, B_INF, S_INF: smoothing time constant = 300 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).

r0027

A_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

CO: Absolute actual current smoothed / I_act abs val smth

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [Arms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2002

Max:

- [Arms]

Access level: 2

Function plan: 5730, 6799, 8850, 8950

Unit selection: -

Expert list: 1

Default:

- [Arms]

Description:

Displays the smoothed absolute actual current value.

Dependency:

See also: 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

A_INF, S_INF, VECTOR: Smoothing time constant = 300 ms

SERVO: Smoothing time constant = 100 ms

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

The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

r0027

B_INF_828

CO: Absolute actual current smoothed / I_act abs val smth

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [A]

Calculation: -

Dynamic index: -

Unit group: 6_4

Scaling: p2002

Max:

- [A]

Access level: 2

Function plan: 8750

Unit selection: p0505

Expert list: 1

Default:

- [A]

Description:

Displays the smoothed absolute actual current value.

Dependency:

See also: r0068

NOTICE

This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

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

A_INF_828,
SERVO_828,
SERVO_COMBI

Modulation depth smoothed / Mod_depth smth

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2002

Max:

- [%]

Access level: 3

Function plan: 5730, 6799, 8950

Unit selection: -

Expert list: 1

Default:

- [%]

Description: Displays the smoothed actual value of the modulation depth.
Dependency: See also: r0074

Note

A_INF: Smoothing time constant = 300 ms
 SERVO, VECTOR: 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

SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730, 6799
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2002	Expert list: 1
Min:	Max:	Default:
- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed field-generating actual current.
Dependency: See also: r0076

Note

SERVO: Smoothing time constant = 100 ms
 VECTOR: 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).

r0029 Reactive current actual value smoothed / I_react smooth

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2002	Expert list: 1
Min:	Max:	Default:
- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed actual value of the reactive current component.

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 reactive current actual value is available smoothed (r0029) and unsmoothed (r0076).

r0030 Current actual value torque-generating smoothed / Iq_act smooth

SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730, 6799
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2002	Expert list: 1
Min:	Max:	Default:
- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed torque-generating actual current.
Dependency: See also: r0078

Note

SERVO: Smoothing time constant = 100 ms

VECTOR: Smoothing time constant = 300 ms

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

The following applies for SERVO:

The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).

The following applies for VECTOR:

The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).

r0030**Active current actual value smoothed / I_active smooth**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [Arms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2002

Max:

- [Arms]

Access level: 3

Function plan: 8850, 8950

Unit selection: -

Expert list: 1

Default:

- [Arms]

Description:

Displays the smoothed actual value of the active current components.

Dependency:

See also: r0078

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 active current actual value is available smoothed (r0030) and unsmoothed (r0078).

r0031**Force actual value smoothed / F_act smooth**

HLA_828

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [N]

Calculation: -

Dynamic index: -

Unit group: 8_1

Scaling: p2003

Max:

- [N]

Access level: 2

Function plan: -

Unit selection: p0505

Expert list: 1

Default:

- [N]

Description:

Displays the smoothed force setpoint.

Dependency:

See also: r0080

Note

Smoothing time constant = 100 ms

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

The force actual value is available smoothed (r0031) and unsmoothed (r0080).

r0031**Actual torque smoothed / M_act smooth**

SERVO_828,
SERVO_COMBI

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [Nm]

Calculation: -

Dynamic index: -

Unit group: 7_1

Scaling: p2003

Max:

- [Nm]

Access level: 2

Function plan: 5730, 6799

Unit selection: p0505

Expert list: 1

Default:

- [Nm]

Description:

Displays the smoothed torque actual value.

Dependency:

See also: r0080

Note

Smoothing time constant = 100 ms
 The signal is not suitable as a process quantity and may only be used as a display quantity.
 The torque actual value is available smoothed (r0031) and unsmoothed (r0080).

r0032

CO: Active power actual value smoothed / P_actv_act smth

A_INF_828, HLA_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: -
Data type: FloatingPoint32

Calculation: -
Dynamic index: -

Access level: 2
Function plan: 5730, 6799, 8750,
 8850, 8950

P group: Displays, signals
Not for motor type: -

Unit group: 14_10
Scaling: r2004

Unit selection: p0505
Expert list: 1

Min:
 - [kW]

Max:
 - [kW]

Default:
 - [kW]

Description: Displays the smoothed actual value of the active power.

Dependency: See also: r0082

NOTICE

This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.

Note

Significance for the drive: Power output at the motor shaft
 Significance for the infeed: Line power drawn
 For A_INF, B_INF and S_INF the following applies:
 The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).
 The following applies for SERVO:
 The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).
 For VECTOR and VECTORMV, the following applies:
 The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

r0032

CO: Active power actual value smoothed / P_actv_act smth

B_INF_828

Changeable: -
Data type: FloatingPoint32

Calculation: -
Dynamic index: -

Access level: 2
Function plan: 5730, 6799, 8750,
 8850, 8950

P group: Displays, signals
Not for motor type: -

Unit group: 14_10
Scaling: r2004

Unit selection: p0505
Expert list: 1

Min:
 - [kW]

Max:
 - [kW]

Default:
 - [kW]

Description: Displays the smoothed actual value of the active power.

Dependency: See also: r0082

NOTICE

This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.
 For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note

Significance for the drive: Power output at the motor shaft
 Significance for the infeed: Line power drawn
 For A_INF, B_INF and S_INF the following applies:
 The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082).
 The following applies for SERVO:
 The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).
 For VECTOR and VECTORMV, the following applies:
 The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).

r0033	Torque utilization smoothed / M_util smooth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8012
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the smoothed torque utilization as a percentage. The torque utilization is obtained from the required smoothed torque in reference to the torque limit, scaled using p2196.		
	Note		
	Smoothing time constant = 100 ms		
	The signal is not suitable as a process quantity and may only be used as a display quantity.		
	The torque utilization is available smoothed (r0033) and unsmoothed (r0081).		
	For M_set total (r0079) > M_max offset (p1532), the following applies:		
	- demanded torque = M_set total - M_max offset		
	- actual torque limit = M_max upper effective (r1538) - M_max offset		
	For M_set total (r0079) <= M_max offset (p1532), the following applies:		
	- demanded torque = M_max offset - M_set total		
	- actual torque limit = M_max offset - 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 thermal / Mot_util therm		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8017
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the motor utilization from motor temperature model 1 (I2t) or 3.		
Dependency:	The thermal motor utilization is only determined for permanent-magnet synchronous motors when the motor temperature model 1 (I2t) or 3 is activated.		
	For motor temperature model 1 (I2t) (p0612.0 = 1), the following applies:		
	- r0034 = (motor model temperature - 40 K) / (p0605 - 40 K) * 100 %		
	For motor temperature model 3 (p0612.2 = 1), the following applies:		
	- r0034 = (motor model temperature - p5397) / (p5398 - p5397) * 100 %		
	See also: 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		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8016, 8017
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]
Description:	Display and connector output for the actual temperature in the motor.		
	Note		
	For r0035 not equal to -200.0 °C, the following applies:		
	- this temperature display is valid.		
	- A KTY/PT1000 temperature sensor is connected.		
	- the thermal model for the induction motor is activated (p0612 bit 1 = 1 and temperature sensor de-activated: p0600 = 0 or 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.		
	- the temperature sensor of the synchronous motor is de-activated (p0600 = 0 or p0601 = 0).		

r0035	CO: Temperature input / Temp_input		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]
Description:	Displays the temperature currently measured at X21 (booksize) or X41 (chassis).		
	When using an Active Interface Module (p0220 = 41 ... 45) a bimetallic sensor must be connected up to monitor the temperature. The temperature sensor type is indicated using p0601 and cannot be changed when an Active Interface Module is being used.		
	Temperature within permissible limit values: r0035 = -50°C		
	Temperature outside the permissible limit values: r0035 = 250°C		
Dependency:	See also: A06260, F06261, F06262		

NOTICE
The function in r0192.11 must be available in order to obtain a correct display.

	Note		
	For r0035 equal to -200.0 °C, the following applies:		
	- "no sensor" selected in p0601!		
	For r0035 equal to -300.0 °C, the following applies:		
	- a KTY/PT1000 is selected in p0601 but is not connected!		
	- the temperature display is not valid (temperature sensor error)!		

r0035	CO: Temperature input / Temp_input		
B_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8750
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]

Description: Displays the temperature currently measured at X21 (booksize) or X41 (chassis).
For a BLM with internal Braking Module, a bimetallic sensor must be connected up to monitor the temperature of the braking resistor. The temperature sensor type is indicated using p0601 and cannot be changed for the existing internal Braking Module.
Temperature within permissible limit values: r0035 = -50°C
Temperature outside the permissible limit values: r0035 = 250°C

Dependency: See also: F06907, F06908

NOTICE

The function in r0192.11 must be available in order to obtain a correct display.

Note

For r0035 equal to -200.0 °C, the following applies:

- "no sensor" selected in p0601!

For r0035 equal to -300.0 °C, the following applies:

- a KTY/PT1000 is selected in p0601 but is not connected!

- the temperature display is not valid (temperature sensor error)!

r0036**CO: Power unit overload I2t / PU overload I2t**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: PERCENT

Max:

- [%]

Access level: 3

Function plan: 8014

Unit selection: -

Expert list: 1

Default:

- [%]

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:

See also: p0290, p0294

See also: F30005

r0037[0...1]**Control Unit temperature / CU temp**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [°C]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2006

Max:

- [°C]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [°C]

Description:

Displays the measured Control Unit temperature.

An appropriate message is output when the permitted operating temperature is exceeded.

Index:

[0] = Actual measured value

[1] = Maximum measured value

Dependency:

See also: A01009

NOTICE

Only for internal Siemens troubleshooting.

Note

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

r0037[0...1]

HLA_828

CO: HLA temperature / HLA temp

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [°C]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2006

Max:

- [°C]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [°C]

Description:

Display and connector output for the measured temperature in the Hydraulic Module.
 Fault F30611 with fault value 1950 is output when the permitted operating temperature is exceeded.
 An implausible operating temperature value results in fault F30611 with fault value 1951.

Index:

[0] = Actual measured value
 [1] = Maximum measured value

NOTICE

Only for internal Siemens troubleshooting.

Note

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

r0037[0...19]

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

CO: Power unit temperatures / PU temperatures

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [°C]

Calculation: -

Dynamic index: -

Unit group: 21_1

Scaling: p2006

Max:

- [°C]

Access level: 3

Function plan: 8014

Unit selection: p0505

Expert list: 1

Default:

- [°C]

Description:

Display and connector output for the temperature 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] = Inverter 3
 [8] = Inverter 4
 [9] = Inverter 5
 [10] = Inverter 6
 [11] = Rectifier 1
 [12] = Rectifier 2
 [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] = Cooling unit liquid intake

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.

In the case of a fault, the particular shutdown threshold depends on the power unit, and cannot be read out.

r0038

A_INF_828,
S_INF_828,
S_INF_COMBI

Power factor smoothed / Cos phi smooth

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 6799, 8850, 8950

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the smoothed actual power factor.

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.

Meaning for motor:

- power factor of the basic fundamental signals at the converter output.

Meaning for infeed:

- Power factor at the connection point (r3470, r3471)

r0039[0...2]

SERVO_828,
SERVO_COMBI

Energy display / Energy displ

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [kWh]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

- [kWh]

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [kWh]

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:

See also: p0040

Note

For index 0:

Sum of the energy drawn and energy that is fed back.

p0040	Reset energy consumption display / Energy usage reset		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
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:	See also: r0039		

p0045	Display values smoothing time constant / Disp_val T_smooth		
HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4715, 5610, 5730, 6714, 8012
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	10000.00 [ms]	1.00 [ms]
Description:	Sets the smoothing time constant for the following display values: SERVO: r0078[1], r0079[1], r0081 (calculated from the quantities smoothed with p0045), r0082[1]. VECTOR: r0063[1], r0068[1], r0080[1], r0082[1].		

p0045	Display values smoothing time constant / Disp_val T_smooth		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	10000.00 [ms]	150.00 [ms]
Description:	Sets the smoothing time constant for the following display values: r5515[1], r5516[1]		

r0046.0...30	CO/BO: Missing enable sig / Missing enable sig				
HLA_828	Changeable: -	Calculation: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Function plan: 2634		
	P group: Displays, signals	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Display and BICO output for missing enable signals that are preventing the closed-loop drive control from being commissioned.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	OFF1 enable missing	Yes	No	-
	01	OFF2 enable missing	Yes	No	-
	02	OFF3 enable missing	Yes	No	-
	03	Operation enable missing	Yes	No	-

07	The 26.5 V supply voltage is missing	Yes	No	-
08	Safety enable missing	Yes	No	-
09	System pressure missing	Yes	No	-
10	Ramp-function generator enable missing	Yes	No	-
11	Ramp-function generator start missing	Yes	No	-
12	Setpoint enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
18	OFF3 enable internal missing	Yes	No	-
19	Power enable internal missing	Yes	No	-
21	STOP2 enable internal missing	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
30	Velocity controller inhibited	Yes	No	-

Dependency: See also: 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 07 = 1 (enable signal missing), if:

- the 26.5 V supply voltage is missing (X271).

Bit 08 = 1 (enable signal missing), if:

- safety functions have been enabled and STO is active.

STO selected via terminals:

- the pulse enable via STO terminal is missing or the signal source in p9620 has a 0 signal.

STO selected via PROFIsafe or TM54F:

- A safety-relevant signal is present with a STOP A response.

Bit 09 = 1 (enable signal missing), if:

- the signal source in p0864 is a 0 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 velocity setpoint is frozen, because:

- the signal source in p1141 is a 0 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 (p0009 > 0 or p0010 > 0).

- there is an OFF2 fault response.

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 18 = 1 (enable signal missing), if:

- OFF3 has still not been completed or an OFF3 fault response is present.

Bit 19 = 1 (internal power enable missing), if:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 21 = 1 (enable signal missing), if:

- The power has been enabled and the velocity setpoint has still not been enabled.

Bit 26 = 1 (enable signal missing), if:

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

- the function "parking axis" is selected (BI: p0897 = 1 signal)..

Bit 30 = 1 (velocity controller inhibited), if:

- the function generator with deactivated velocity controller is active.

- the measuring function with deactivated velocity controller is active.

r0046.0...31

SERVO_828,
SERVO_COMBI

CO/BO: Missing enable sig / Missing enable sig

Changeable: -

Data type: Unsigned32

P group: Displays, signals

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 1

Function plan: 2634

Unit selection: -

Expert list: 1

Default:

-

Description:	Display and BICO output for missing enable signals that are preventing the closed-loop drive control from being commissioned.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	OFF1 enable missing	Yes	No	7954
	01	OFF2 enable missing	Yes	No	-
	02	OFF3 enable missing	Yes	No	-
	03	Operation enable missing	Yes	No	-
	04	Armature short-circuit / DC braking enable missing	Yes	No	7014, 7016
	05	STOP2 enable missing	Yes	No	-
	08	Safety enable missing	Yes	No	-
	09	Infeed enable missing	Yes	No	-
	10	Ramp-function generator enable missing	Yes	No	-
	11	Ramp-function generator start missing	Yes	No	-
	12	Setpoint enable missing	Yes	No	-
	16	OFF1 enable internal missing	Yes	No	-
	17	OFF2 enable internal missing	Yes	No	-
	18	OFF3 enable internal missing	Yes	No	-
	19	Pulse enable internal missing	Yes	No	-
	20	Armature short-circuit/DC braking internal enable missing	Yes	No	7014, 7016
	21	STOP2 enable internal missing	Yes	No	-
	25	Function bypass active	Yes	No	-
	26	Drive inactive or not operational	Yes	No	-
	27	De-magnetizing not completed	Yes	No	-
	28	Brake open missing	Yes	No	-
	29	Cooling unit ready signal missing	Yes	No	-
	30	Speed controller inhibited	Yes	No	-
	31	Jog setpoint active	Yes	No	-
Dependency:	See also: 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 (armature short-circuit active), if:

- the signal source in p1230 has a 1 signal

Bit 05, Bit 06: Being prepared

Bit 08 = 1 (enable signal missing), if:

- safety functions have been enabled and STO is active.

STO selected via terminals:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41), or the signal source in p9620 is for a 0 signal.

STO selected via PROFIsafe or TM54F:

- A safety-relevant signal is present with a STOP A response.

Bit 09 = 1 (enable signal missing), if:

- the signal source in p0864 is a 0 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.

- When activating the function module "basic positioner" (r0108.4 = 1), the signal source in p1142 is set to 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 (p0009 > 0 or p0010 > 0).
- there is an OFF2 fault response.
- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

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:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 20 = 1 (internal armature short-circuit active), if:

- the drive is not in the state "S4: Operation" or "S5x" (refer to function diagram 2610).
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:

The pulses have been enabled and the speed setpoint has still not been enabled, because:

- the holding brake opening time (p1216) has still not expired.
- the motor has still not been magnetized (induction motor).
- the encoder has not been calibrated (U/f vector and synchronous motor)

Bit 22: Being prepared

Bit 26 = 1 (enable signal missing), if:

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).
- the function "parking axis" is selected (BI: p0897 = 1 signal)..
- all power units of a parallel connection are deactivated (p0125, p0895).

Bit 27 = 1 (enable signal missing), if:

- de-magnetizing has still not been completed (only for vector).
- Bit 28 = 1 (enable signal missing), if:
 - the holding brake is closed or has still not been opened.
- Bit 29 = 1 (enable signal missing), if:
 - the cooling unit ready signal via binector input p0266[1] missing.
- Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:
 - A 0 signal is available via binector input p0856.
 - the function generator with current input is active.
 - the measuring function "current controller reference frequency characteristic" is active.
 - 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.

r0046.0...29**CO/BO: Missing enable sig / Missing enable sig**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -**Calculation:** -**Access level:** 1**Data type:** Unsigned32**Dynamic index:** -**Function plan:** 8834, 8934**P group:** Displays, signals**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Display and BICO output for missing enable signals that are preventing the closed-loop infeed control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
03	Operation enable missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
26	Infeed inactive or not operational	Yes	No	-
29	Cooling unit ready signal missing	Yes	No	-

Dependency:

See also: r0002

Note

The value r0046 = 0 indicates that all enable signals for the infeed 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 03 = 1 (enable signal missing), if:

- the signal source in p0852 is a 0 signal.

Bit 08 = 1 (enable signal missing), if:

- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).

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

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

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

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

Bit 19 = 1 (internal pulse enable missing), if:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 26 = 1 (enable signal missing), if:

- the infeed is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 29 = 1 (enable signal missing), if:

- the cooling unit ready signal via binector input p0266[1] missing.

r0046.0...29

CO/BO: Missing enable sig / Missing enable sig

B_INF_828

Changeable: -

Calculation: -

Access level: 1

Data type: Unsigned32

Dynamic index: -

Function plan: 8734

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for missing enable signals that are preventing the closed-loop infeed control from being commissioned.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
08	EP terminals enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
26	Infeed inactive or not operational	Yes	No	-
29	Cooling unit ready signal missing	Yes	No	-

Dependency:

See also: r0002

Note

The value r0046 = 0 indicates that all enable signals for the infeed 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 16 = 1 (enable signal missing), if:

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

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

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

Bit 26 = 1 (enable signal missing), if:

- the infeed is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 29 = 1 (enable signal missing), if:

- the cooling unit ready signal via binector input p0266[1] missing.

r0047**Identification status / Ident status**

HLA_828

Changeable: -**Calculation:** -**Access level:** 1**Data type:** Integer16**Dynamic index:** -**Function plan:** -**P group:** Displays, signals**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

200

-

Description:

Displays the currently executed step for the motor data identification and the pole position identification.

Value:

0:	No measurement
10:	Identification pressure offset step 1
11:	Identification pressure offset step 2
20:	ID: Piston calibration
100:	ID: control sense correction step 1
101:	ID: control sense correction step 2
102:	ID: control sense correction step 3
110:	ID: valve offset correction step 1
111:	ID: valve offset correction step 2
120:	ID: automatic piston calibration step 1
121:	ID: automatic piston calibration step 2
130:	ID: traversing range detection step 1
131:	ID: traversing range detection step 2
140:	ID: characteristic measurement start
141:	ID: characteristic measurement start position
142:	ID: characteristic measurement approach start position
143:	ID: characteristic measurement braking phase
144:	ID: characteristic meas. wait for pressure accumulator to fill
146:	ID: characteristic measurement acceleration
147:	ID: characteristic measurement standstill test
148:	ID: characteristic measurement settling
149:	ID: characteristic measurement
150:	ID: characteristic measurement determine edge position
151:	ID: characteristic measurement approach edge position
153:	ID: characteristic measurement end

- 160: ID: frictional force measurement start
- 161: ID: frictional force measurement measure
- 162: ID: frictional force measurement end
- 200: ID: exit all measurements

r0047

SERVO_828,
SERVO_COMBI

Identification status / Ident status

Changeable: -	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	104	-

Description: Displays the currently executed steps or the first step after the enable for the motor identification and pole position identification routines.

- Value:**
- 0: No measurement
 - 1: PolID: Wait for brake closing time
 - 2: PolID: Measurement step 1
 - 3: PolID: Measurement step 2
 - 4: PolID: Measurement step 3
 - 5: PolID: Measurement step 4
 - 6: PolID: Measurement stage 2
 - 7: PolID: Measurement evaluation
 - 8: PolID: Measurement end
 - 11: MotID: Inductance measurement, step 1
 - 12: MotID: Inductance measurement, step 2
 - 13: MotID: Inductance measurement evaluation
 - 14: MotID: Resistance measurement evaluation
 - 15: MotID: Fine synchronization step 1
 - 16: MotID: Fine synchronization step 2
 - 17: MotID: Fine synchronization step 3
 - 18: MotID: Fine synchronization end
 - 20: MotID: Rotating inductance measurement step 1
 - 21: MotID: Rotating inductance measurement step 2
 - 22: MotID: Rotating inductance measurement step 3
 - 23: MotID: Rotating inductance measurement step 4
 - 24: MotID: Rotating Inductance measurement evaluation
 - 25: MotID: Rotating Inductance measurement end
 - 30: MotID: Induction motor measurement step 1
 - 31: MotID: Induction motor measurement step 2
 - 32: MotID: Induction motor measurement step 3
 - 33: MotID: Induction motor measurement step 4
 - 34: MotID: Induction motor measurement step 5
 - 35: MotID: Induction motor measurement step 6
 - 36: MotID: Induction motor measurement step 7
 - 37: MotID: Induction motor measurement step 8
 - 38: MotID: Induction motor measurement step 9
 - 40: MotID: Commutating angle step 1
 - 41: MotID: Commutating angle step 2
 - 42: MotID: Commutating angle step 3

43:	MotID: Commutating angle step 4
45:	MotID: Commutating angle rotating step 1
46:	MotID: Commutating angle rotating step 2
47:	MotID: Commutating angle rotating step 3
48:	MotID: Commutating angle rotating complete
50:	MotID: kT determination step 1
51:	MotID: kT determination step 2
52:	MotID: kT determination step 3
53:	MotID: kT determination evaluation
54:	MotID: kT determination end
60:	MotID: Reluctance constant measurement step 1
61:	MotID: Reluctance constant measurement step 2
62:	MotID: Reluctance constant measurement step 3
63:	MotID: Reluctance constant measurement end
70:	MotID: Moment of inertia measurement step 1
71:	MotID: Moment of inertia measurement step 2
72:	MotID: Moment of inertia measurement step 3
73:	MotID: Moment of inertia measurement end
80:	MotID: Magnetizing inductance measurement step 1
81:	MotID: Magnetizing inductance measurement step 2
82:	MotID: Magnetizing inductance measurement step 3
83:	MotID: Magnetizing inductance measurement evaluation
84:	MotID: Magnetizing inductance measurement end
90:	MotID: Saturation characteristic. step 1
91:	MotID: Saturation characteristic. step 2
92:	MotID: Saturation characteristic. step 3
93:	MotID: Saturation characteristic evaluation 1
94:	MotID: Saturation characteristic evaluation 2
95:	MotID: Saturation characteristic end
96:	MotID: Converter model step 1
97:	MotID: Converter model step 2
98:	MotID: Converter model step 3
99:	MotID: Converter model step 4
100:	PolID: Motion-based step 1
101:	PolID: Motion-based step 2
102:	PolID: Motion-based step 3
103:	PolID: Motion-based step 4
104:	PolID: Motion-based step 5

r0049[0...3]**Motor data set/encoder data set effective / MDS/EDS effective**

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned8**Dynamic index:** -**Function plan:** 8565**P group:** Displays, signals**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the effective Motor Data Set (MDS) and the effective Encoder Data Sets (EDS).

Index: [0] = Motor Data Set MDS effective
 [1] = Encoder 1 Encoder Data Set EDS effective
 [2] = Encoder 2 Encoder Data Set EDS effective
 [3] = Encoder 3 Encoder Data Set EDS effective

Dependency: See also: p0186, p0187, p0188, p0189, r0838

Note

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

r0050.0...3

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

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: -

Calculation: -

Access level: 2

Data type: Unsigned8

Dynamic index: -

Function plan: 8560

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description: Displays the effective Command Data Set (CDS).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CDS eff bit 0	ON	OFF	-
	01	CDS eff bit 1	ON	OFF	-
	02	CDS eff bit 2	ON	OFF	-
	03	CDS eff bit 3	ON	OFF	-

Dependency: See also: p0810, r0836

Note

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

r0051.0...4

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

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -

Calculation: -

Access level: 2

Data type: Unsigned8

Dynamic index: -

Function plan: 8565

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DDS eff bit 0	ON	OFF	-
	01	DDS eff bit 1	ON	OFF	-
	02	DDS eff bit 2	ON	OFF	-
	03	DDS eff bit 3	ON	OFF	-
	04	DDS eff bit 4	ON	OFF	-

Dependency: See also: p0820, p0821, p0822, p0823, p0824, r0837

Note

The drive data set changeover is suppressed when selecting the motor identification, during the rotating measurement, the encoder calibration and the friction characteristic record.

r0056.1...15	CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl			
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Function plan: 2526	
	P group: Displays, signals	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	-	
Description:	Display and BICO output for the status word of the closed-loop control.			
Bit field:	Bit	Signal name	1 signal	0 signal
	01	De-magnetizing completed	Yes	No
	04	Magnetizing completed	Yes	No
	08	Field weakening active	Yes	No
	14	Vdc_max controller active	Yes	No
	15	Vdc_min controller active	Yes	No
				FP
				-
				2701
				-
				-
				-
				-
	Note			
	For bit 04: The bit is immediately set after power-on Exception: For an induction motor with brake (except for p1215 = 2), the bit is only set when 60% of the reference flux is reached.			
r0060	CO: Velocity setpoint before the setpoint filter / v_set before filt			
HLA_828	Changeable: -	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965	
	P group: Displays, signals	Unit group: 4_1	Unit selection: p0505	
	Not for motor type: -	Scaling: p2000	Expert list: 1	
	Min:	Max:	Default:	
	- [m/min]	- [m/min]	- [m/min]	
Description:	Displays the actual velocity setpoint at the speed controller input (after the interpolator).			
Dependency:	See also: r0020			
	Note			
	The velocity setpoint is available smoothed (r0020) and unsmoothed (r0060).			
r0060	CO: Speed setpoint before the setpoint filter / n_set before filt.			
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2701, 2704, 5020, 6030, 6799	
	P group: Displays, signals	Unit group: 3_1	Unit selection: p0505	
	Not for motor type: -	Scaling: p2000	Expert list: 1	
	Min:	Max:	Default:	
	- [rpm]	- [rpm]	- [rpm]	
Description:	Displays the actual speed setpoint at the input of the speed controller or U/f characteristic (after the interpolator).			
Dependency:	See also: r0020			
	Note			
	The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).			

r0061[0...1] HLA_828	CO: Actual velocity unsmoothed / v_act unsmoothed	Changeable: -	Calculation: -	Access level: 2
		Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
		P group: Displays, signals	Unit group: 4_1	Unit selection: p0505
		Not for motor type: -	Scaling: p2000	Expert list: 1
		Min:	Max:	Default:
		- [m/min]	- [m/min]	- [m/min]
Description:	Displays the unsmoothed actual velocity values sensed by the encoders.			
Index:	[0] = Encoder 1			
	[1] = Encoder 2			
<hr/>				
r0061[0...1] SERVO_828, SERVO_COMBI	CO: Actual speed unsmoothed / n_act unsmoothed	Changeable: -	Calculation: -	Access level: 2
		Data type: FloatingPoint32	Dynamic index: -	Function plan: 4700, 4710, 4715
		P group: Displays, signals	Unit group: 3_1	Unit selection: p0505
		Not for motor type: -	Scaling: p2000	Expert list: 1
		Min:	Max:	Default:
		- [rpm]	- [rpm]	- [rpm]
Description:	Displays the unsmoothed actual speed values sensed by the encoders.			
Index:	[0] = Encoder 1			
	[1] = Encoder 2			
<hr/>				
r0062 HLA_828	CO: Velocity setpoint after the filter / v_set after filter	Changeable: -	Calculation: -	Access level: 3
		Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
		P group: Displays, signals	Unit group: 4_1	Unit selection: p0505
		Not for motor type: -	Scaling: p2000	Expert list: 1
		Min:	Max:	Default:
		- [m/min]	- [m/min]	- [m/min]
Description:	Display and connector output for the velocity setpoint after the setpoint filters.			
<hr/>				
r0062 SERVO_828, SERVO_COMBI	CO: Speed setpoint after the filter / n_set after filter	Changeable: -	Calculation: -	Access level: 3
		Data type: FloatingPoint32	Dynamic index: -	Function plan: 5019, 5020, 5030, 5042, 5210
		P group: Displays, signals	Unit group: 3_1	Unit selection: p0505
		Not for motor type: -	Scaling: p2000	Expert list: 1
		Min:	Max:	Default:
		- [rpm]	- [rpm]	- [rpm]
Description:	Display and connector output for the speed setpoint after the setpoint filters.			
<hr/>				
r0063 HLA_828	CO: Actual velocity smoothed / v_act smooth	Changeable: -	Calculation: -	Access level: 3
		Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
		P group: Displays, signals	Unit group: 4_1	Unit selection: p0505
		Not for motor type: -	Scaling: p2000	Expert list: 1
		Min:	Max:	Default:
		- [m/min]	- [m/min]	- [m/min]
Description:	Displays the actual smoothed velocity actual value for velocity control.			

Dependency: See also: r0021, r0022, r0061, p1441

Note

The value in r0063 is smoothed with p1441.
The velocity actual value is available smoothed (r0021, r0022) and unsmoothed (r0061).

r0063

SERVO_828,
SERVO_COMBI

CO: Actual speed smoothed / n_act smooth

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 4700, 4710, 5019,
5300

P group: Displays, signals

Unit group: 3_1

Unit selection: p0505

Not for motor type: -

Scaling: p2000

Expert list: 1

Min:

Max:

Default:

- [rpm]

- [rpm]

- [rpm]

Description: Displays the current smoothed actual speed for speed control.

Dependency: See also: r0021, r0022, r0061, p1441, p1451

Note

In encoderless operation, the speed actual value is calculated and can be smoothed using p1451.
For operation with encoder, r0063 is smoothed with p1441.
The speed actual value is available smoothed (r0021, r0022) and unsmoothed (r0061).

r0064

HLA_828

CO: Velocity controller system deviation / v_ctrl system dev

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Displays, signals

Unit group: 4_1

Unit selection: p0505

Not for motor type: -

Scaling: p2000

Expert list: 1

Min:

Max:

Default:

- [m/min]

- [m/min]

- [m/min]

Description: Displays the actual system deviation of the velocity controller.

Note

With active reference model, the system deviation to the P component of the velocity controller is displayed.

r0064

SERVO_828,
SERVO_COMBI

CO: Speed controller system deviation / n_ctrl system dev

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 5040, 6040

P group: Displays, signals

Unit group: 3_1

Unit selection: p0505

Not for motor type: -

Scaling: p2000

Expert list: 1

Min:

Max:

Default:

- [rpm]

- [rpm]

- [rpm]

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

Note

In servo control mode with active reference model, the system deviation to the P component of the speed controller is displayed.

r0065 SERVO_828, SERVO_COMBI	Slip frequency / f_Slip Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Hz]	Calculation: - Dynamic index: - Unit group: 2_1 Scaling: p2000 Max: - [Hz]	Access level: 3 Function plan: 6310, 6700, 6727, 6730, 6732 Unit selection: p0505 Expert list: 1 Default: - [Hz]
Description:	Displays the slip frequency for induction motors (ASM).		

r0066 SERVO_828, SERVO_COMBI	CO: Output frequency / f_outp Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Hz]	Calculation: - Dynamic index: - Unit group: 2_1 Scaling: p2000 Max: - [Hz]	Access level: 3 Function plan: 5300, 5730, 6300, 6310, 6730, 6731, 6799 Unit selection: p0505 Expert list: 1 Default: - [Hz]
Description:	Display and connector output for the output frequency of the Motor Module.		
Dependency:	See also: r0024		

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

r0066[0...1] A_INF_828, S_INF_828, S_INF_COMBI	CO: Line frequency / f_line Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Hz]	Calculation: - Dynamic index: - Unit group: 2_1 Scaling: p2000 Max: - [Hz]	Access level: 3 Function plan: 8850, 8864, 8950, 8964 Unit selection: p0505 Expert list: 1 Default: - [Hz]
Description:	Display and connector output for the line frequency. For index 0: Displays the instantaneous value of the line supply PLL. For index 1: Displays the values smoothed with a time constant of 50 ms to monitor the frequency.		
Index:	[0] = Unsmoothed [1] = Smoothed		
Dependency:	See also: r0024		

Note
The line frequency is also available with an adjustable smoothing (r0024).
A positive sign of the frequency is obtained when the line supply phases U, V, W are connected with the correct phase sequence.
A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.

r0067[0...1] HLA_828	CO: Pressure actual value A / Press act val A Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [bar]	Calculation: - Dynamic index: - Unit group: - Scaling: p2002 Max: - [bar]	Access level: 3 Function plan: 4970 Unit selection: - Expert list: 1 Default: - [bar]
Description:	Display and connector output for the actual pressure value on side A.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
r0067 SERVO_828, SERVO_COMBI	CO: Output current maximum / I_outp max Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: 5722, 6300, 6301, 6640 Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Display and connector output for 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. See also: p0290, p0640		
r0067[0...1] A_INF_828, S_INF_828, S_INF_COMBI	Absolute current value permissible / I_abs val perm Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Displays the actual permissible absolute line-side current.		
Index:	[0] = Motor mode [1] = Regenerative mode		
Dependency:	The permissible current is the minimum from the maximum converter current (r0209), the parameterized current limits (p3530 to p3533) as well as the maximum permissible current of line filter (r3534). See also: p3530, p3531, r3534		
r0068[0...1] HLA_828	CO: Pressure actual value B / Press act val B Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [bar]	Calculation: - Dynamic index: - Unit group: - Scaling: p2002 Max: - [bar]	Access level: 3 Function plan: 4970 Unit selection: - Expert list: 1 Default: - [bar]
Description:	Displays the actual pressure value at side B.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		

r0068
A_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

CO: Absolute current actual value / I_act abs val

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730, 7017, 8014, 8017, 8850, 8950
P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
Not for motor type: -	Scaling: p2002	Expert list: 1
Min: - [Arms]	Max: - [Arms]	Default: - [Arms]

Description: Displays actual absolute current.
Dependency: See also: r0027

NOTICE

For A_INF, S_INF the following applies:
The value is updated with the current controller sampling time.
The following applies for SERVO:
The value is updated with a sampling time of 1 ms.

Note
Absolute current value = $\sqrt{I_q^2 + I_d^2}$
The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).

r0068
B_INF_828

CO: DC current in the DC link / Idc DC link

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8014, 8750
P group: Displays, signals	Unit group: 6_4	Unit selection: p0505
Not for motor type: -	Scaling: p2002	Expert list: 1
Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the DC current in the DC link.
Dependency: See also: r0027

NOTICE

For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note
The DC current in the DC link is available smoothed (r0027) and unsmoothed (r0068).

r0069
HLA_828

CO: System pressure actual value / Sys press act val

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2002	Expert list: 1
Min: - [bar]	Max: - [bar]	Default: - [bar]

Description: Display and connector output for the actual value of the system pressure.

r0069[0...6]	CO: Phase current actual value / I_{phase} act value		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5700, 5730, 7008
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
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 [6] = Total U, V, W		
	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.		

r0069[0...6]	CO: Phase current actual value / I_{phase} act value		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 6730, 6731, 6732, 7983, 7987, 8850, 8950
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Display and connector output for 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 [6] = Total U, V, W		
	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.		

r0070[0...1]	CO: Valve position voltage setpoint before inversion / U_{set} before inv		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4966
	P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Display and connector output for the voltage setpoint of the valve position before inversion.		
Index:	[0] = Before the manipulated variable filter p180x [1] = After the manipulated variable filter p180x		
Dependency:	See also: r0071		

r0070
 SERVO_828,
 SERVO_COMBI

CO: Actual DC link voltage / Vdc act val

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730
P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
Not for motor type: -	Scaling: p2001	Expert list: 1
Min:	Max:	Default:
- [V]	- [V]	- [V]

Description: Display and connector output for the measured actual value of the DC link voltage.

Dependency: See also: r0026

NOTICE

For SINAMICS S120 AC Drive (AC/AC) the following applies:
 When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied.
 In this case, when an external 24V power supply is connected, a value of approx. 24 V is displayed.

Note
 The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0070
 A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI

CO: Actual DC link voltage / Vdc act val

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8750, 8850, 8910, 8940, 8950, 8964
P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
Not for motor type: -	Scaling: p2001	Expert list: 1
Min:	Max:	Default:
- [V]	- [V]	- [V]

Description: Display and connector output for the measured actual value of the DC link voltage.

Dependency: See also: r0026

Note
 The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).

r0071[0...1]
 HLA_828

CO: Valve position voltage setpoint / Valve U_set

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 4966
P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
Not for motor type: -	Scaling: p2001	Expert list: 1
Min:	Max:	Default:
- [V]	- [V]	- [V]

Description: Displays the voltage setpoint for the valve position.

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

r0072[0...1]
 HLA_828

CO: Valve position voltage actual value / Valve U_act

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
Not for motor type: -	Scaling: p2001	Expert list: 1
Min:	Max:	Default:
- [V]	- [V]	- [V]

Description: Display and connector output for the voltage actual value of the valve actuator position.

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

r0072	CO: Output voltage / U_output		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5700, 5730, 6730, 6731, 6799
	P group: Displays, signals	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Display and connector output for the actual output voltage of the power unit (Motor Module).		
Dependency:	See also: r0025		
	Note		
	The output voltage is available smoothed (r0025) and unsmoothed (r0072).		

r0072[0...3]	CO: Input voltage / U_input		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Displays, signals	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Display and connector output for the actual input voltage of the power unit (Line Module).		
Index:	[0] = Voltage at input terminals of power unit from line supply model [1] = Voltage at VSM or at input terminals of the line filter [2] = Voltage of the voltage source from the line supply model [3] = Smoothed voltage of voltage source from line supply model		
	Note		
	The input voltages are available smoothed (r0025) and unsmoothed (r0072).		
	r0072[0]: Displays the pulsed voltage at the line supply input terminals of the power unit. The value is calculated from the modulation depth (r0074) and is therefore only correct in the closed-loop controlled mode and when the pulses are enabled.		
	r0072[1]: Displays the absolute voltage at the input terminals of the line filter or the connection point of a Voltage Sensing Module (VSM). The value is calculated from the VSM measured values r3661 and r3662 and is therefore equal to 0 if a VSM is not connected.		
	r0072[2]: Displays the estimated value for the voltage of the voltage source that is calculated in the voltage model of the line supply PLL. (input quantities of the model are the measured values of the line currents and the DC link voltage as well as the characteristics of the line filter p0225, p0226 as well as the line inductance p3424).		
	r0072[3]: Displays the smoothed value for the source voltage in r0072[2]. The PT1 smoothing time constant is set in p3472.		

r0073[0...1] HLA_828	Controller valve position voltage setpoint / Valve U_set		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965, 4970
	P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Displays the voltage setpoints for the valve position of the controller.		
Index:	[0] = Velocity controller [1] = Force controller		
	Note These voltage setpoints have been taken before the characteristic compensation.		

r0074 HLA_828	CO: Piston position with respect to the piston zero point / Piston pos zero		
	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Display and connector output for the piston position regarding the piston zero point in encoder fine pulses.		

r0074 A_INF_828, SERVO_828, SERVO_COMBI	CO: Modulat_depth / Modulat_depth		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730, 6730, 6731, 6799, 8940, 8950
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: - [%]	Max: - [%]	Default: - [%]
Description:	Displays the actual modulation depth.		
Dependency:	See also: 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).		

r0075 SERVO_828, SERVO_COMBI	CO: Current setpoint field-generating / Id_set		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5700, 5714, 5722
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Display and connector output for the field-generating current setpoint (Id_set).		
	Note This value is irrelevant for the U/f control mode.		

r0075	CO: Reactive current setpoint / I_react_set		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7997, 8945, 8946
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Display and connector output for the reactive current setpoint.		
Dependency:	See also: r3471, p3610		
	Note		
	The reactive current requirement of a line filter should be covered by the controlled infeed/regenerative feedback so that the converter always operates with a power factor of 1 compared to the line. Setpoint r0075 includes the reactive current for a line filter that depends on the actual operating point (r3471).		
	If the line phases are reversed and the line voltage therefore has a negative orientation (r0066 < 0), it should be noted that the sign of the reactive current is reversed.		
r0076	CO: Current actual value field-generating / Id_act		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5700, 5714, 5730, 6700, 6714, 6799
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Display and connector output for the field-generating current actual value (Id_act).		
Dependency:	See also: r0029		
	Note		
	This value is irrelevant for the U/f control mode.		
	The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).		
r0076	CO: Reactive current actual value / I_reactive_act		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8810, 8850, 8910, 8946, 8950
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Display and connector output for the reactive current actual value.		
Dependency:	See also: r0029, r0075		
	Note		
	The reactive current actual value is available smoothed (r0029) and unsmoothed (r0076).		

r0077 SERVO_828, SERVO_COMBI	CO: Current setpoint torque-generating / I_q_set Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: 5700, 5714, 5722 Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Display and connector output for the torque/force-generating current setpoint.		
	Note This value is irrelevant for the U/f control mode.		

r0077 A_INF_828	CO: Active current setpoint / I_{active}_set Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: 7997, 8910, 8940, 8945 Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Display and connector output for the active current setpoint (I _q _set).		

r0078[0...1] SERVO_828, SERVO_COMBI	CO: Current actual value torque-generating / I_q_act Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: 5700, 5714, 5730 Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Display and connector output for the torque-generating current actual value (I _q _act).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	See also: r0030, p0045		
	Note These values are irrelevant for the U/f control mode. The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		

r0078 A_INF_828, S_INF_828, S_INF_COMBI	CO: Active current actual value / I_{active}_act Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: 8810, 8850, 8910, 8946, 8950 Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Display and connector output for the actual value of the active current.		
Dependency:	See also: r0030		
	Note The active current actual value is available smoothed (r0030) and unsmoothed (r0078).		

r0079	CO: Total force setpoint / F_set total		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4970
	P group: Displays, signals	Unit group: 8_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [N]	- [N]	- [N]
Description:	Display and connector output for the total force setpoint.		
r0079[0...1]	CO: Torque setpoint total / M_set total		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5610
	P group: Displays, signals	Unit group: 7_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Display and connector output for the torque setpoint at the output of the speed controller (before clock cycle interpolation).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
r0080[0...1]	CO: Force actual value / F_act		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4970
	P group: Displays, signals	Unit group: 8_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [N]	- [N]	- [N]
Description:	Display and connector output for actual force value.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	See also: r0031, p0045		
	Note The value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]).		
r0080	CO: Torque actual value / M_act		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730
	P group: Displays, signals	Unit group: 7_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Display and connector output for actual torque value.		
Dependency:	See also: r0031		
	Note The value is available smoothed (r0031) and unsmoothed (r0080).		

r0081	CO: Torque utilization / M_Utilization		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8012
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the torque utilization as a percentage.		
	The torque utilization is obtained from the required smoothed torque referred to the torque limit.		
Dependency:	See also: 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: $r0081 = ((r0079 + p1532) / (r1538 - p1532)) * 100 \%$
 - Negative torque: $r0081 = ((-r0079 + p1532) / (-r1539 + p1532)) * 100 \%$
 The calculation of the torque utilization depends on the selected smoothing time constant (p0045).

r0082[0...1]	CO: Active power actual value / P_act		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730
	P group: Displays, signals	Unit group: 14_8	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min:	Max:	Default:
	- [kW]	- [kW]	- [kW]
Description:	Displays the instantaneous active power.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	See also: r0032		

Note

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

r0082[0...2]	CO: Active power actual value / P_act		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5730
	P group: Displays, signals	Unit group: 14_5	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min:	Max:	Default:
	- [kW]	- [kW]	- [kW]
Description:	Displays the instantaneous active power.		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045 [2] = Electric power		
Dependency:	See also: r0032		

Note

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

r0082	CO: Active power actual value / P_act		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [kW]	Calculation: - Dynamic index: - Unit group: 14_7 Scaling: r2004 Max: - [kW]	Access level: 3 Function plan: 8750, 8850, 8950 Unit selection: p0505 Expert list: 1 Default: - [kW]
Description:	Displays the instantaneous active power.		
Dependency:	See also: r0032		
Note			
The active power is available smoothed (r0032) and unsmoothed (r0082).			

r0082	CO: Active power actual value / P_act		
B_INF_828	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [kW]	Calculation: - Dynamic index: - Unit group: 14_7 Scaling: r2004 Max: - [kW]	Access level: 3 Function plan: 8750, 8850, 8950 Unit selection: p0505 Expert list: 1 Default: - [kW]
Description:	Displays the instantaneous active power.		
Dependency:	See also: r0032		

NOTICE

For Basic Line Modules of chassis format, the displayed value is invalid as these units do not have any current sensing.

Note

The active power is available smoothed (r0032) and unsmoothed (r0082).

r0083	CO: Flux setpoint / Flex setp		
SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [%]	Calculation: - Dynamic index: - Unit group: - Scaling: PERCENT Max: - [%]	Access level: 3 Function plan: 5722 Unit selection: - Expert list: 1 Default: - [%]
Description:	Displays the flux setpoint.		

r0084	CO: Flux actual value / Flux act val		
SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [%]	Calculation: - Dynamic index: - Unit group: - Scaling: PERCENT Max: - [%]	Access level: 3 Function plan: 5722 Unit selection: - Expert list: 1 Default: - [%]
Description:	Displays the flux actual value.		

r0088	CO: DC link voltage setpoint / Vdc setpoint		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940, 8964
	P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the setpoint for the DC link voltage.		

r0089[0...2]	Actual phase voltage / U_phase act val		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 6719
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual phase voltage.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

Note
The values are determined from the transistor power-on duration.

p0092	Clock synchronous operation pre-assignment/check / CI sync op pre-as		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1)	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	1
Description:	<p>Setting to pre-assign/check the sampling times for the internal controller clock cycles for clock-synchronous PROFIdrive operation.</p> <p>For p0092 = 1:</p> <p>The controller clock cycles are set so that clock synchronous PROFIdrive operation is possible. If it is not possible to change the controller clock cycles of the clock-cycle synchronous PROFIdrive operation, then an appropriate message is output.</p> <p>The pre-setting of the controller clock cycles can result in a derating of the Motor Module (e.g. p0115[0] = 400 µs --> 375 µs).</p> <p>When calculating the drive unit utilization (r9976), when using the fixed DCC runtime groups "Receive AFTER IF1 PROFIdrive PZD", "Send BEFORE IF1 PROFIdrive PZD", "Receive AFTER IF2 PZD" (from V4.4) and "Send BEFORE IF2 PZD" (from V4.4), then its maximum computing time load has already been calculated during ramp-up for isochronous operation and taken into account in r9976 (from V4.3).</p> <p>For p0092 = 0:</p> <p>The controller clock cycles are set without any restrictions by the clock-cycle PROFIdrive operation (same as for up to V2.3).</p> <p>When calculating the drive unit utilization (r9976), when using the fixed DCC runtime groups "Receive AFTER IF1 PROFIdrive PZD", "Send BEFORE IF1 PROFIdrive PZD", "Receive AFTER IF2 PZD" (from V4.4) and "Send BEFORE IF2 PZD" (from V4.4), then its maximum computing time load has already been calculated during ramp-up for isochronous operation and taken into account in r9976 (from V4.3).</p>		
Value:	<p>0: No isochronous PROFIBUS</p> <p>1: Isochronous PROFIBUS</p>		

Dependency: See also: r0110, p0115
See also: A01223, A01224

<p>⚠ CAUTION</p> <p>Only current controller sampling times (p0115[0]) which are integers of 125 µs are permitted for isochronous mode. For SERVO the following current controller sampling times are also possible: 187.5, 150, 100, 93.75, 75, 62.5, 50, 37.5, 31.25 µs For VECTOR the following current controller sampling times are also possible: 312.5, 218.75, 200, 187.5, 175, 156.25, 150, 137.5 µs The additional current controller sampling times must be taken into account when parameterizing the bus for Ti, To and Tdp.</p>

<p>NOTICE</p> <p>p0092 only affects the automatic default for the sampling times (p0115) in the drive. If the sampling times are modified subsequently in expert mode (p0112 = 0), p0092 = 0 should be set so that the new values are not overwritten again by the automatic default when the parameters are downloaded. The conditions for current controller sampling time for isosynchronous operation must still be carefully ensured (refer under Caution!).</p>
--

r0093

SERVO_828,
SERVO_COMBI

CO: Pole position angle electrically scaled / Pole pos el scale

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [°]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2005

Max:

- [°]

Access level: 3

Function plan: 4710

Unit selection: -

Expert list: 1

Default:

- [°]

Description: Displays the scaled electrical pole position angle.

Dependency: See also: r0094, p0431, r1778

<p>NOTICE</p> <p>When the pole position angle (r0093) is output via test socket Tx (x = 0, 1, 2) to adjust the encoder (to determine the angular commutation offset) the test socket being used must be parameterized as follows: p0771[x] = r0093 p0777[x] = 0 % p0778[x] = 0 V p0779[x] = 400 % p0780[x] = 4 V p0783[x] = 0 V p0784[x] = 0 For p1821 = 1 (counter-clockwise direction of rotation) the following applies: In order to adjust the encoder using the EMF method, the value, determined using the oscilloscope, must be inverted and then entered in p0431.</p>

Note

For operation with encoder and pulse suppression, the following applies:

- the value is generated from r0094 + 180 °.
- this angle can be used to adjust the encoders of synchronous motors.

For pulse enable, the following applies:

- the value indicates the transformation angle used by the control + 180 °.
- this value is, contrary to r0094, also applicable (provides information) for encoderless operation and after a pole position identification routine.

r0094 HLA_828	CO: Piston position actual value / Piston pos act val		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min: - [mm]	Max: - [mm]	Default: - [mm]
Description:	Display and connector output of the piston position.		

Note

The piston position should be calibrated, so that when the cylinder is completely retracted, zero is displayed and the value increases as it extends.

For piston calibration, p1960 (automatic) or p1909 (manual) can be used.

r0094 SERVO_828, SERVO_COMBI	CO: Transformation angle / Transformat_angle		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4700, 4702, 4710, 6300, 6714, 6730, 6731, 6732
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min: - [°]	Max: - [°]	Default: - [°]
Description:	Displays the transformation angle.		
Dependency:	See also: r0093, p0431, r1778		

Note

The transformation angle corresponds to the electrical commutation angle.

If no pole position identification is carried out (p1982), and the encoder is adjusted, the following applies:

The encoder supplies the value and indicates the electrical angle of the flux position (d axis).

r0094 A_INF_828, S_INF_828, S_INF_COMBI	CO: Transformation angle / Transformat_angle		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min: - [°]	Max: - [°]	Default: - [°]
Description:	Displays the transformation angle.		

Note

The transformation angle corresponds to the line supply angle.

p0097 CU_I_828, CU_I_COMBI, CU_NX_828	Select drive object type / Select DO type		
	Changeable: C1(1)	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 24	Default: 0
Description:	Executes an automatic device configuration. In so doing, p0099, p0107 and p0108 are appropriately set.		
Value:	0: No selection		

- 1: Drive object type SERVO
- 2: Drive object type VECTOR
- 3: SINAMICS GM (DFEMV & VECTORMV)
- 4: SINAMICS SM (AFEMV & VECTORMV)
- 5: SINAMICS GL (VECTORGL)
- 6: SINAMICS SL (VECTORSL)
- 12: Drive object type VECTOR parallel circuit
- 13: Drive object type VECTORMV - GM parallel circuit
- 14: Drive object type VECTORMV - SM parallel circuit
- 15: Drive object type DC_CTRL
- 16: Drive object type SERVO HMI
- 17: Drive object type VECTOR HMI
- 24: Drive object type VECTORMV - SM parallel circuit

Dependency: See also: r0098, p0099
See also: A01330

Note

For p0097 = 0, p0099 is automatically set to the factory setting.
The possible settings are dependent upon the device type.

r0098[0...5]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Actual device topology / Device_act topo

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Topology	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the automatically detected actual device topology in coded form.

Index: [0] = DRIVE-CLiQ socket X100
[1] = DRIVE-CLiQ socket X101
[2] = DRIVE-CLiQ socket X102
[3] = DRIVE-CLiQ socket X103
[4] = DRIVE-CLiQ socket X104
[5] = DRIVE-CLiQ socket X105

Dependency: See also: p0097, p0099

Note

Topology coding: abcd efgh hex
a = number of Active Line Modules
b = number of Motor Modules
c = number of motors
d = number of encoders (or the line supply voltage sensing for Active Line Modules)
e = number of additional encoders (or the line supply voltage sensing for Active Line Modules)
f = number of Terminal Modules
g = number of Terminal Boards
h = reserved
if the value 0 is displayed in all indices, then components are not detected via DRIVE-CLiQ.
If a value F hex occurs at a position of the coding (abcd efgh hex), then an overflow has occurred.

p0099[0...5]	Device target topology / Device_target topo		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1)	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex
Description:	Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning. De-activated or non-available components are also counted		
Index:	[0] = DRIVE-CLiQ socket X100 [1] = DRIVE-CLiQ socket X101 [2] = DRIVE-CLiQ socket X102 [3] = DRIVE-CLiQ socket X103 [4] = DRIVE-CLiQ socket X104 [5] = DRIVE-CLiQ socket X105		
Dependency:	The parameter can only be written into for p0097 = 0. To perform an automatic device configuration run, an index of the device target topology must be set to the value of the device actual topology in r0098 for acknowledgment. An index of the device actual topology with a value other than 0 must be selected. See also: p0097, r0098 See also: A01330		
	Note The parameter can only be set to the values 0, the value of the actual device topology, the value of the actual device target topology and FFFFFFFF hex. If the value 0 is displayed in all of the indices, then the system has still not been commissioned. The value FFFFFFFF hex indicates that the topology was not generated by the automatic device configuration but was commissioned using the commissioning software (e.g. using parameter download).		
p0100	IEC/NEMA mot stds / IEC/NEMA mot stds		
SERVO_COMBI	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: SESM	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
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. For p0100 = 0, the following applies: The power factor (p0308) should be parameterized. For p0100 = 1, the following applies: The efficiency (p0309) should be parameterized.		
Value:	0: IEC-Motor (50 Hz, SI units) 1: NEMA motor (60 Hz, US 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 in the selection of IEC or NEMA (e.g. r0206, p0307, p0316, r0333, r0334, p0341, p0344, r1493, r1969). See also: r0206, p0206, p0210, p0300, p0304, p0305, p0307, p0308, p0310, p0311, p0312, p0314, p0320, p0322, p0323, p0335, r0336, r0337, p0338, p1800		
	Note The parameter can only be changed for vector control (p0107). The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).		

p0101[0...n]	Drive object numbers / DO numbers		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1) Data type: Unsigned16 P group: Topology Not for motor type: - Min: 0	Calculation: - Dynamic index: r0095 Unit group: - Scaling: - Max: 62	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	The parameter contains the object number via which every drive object can be addressed. The number of an existing drive object is entered into each index. Value = 0: No drive object is defined.		
	Note The numbers are automatically allocated. For the commissioning software, this object number cannot be entered using the expert list, but is automatically assigned when inserting an object.		
r0102[0...1]	Number of drive objects / DO count		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned16 P group: Topology Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the number of existing or existing and prepared drive objects.		
Index:	[0] = Existing drive objects [1] = Existing and prepared drive objects		
Dependency:	See also: p0101		
	Note The numbers of the drive objects are in p0101. Index 0: Displays the number of drive objects that have already been set up. Index 1: Displays the number of drive objects that have already been set up and, in addition, the drive objects that still have to be set up.		
p0103[0...n]	Application-specific view / Appl_spec view		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(2) Data type: Unsigned16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: r0095 Unit group: - Scaling: - Max: 999	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	The application-specific view of an existing drive object is entered into each index. The parameter cannot be changed.		
Dependency:	See also: p0107, r0107		

Note

In the non-volatile memory, the application-specific views are defined in files with the following structure:

PDxxxxyy.ACX

xxx: Application-specific view (p0103)

yyy: Type of drive object (p0107)

Example:

PD052011.ACX

--> "011" stands for the drive object, type SERVO

--> "052" is the number of the view for this drive object

r0103

Application-specific view / Appl_spec view

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -

Data type: Unsigned16

P group: Closed-loop control

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

65535

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the application-specific view of the individual drive object.

Dependency:

See also: p0107, r0107

p0105

Activate/de-activate drive object / DO act/deact

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: Integer16

P group: Closed-loop control

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

1

Description:

Setting to activate/de-activate a drive object.

Value:

0: De-activate drive object

1: Activate drive object

Dependency:

See also: r0106

NOTICE

The following applies when activating:

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

p0105

Activate/de-activate drive object / DO act/deact

A_INF_828,
B_INF_828, CU_LINK,
HLA_828, HUB,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI,
TM120, TM150

Changeable: T

Data type: Integer16

P group: Closed-loop control

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

2

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

1

Description:

Setting to activate/de-activate a drive object.

Value:

0: De-activate drive object

1: Activate drive object

2: Drive object de-activate and not present

Recommendation:

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

Dependency: When activating drive objects with the safety functions enabled, the following applies:
After reactivating, a warm restart (p0009 = 30, p0976 = 2, 3) or POWER ON should be carried out.
See also: r0106
See also: A01314, A01316

NOTICE

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

Note

For value = 0, 2:

When a drive object is deactivated it no longer outputs any errors.

For a value = 0:

All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.

If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.

For a value = 1:

All components of the drive object must be available for error-free operation.

For a value = 2:

Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

p0105 Activate/de-activate drive object / DO act/deact

TM54F_MA, TM54F_SL **Changeable:** T

Data type: Integer16

P group: Closed-loop control

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

2

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

1

Description: Setting to activate/de-activate a drive object.

Value: 0: De-activate drive object

1: Activate drive object

2: Drive object de-activate and not present

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

Dependency: TM54F can only be de-activated if all of the drives assigned to it via p10010 have been de-activated or safety on the assigned drives has not been enabled.

When activating drive objects with the safety functions enabled, the following applies:

After reactivating, a warm restart (p0009 = 30, p0976 = 2, 3) or POWER ON should be carried out.

See also: r0106

See also: A01314, A01316

NOTICE

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

Note

For value = 0, 2:

When a drive object is deactivated it no longer outputs any errors.

For a value = 0:

All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.

If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.

For a value = 1:

All components of the drive object must be available for error-free operation.

For a value = 2:

Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0106

Drive object active/inactive / DO act/inact

A_INF_828,
B_INF_828, CU_I_828,
CU_I_COMBI,
CU_LINK, CU_NX_828,
HLA_828, HUB,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI,
TM120, TM150

Changeable: -

Data type: Integer16

P group: Closed-loop control

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the "active/inactive" state of a drive object.

Value:

0: Drive object inactive

1: Drive object active

Dependency:

See also: p0105

p0107[0...n]

Drive object type / DO type

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: C1(2)

Data type: Integer16

P group: -

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: r0095

Unit group: -

Scaling: -

Max:

600

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

The type of an existing drive object is entered into each index.

Value:

0: -

1: SINAMICS S

2: SINAMICS G

3: SINAMICS I

4: SINAMICS NX/CX32

6: SINAMICS DC

9: SINAMICS S110

10: ACTIVE INFEED CONTROL

11: SERVO

12: VECTOR

13: VECTORMV

14: VECTORGL

15:	VECTOR3P
16:	VECTORSL
17:	DC_CTRL
18:	VECTORM2C
19:	VECTORDM
20:	SMART INFEED CONTROL
21:	RENEWABLE INFEED CONTROL
30:	BASIC INFEED CONTROL
35:	BRAKE MODULE M2C
40:	ACTIVE INFEED CONTROLMV
41:	BASIC INFEED CONTROLMV
42:	ACTIVE INFEED CONTROLM2C
51:	SINAMICS G120 230 (SingleDO-Drive which combines Device+Vector)
52:	SINAMICSG120 240_2 (SingleDO-Drive which combines Device+Vector)
53:	SINAMICS_G120_CU250S_V (SingleDO Drive combines Device+Vector)
54:	SINAMICSG120 G120D(SingleDO-Drive which combines Device+Vector)
55:	SINAMICS_G120_CU250S_S (SingleDO Drive combines Device+Servo)
56:	SINAMICSG110M (SingleDO-Drive which combines Device+Vector)
57:	SINAMICS ET200
58:	Link variant for Sinamics Microbasissystem
70:	HLA
100:	TB30 (Terminal Board)
102:	SINAMICS MV
150:	DRIVE-CLiQ Hub Module
200:	TM31 (Terminal Module)
201:	TM41 (Terminal Module)
202:	TM17 High Feature (Terminal Module)
203:	TM15 (Terminal Module)
204:	TM15 (Terminal Module for SINAMICS)
205:	TM54F - Master (Terminal Module)
206:	TM54F - Slave (Terminal Module)
207:	TM120 (Terminal Module)
208:	TM150 (Terminal Module)
254:	CU-LINK
300:	ENCODER
600:	SINAMICS V60-G2 V80-G2

Dependency:

See also: p0103, r0103

CAUTION

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

Note

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

For SINAMICS S a drive object type can only be changed between SERVO and VECTOR. If you change the parameter and exit drive start-up (p0009 from 2 to 0) the drive parameters are set up again.

r0107

A_INF_828,
 B_INF_828, CU_LINK,
 HLA_828, HUB,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828, TM120,
 TM150, TM54F_MA,
 TM54F_SL

Drive object type / DO type

Changeable: -
Data type: Integer16
P group: Closed-loop control
Not for motor type: -
Min:
 0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 600

Access level: 2
Function plan: -
Unit selection: -
Expert list: 1
Default:
 -

Description: Displays the type of each drive object.

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

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

Dependency: See also: p0103, r0103

p0108[0...n]	Drive objects function module / DO fct_mod		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(2)	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: r0095	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: The function module of an existing drive object is entered into each index (see p0101, p0107).
The following bits are available for the Control Unit (Index 0):
Bit 18: Free function blocks
Bit 29: CAN
Bit 30: COMM BOARD
Bit 31: PROFINET
For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0108 of the drive object.

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

23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Note

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

r0108

HLA_828

Drive objects function module / DO fct_mod

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Closed-loop speed/torque control / n/M	Activated	Not activated	-
09	Extended Stopping and Retraction / ESR	Activated	Not activated	-
12	Linear motor / Lin	Activated	Not activated	-
18	Free function blocks / FBLOCKS	Activated	Not activated	-

Note

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

r0108

SERVO_828

Drive objects function module / DO fct_mod

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Closed-loop speed/torque control / n/M	Activated	Not activated	-
05	Recorder / Recorder	Activated	Not activated	-
07	Advanced Positioning Control (APC) / APC	Activated	Not activated	-
09	Extended Stopping and Retraction / ESR	Activated	Not activated	-
10	Moment of inertia estimator / J_estimator	Activated	Not activated	-
11	Spindle diagnostics / Spin_diag	Activated	Not activated	-
13	Safety rotary axis / Safety rot	Activated	Not activated	-
14	Extended brake control / Ext brake	Activated	Not activated	-
21	Extended current setpoint filter / Ext I_setp_filt	Activated	Not activated	-
22	Cogging torque compensation / Cog_M_comp	Activated	Not activated	-
23	Digital inputs/outputs / Dig IO	Activated	Not activated	-

Note

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

r0108**Drive objects function module / DO fct_mod**

SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Function plan:** -**P group:** Closed-loop control**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Closed-loop speed/torque control / n/M	Activated	Not activated	-
05	Recorder / Recorder	Activated	Not activated	-
07	Advanced Positioning Control (APC) / APC	Activated	Not activated	-
09	Extended Stopping and Retraction / ESR	Activated	Not activated	-
10	Moment of inertia estimator / J_estimator	Activated	Not activated	-
11	Spindle diagnostics / Spin_diag	Activated	Not activated	-
13	Safety rotary axis / Safety rot	Activated	Not activated	-
14	Extended brake control / Ext brake	Activated	Not activated	-
21	Extended current setpoint filter / Ext I_setp_filt	Activated	Not activated	-
22	Cogging torque compensation / Cog_M_comp	Activated	Not activated	-

Note

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

r0108**Drive objects function module / DO fct_mod**

A_INF_828

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Function plan:** -**P group:** Closed-loop control**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the activated function module for the particular drive object.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
03	Supplementary closed-loop controls / Suppl ctrl	Activated	Not activated	-
04	Line transformer / Line transf	Activated	Not activated	-
05	Recorder / Recorder	Activated	Not activated	-
07	Dynamic grid support / Dyn. grid support	Activated	Not activated	-
10	Supplementary module cosinus phi / cos phi	Activated	Not activated	-
12	Line droop control / Line droop ctrl	Activated	Not activated	-
15	Parallel connection / Parallel	Activated	Not activated	-
19	Master/Slave / Master/Slave	Activated	Not activated	-
20	Software gating unit / SW_gating unit	Activated	Not activated	-
26	Braking Module external / Brk Mod ext	Activated	Not activated	-
28	Cooling unit / Cool_unit	Activated	Not activated	-
31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

Note

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

r0108 Drive objects function module / DO fct_mod

B_INF_828, S_INF_828 **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	05	Recorder / Recorder	Activated	Not activated	-
	15	Parallel connection / Parallel	Activated	Not activated	-
	26	Braking Module external / Brk Mod ext	Activated	Not activated	-
	28	Cooling unit / Cool_unit	Activated	Not activated	-
	31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

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

r0108 Drive objects function module / DO fct_mod

S_INF_COMBI **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	05	Recorder / Recorder	Activated	Not activated	-
	26	Braking Module external / Brk Mod ext	Activated	Not activated	-

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

r0108 Drive objects function module / DO fct_mod

TM120, TM150 **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	18	Free function blocks / FBLOCKS	Activated	Not activated	-
	31	PROFINET CBE20 / PROFINET CBE20	Activated	Not activated	-

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

r0110[0...2]	Basic sampling times / t_basis		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00 [µs]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10000.00 [µs]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: - [µs]
Description:	Displays the basic sampling times. The sampling times are set using p0112 and p0115. The values for the basic sampling times are determined as a result of these settings.		
Index:	[0] = Basic sampling time 0 [1] = Basic sampling time 1 [2] = Basic sampling time 2		
r0111	Basic sampling time selection / t_basis sel		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: - Data type: Integer16 P group: Closed-loop control Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the selected basic sampling time for this drive object.		
Dependency:	See also: r0110		
p0112	Sampling times pre-setting p0115 / t_sample for p0115		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: C1(3) Data type: Integer16 P group: Closed-loop control Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 5	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 3

Description: Pre-assignment of the sampling times in p0115.
 The clock cycles for the current controller / speed controller / flux controller / setpoint channel / position controller / positioning / technology controller are pre-assigned as follows:
 SINAMICS S, servo drive:
 p0112 = 1: 250 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs (for chassis units)
 p0112 = 2: 125 / 250 / 250 / 4000 / 2000 / 8000 / 4000 µs
 p0112 = 3: 125 / 125 / 125 / 4000 / 1000 / 4000 / 4000 µs
 p0112 = 4: 62.5 / 62.5 / 62.5 / 1000 / 1000 / 2000 / 1000 µs
 p0112 = 5: 31.25 / 31.25 / 31.25 / 1000 / 1000 / 2000 / 1000 µs
 SINAMICS S, Active Infeed (p0112 = 1 not for p0092 = 1):
 p0112 = 1: 400 / - / - / 1600 µs (pre-setting for the rated pulse frequency = 2.5 kHz)
 p0112 = 2: 250 / - / - / 2000 µs (pre-setting for the rated pulse frequency = 4.0 kHz)
 p0112 = 3: 125 / - / - / 2000 µs
 p0112 = 4: 125 / - / - / 1000 µs
 p0112 = 5: 125 / - / - / 500 µs
 SINAMICS S, Smart Infeed (p0112 = 1 not for p0092 = 1):
 p0112 = 1: 400 / - / - / 1600 µs (pre-setting for the rated pulse frequency = 2.5 kHz)
 p0112 = 2: 250 / - / - / 2000 µs (pre-setting for the rated pulse frequency = 4.0 kHz)
 p0112 = 3: 250 / - / - / 2000 µs
 p0112 = 4: 250 / - / - / 1000 µs
 p0112 = 5: Not possible
 SINAMICS S, Basic Infeed, booksize:
 p0112 = 4: 250 / - / - / 2000 µs
 SINAMICS S, Basic Infeed, chassis:
 p0112 = 1: 2000 / - / - / 2000 µs
 p0112 = 2: 2000 / - / - / 2000 µs (pre-setting)
 p0112 = 3: 2000 / - / - / 2000 µs
 p0112 = 4: Not possible
 p0112 = 5: Not possible
 SINAMICS S/G, vector drive (p0112 = 1 not for p0092 = 1 and not for PM340):
 p0112 = 1: 400 / 1600 / 1600 / 1600 / 3200 / 3200 / 3200 µs (for rated pulse frequency = 1.25, 2.5 kHz)
 p0112 = 2: 250 / 1000 / 2000 / 1000 / 2000 / 4000 / 4000 µs
 p0112 = 3: 250 / 1000 / 1000 / 1000 / 2000 / 4000 / 4000 µs (for rated pulse frequency = 2.0, 4.0 kHz)
 SINAMICS S, vector drive:
 p0112 = 4: 250 / 500 / 1000 / 500 / 1000 / 2000 / 2000 µs
 p0112 = 5: 250 / 250 / 1000 / 500 / 1000 / 2000 / 1000 µs

Value:

- 0: Expert
- 1: xLow
- 2: Low
- 3: Standard
- 4: High
- 5: xHigh

Recommendation: When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

Dependency: It is prohibited to select a parameter value from p0112 if the associated current controller clock cycle cannot set (e.g. p0112 = 1 is not possible for a vector drive and PM340 power unit).
 If, for a servo drive, p112 = 5 is set, then the pulse frequency p1800 is preassigned 8 kHz. For D410-2 and vector drive, the current controller sampling time can only be permanently changed for p0112 = 0.
 See also: p0092

Note

For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.
 The setting p0112 = 1 cannot be set for a vector drive with power unit type PM340 (refer to r0203).

p0113	Minimum pulse frequency, selection / f_puls min sel		
SERVO_828, SERVO_COMBI	Changeable: C1(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 2.000 [kHz]	Max: 4.000 [kHz]	Default: 4.000 [kHz]
Description:	The current controller sampling time (p0115[0]) is pre-assigned by selecting the minimum pulse frequency.		
Dependency:	The parameter can only be changed with p0112 = 0 (expert). For isochronous operation (p0092 = 1) the parameter can only be set so that a current controller sampling time of 125 µs is obtained as an integer number. The required pulse frequency can be set in p1800 after commissioning (p0009 = p0010 = 0), assuming that this has not been restricted by other conditions (e.g. as a result of p1082, p0310). See also: p0112, r0114, p0115, p1800		
	Note The current controller sampling time (p0115[0]) is set to the inverse value of twice the minimum pulse frequency. For p0113 = 2.0 kHz, p0115[0] = 250 µs is set, for p0113 = 4.0 kHz, p0115[0] = 125 µs is set. The current controller sampling time (p0115[0]), calculated from the pulse frequency, is set in a grid of 1.25 µs. For a power unit type PM340 (refer to r0203), only the values 2.0 and 4.0 kHz can be set.		
p0113	Minimum pulse frequency, selection / f_puls min sel		
SERVO_828 (Dig IO)	Changeable: C1(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 4.000 [kHz]	Max: 4.000 [kHz]	Default: 4.000 [kHz]
Description:	The current controller sampling time (p0115[0]) is pre-assigned by selecting the minimum pulse frequency.		
Dependency:	The parameter can only be changed with p0112 = 0 (expert). For isochronous operation (p0092 = 1) the parameter can only be set so that a current controller sampling time of 125 µs is obtained as an integer number. The required pulse frequency can be set in p1800 after commissioning (p0009 = p0010 = 0), assuming that this has not been restricted by other conditions (e.g. as a result of p1082, p0310). See also: p0112, r0114, p0115, p1800		
	Note The current controller sampling time (p0115[0]) is set to the inverse value of twice the minimum pulse frequency. For p0113 = 2.0 kHz, p0115[0] = 250 µs is set, for p0113 = 4.0 kHz, p0115[0] = 125 µs is set. The current controller sampling time (p0115[0]), calculated from the pulse frequency, is set in a grid of 1.25 µs. For a power unit type PM340 (refer to r0203), only the values 2.0 and 4.0 kHz can be set.		
r0114[0...9]	Minimum pulse frequency recommended / f_puls min recom		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [kHz]	Max: - [kHz]	Default: - [kHz]
Description:	Displays the recommended values (indices 0 and 1) for the minimum pulse frequency (p0113). If the system rejects a change to p0113 because the value to be used lies outside the permitted value range, then instead the recommended value from r0114 can be used.		

Index:

- [0] = If only the actual drive is changed
- [1] = If all drives connected to the DRIVE-CLiQ line are changed
- [2] = 2. possible pulse frequency
- [3] = 3. possible pulse frequency
- [4] = 4. possible pulse frequency
- [5] = 5. possible pulse frequency
- [6] = 6. possible pulse frequency
- [7] = 7. possible pulse frequency
- [8] = 8. possible pulse frequency
- [9] = 9. possible pulse frequency

Dependency: See also: p0113

Note

After exiting commissioning (p0009 = p0010 = 0), the pulse frequencies calculated from the sampling time p115[0] are displayed in indices 1 to 9. If additional restrictions do not apply (e.g. due to having selected an output filter), these can be entered into p1800. The maximum pulse frequency of the power units was already taken into account in r0114. A value of 0 kHz does not define a recommended pulse frequency.

p0115[0] Sampling time for supplementary functions / t_samp suppl_fct

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: C1(3)

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

0.00 [µs]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

16000.00 [µs]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

4000.00 [µs]

Description: Sets the basic sampling time for supplementary functions (DCC, free function blocks) on this object. Only setting values that are an integer multiple of 125 µs are permissible.

Index: [0] = Basic sampl time

p0115[0...6] Sampling times for internal control loops / t_sample int ctrl

HLA_828

Changeable: C1(3)

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

0.00 [µs]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

16000.00 [µs]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

[0] 125.00 [µs]

[1] 125.00 [µs]

[2] 125.00 [µs]

[3] 4000.00 [µs]

[4] 1000.00 [µs]

[5] 4000.00 [µs]

[6] 4000.00 [µs]

Description: Sets the sampling times for the control loops. The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).

Recommendation: When changing the sampling times of the controller (p0115[0]), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340.3 = 1.

Index:	[0] = Controller (velocity/force) [1] = Reserved [2] = Reserved [3] = Setpoint channel [4] = Pos controller [5] = Positioning [6] = Technology controller
Dependency:	The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms. Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. $p0115[1] = N * p0115[0]$; where N is an integer number). The sampling times for setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) must have at least 2x the value of the controller sampling time (p0115[0]). See also: r0110, r0111, p0112
Note	
For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned. If sampling times in p0115 are individually changed for p0112 = 0 (expert) then it must always be observed that the selected sampling times of the setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) are always greater than or equal to twice the controller sampling time (p0115[0]).	

p0115[0...6]	Sampling times for internal control loops / t_sample int ctrl		
SERVO_COMBI	Changeable: C1(3)	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [μs]	Max: 16000.00 [μs]	Default: [0] 125.00 [μs] [1] 125.00 [μs] [2] 125.00 [μs] [3] 4000.00 [μs] [4] 1000.00 [μs] [5] 4000.00 [μs] [6] 4000.00 [μs]

Description:	Sets the sampling times for the control loops. The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).
Recommendation:	When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.
Index:	[0] = Current controller [1] = Speed controller [2] = Flux controller [3] = Setpoint channel [4] = Pos controller [5] = Positioning [6] = Technology controller

Dependency:

The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms.

Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. $p0115[1] = N * p0115[0]$; where N is an integer number). The sampling time of the speed controller (p0115[1]) can have as a maximum a value of 800% of the current controller sampling time (p0115[0]).

For servo drives, the maximum sampling time of the current controller is 250 µs and for vector drives, 500 µs.

The sampling times for setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) must have at least 2x the value of the current controller sampling time (p0115[0]).

See also: r0110, r0111, p0112

Note

For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned.

For the Active Line Module (ALM) and Smart Line Module (SLM), the current and DC link voltage controllers operate with the same sampling time. For ALM/SLM the maximum current controller clock cycle is 400 µs.

For the Basic Line Module (BLM), the DC link voltage measurement operates in the current controller sampling time.

For BLM booksize, only the current controller sampling time of 250 µs is permitted. For BLM chassis, only the current controller sampling time of 2000 µs is permitted.

For power unit type PM340 (r0203), only current controller sampling times of 62.5 µs, 125 µs, 250 µs and 500 µs can be set. The maximum current controller clock cycle for servo drives and the minimum current controller clock cycle for vector drives is 250 µs.

If sampling times in p0115 are individually changed for p0112 = 0 (expert) then it must always be observed that the selected sampling times of the setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) are always greater than or equal to twice the current controller sampling time (p0115[0]).

p0115[0...6]

Sampling times for internal control loops / t_sample int ctrl

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828

Changeable: C1(3)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [µs]

16000.00 [µs]

[0] 125.00 [µs]

[1] 125.00 [µs]

[2] 125.00 [µs]

[3] 4000.00 [µs]

[4] 1000.00 [µs]

[5] 4000.00 [µs]

[6] 4000.00 [µs]

Description:

Sets the sampling times for the control loops.

The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).

Recommendation:

When changing the sampling times of the current and speed controllers (also refer to p0115), then we recommend that after exiting commissioning (p0009 = 0) the controller settings are re-calculated using p0340 = 4.

Index:

- [0] = Current controller
- [1] = Speed controller
- [2] = Flux controller
- [3] = Setpoint channel
- [4] = Pos controller
- [5] = Positioning
- [6] = Technology controller

Dependency: The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms.

Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. $p0115[1] = N * p0115[0]$; where N is an integer number). The sampling time of the speed controller (p0115[1]) can have as a maximum a value of 800% of the current controller sampling time (p0115[0]).

For servo drives, the maximum sampling time of the current controller is 250 μ s and for vector drives, 500 μ s.

The sampling times for setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) must have at least 2x the value of the current controller sampling time (p0115[0]).

See also: r0110, r0111, p0112

Note

For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned.

For the Active Line Module (ALM) and Smart Line Module (SLM), the current and DC link voltage controllers operate with the same sampling time. For ALM/SLM the maximum current controller clock cycle is 400 μ s.

For the Basic Line Module (BLM), the DC link voltage measurement operates in the current controller sampling time. For BLM booksize, only the current controller sampling time of 250 μ s is permitted. For BLM chassis, only the current controller sampling time of 2000 μ s is permitted.

For power unit type PM340 (r0203), only current controller sampling times of 62.5 μ s, 125 μ s, 250 μ s and 500 μ s can be set. The maximum current controller clock cycle for servo drives and the minimum current controller clock cycle for vector drives is 250 μ s.

If sampling times in p0115 are individually changed for p0112 = 0 (expert) then it must always be observed that the selected sampling times of the setpoint channel (p0115[3]), position controller (p0115[4]), positioning (p0115[5]) and technology controller (p0115[6]) are always greater than or equal to twice the current controller sampling time (p0115[0]).

p0115[0]	Sampling time for supplementary functions / t_samp suppl_fct		
TM120	Changeable: C1(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [μ s]	Max: 16000.00 [μ s]	Default: 4000.00 [μ s]
Description:	Sets the sampling times for supplementary functions (DCC, free function blocks) on this object. Only setting values that are an integer multiple of 125 μ s are permissible.		
Index:	[0] = Basic sampl time		

p0115[0]	Sampling time for supplementary functions / t_samp suppl_fct		
TM150	Changeable: C1(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [μ s]	Max: 16000.00 [μ s]	Default: 4000.00 [μ s]
Description:	Sets the sampling times for supplementary functions (DCC, free function blocks) on this object. Only setting values that are an integer multiple of 125 μ s are permissible.		
Index:	[0] = Basic sampl time		

Note

This parameter only applies to set the sampling times of possible supplementary functions.
The sampling times for inputs/outputs must be set in p4099.

r0116[0...1]	Drive object clock cycle recommended / DO_clock recom		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: - [µs]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [µs]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: - [µs]
Description:	Displays the recommended sampling time for the drive objects. r0116[0] = recommended sampling time: Recommended value which would then make the complete system operational. r0116[1] = recommended sampling time: Recommended value, which after changing other clock cycles on the DRIVE-CLiQ line, would result in an operational system.		
Index:	[0] = Change only for the actual drive object [1] = Changing all objects on the DRIVE-CLiQ line		
Dependency:	See also: p0115		

p0117	Current controller computing dead time mode / I_ctrl t_dead mode		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Integer16 P group: Closed-loop control Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 6	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 6
Description:	Sets the mode for the computing dead time of the current controller. 0: Offset (shifted) clocking, minimum computing dead time of each drive, automatic setting 1: Clocking at the same time, the dead time aligns itself to the dead time of the latest drive, automatic setting 2: Manual setting of the computing dead time, early transfer 3: Manual setting of the computing dead time, late transfer 4-6: As for 0-2, however, no early transfers are set for vectors		
Dependency:	See also: p0118 See also: A02100		

Note

The mode change is not effective until the drive unit is powered up again.

For p0117 = 0:
The times when the setpoints become effective for the individual controls is automatically and individually determined. Another computing dead time is set for each control (closed-loop) (p0118). Current is impressed for the individual controls without any offset with respect to time (improved EMC compatibility).

For p0117 = 1:
The latest closed-loop control determines when the setpoints for each of the individual controls become active. The same computing dead time is set for each control (p0118). Current is impressed (flows) for the individual controls without any offset with respect to time.

For p0117 = 2:
The computing dead time is manually set. The user must optimize the value in p0118.

For p0117 = 3:
The computing dead time is manually set. The user must optimize the value in p0118.

For p0117 = 4 ... 6:
Behavior as for p0117 = 0 ... 2, however for vectors, the earliest times are not determined.

p0118	Current controller computing dead time / I_ctrl t_dead		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00 [µs]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2000.00 [µs]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0.00 [µs]
Description:	This parameter is pre-set as a function of the current controller sampling time (p0115[0]) and normally does not have to be changed.		
Dependency:	See also: p0117 See also: A02100		
	Note For p0118 <= 0.005 µs, the current controller output is delayed by a complete current controller clock cycle (p0115[0]). After p0118 has been changed, we recommend that the current controller is adapted (p1715).		
p0120	Number of valve data sets (PDS) / PDS count		
HLA_828	Changeable: C1(3) Data type: Unsigned8 P group: Data sets Not for motor type: - Min: 1	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Sets the number of valve data sets (power unit data set PDS).		
Dependency:	See also: p0107, r0107		
	Note Only one valve data set is supported.		
p0120	Number of Power unit Data Sets (PDS) / PDS count		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: C1(3) Data type: Unsigned8 P group: Data sets Not for motor type: - Min: 1	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 8	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Sets the number of Power unit Data Sets (PDS). The value corresponds to the number of power units connected together for a parallel circuit configuration.		
Dependency:	See also: p0107, r0107		
	Note This parameter is only significant for drive objects A_INFEEED and VECTOR with a parallel circuit configuration.		
p0121[0...n]	Power unit component number / PU comp_no		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: C1(4) Data type: Unsigned8 P group: Data sets Not for motor type: - Min: 0	Calculation: - Dynamic index: PDS, p0120 Unit group: - Scaling: - Max: 199	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: The power unit data set is assigned to a power unit using this parameter.
 This unique component number is assigned when parameterizing the topology.
 Only component numbers can be entered into this parameter that correspond to a power unit.

Dependency: See also: p0107, r0107

Note

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0124[0...n]

Main component detection using LED / M_comp detect LED

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Changeable: T, U
Data type: Unsigned8
P group: Converter
Not for motor type: -
Min:
 0

Calculation: -
Dynamic index: r0095
Unit group: -
Scaling: -
Max:
 1

Access level: 2
Function plan: -
Unit selection: -
Expert list: 1
Default:
 0

Description: Detection of the main components of the drive object selected via the index.

p0124[0...n]

Power unit detection via LED / PU detection LED

A_INF_828,
 B_INF_828, HLA_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: T, U
Data type: Unsigned8
P group: Converter
Not for motor type: -
Min:
 0

Calculation: -
Dynamic index: PDS, p0120
Unit group: -
Scaling: -
Max:
 1

Access level: 2
Function plan: -
Unit selection: -
Expert list: 1
Default:
 0

Description: Detects the power unit assigned to this drive and data set.

Note

While p0124 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate power unit.
 For parallel circuit configurations, the parameter index is assigned to a power unit.

p0125[0...n]

Activate/de-activate power unit components / PU_comp act/deact

A_INF_828,
 B_INF_828, HLA_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828

Changeable: C1(4), T
Data type: Integer16
P group: Data sets
Not for motor type: -
Min:
 0

Calculation: -
Dynamic index: PDS, p0120
Unit group: -
Scaling: -
Max:
 2


Access level: 2
Function plan: -
Unit selection: -
Expert list: 1
Default:
 1

Description: Setting to activate/de-activate a power unit component.

Value:
 0: De-activate component
 1: Activate component
 2: Component de-activate and not present

Recommendation: After inserting a component, before activating, first wait for Alarm A01317.

Dependency: See also: r0126
 See also: A01314, A01317

<p> CAUTION</p> <p>For a parallel connection, the following applies: When deactivating individual power units using p0125, it is not permissible that the power units of the parallel connection involved are connected. Infeed units should be disconnected from the line supply (for example, using a contactor). Motor feeder cables should be disconnected. In addition, defective power units should be disconnected from the DC link.</p>
--

NOTICE
It is not permissible to de-activate drive objects with safety functions enabled.

Note

The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

For units connected in parallel, when one of the power units is de-activated, then the enable in p7001 is withdrawn.

For value = 0, 2:

When a component is deactivated it no longer outputs any errors.

For a value = 0:

The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.

For a value = 1:

The component must be available for error-free operation.

For a value = 2:

A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the component is marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0126[0...n]	Power unit components active/inactive / PU comp act/inact		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: Integer16 P group: Data sets Not for motor type: - Min: 0	Calculation: - Dynamic index: PDS, p0120 Unit group: - Scaling: - Max: 1	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the "active/inactive" state of a power unit component.		
Value:	0: Component inactive 1: Component active		
Dependency:	See also: p0105, p0125, p0897		

r0127[0...n]	Power unit EEPROM data version / PU EEPROM version		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Converter Not for motor type: - Min: -	Calculation: - Dynamic index: PDS, p0120 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the version of the EEPROM data of the power unit.		
Dependency:	See also: r0147, r0157		

Note

For parallel circuit configurations, the parameter index is assigned to a power unit.

r0128[0...n]	Power unit firmware version / PU FW version		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Converter Not for motor type: - Min: -	Calculation: - Dynamic index: PDS, p0120 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -

Description: Displays the firmware version of the power unit.
Dependency: See also: r0018, r0148, r0158, r0197, r0198

Note

Example:
 The value 1010100 should be interpreted as V01.01.01.00.
 For parallel circuit configurations, the parameter index is assigned to a power unit.

p0130 **Number of Motor Data Sets (MDS) / MDS count**
 HLA_828 **Changeable:** C1(3) **Calculation:** - **Access level:** 2
 Data type: Unsigned8 **Dynamic index:** - **Function plan:** 8575
 P group: Data sets **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 1 1 1

Description: Sets the number of Motor Data Sets (MDS).

p0130 **Number of Motor Data Sets (MDS) / MDS count**
 SERVO_828, **Changeable:** C1(3) **Calculation:** - **Access level:** 2
 SERVO_COMBI **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** 8575
 P group: Data sets **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 1 16 1

Description: Sets the number of Motor Data Sets (MDS).

p0131[0...n] **Motor component number / Mot comp_no**
 HLA_828, **Changeable:** C1(4) **Calculation:** - **Access level:** 3
 SERVO_828, **Data type:** Unsigned8 **Dynamic index:** MDS, p0130 **Function plan:** -
 SERVO_COMBI **P group:** Data sets **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 199 0

Description: The motor data set is assigned to a motor using this parameter.
 This unique component number is assigned when parameterizing the topology.
 Only component numbers can be entered into this parameter that correspond to a motor.

p0139[0...2] **Copy Motor Data Set MDS / Copy MDS**
 SERVO_828, **Changeable:** C2(15) **Calculation:** - **Access level:** 2
 SERVO_COMBI **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** 8575
 P group: Data sets **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 31 0

Description: Copying a Motor Data Set (MDS) into another.

Index: [0] = Source motor data set
 [1] = Target motor data set
 [2] = Start copying procedure

Note

Procedure:

1. In Index 0, enter which motor data set should be copied.
2. In Index 1, enter the motor data set data that is to be copied into.
3. Start copying: Set index 2 from 0 to 1.

p0139[2] is automatically set to 0 when copying is completed.

When copying, p0131 is not taken into account.

p0140	Number of Encoder Data Sets (EDS) / EDS count		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C1(3)	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: 8570
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	16	1
Description:	Sets the number of Encoder Data Sets (EDS).		

Note

When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).

p0140	Number of VSM data sets / VSM count		
A_INF_828, S_INF_828	Changeable: C1(3)	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Function plan: 8570
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	8	1
Description:	Sets the number of VSM data sets.		

Note

The value cannot be changed for infeed units; it corresponds to the number of power units connected in parallel.

p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	Function plan: 4704, 8570
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0
Description:	This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC). This unique component number is assigned when parameterizing the topology. Only a component number can be entered that corresponds to an encoder evaluation.		

Note

If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.

For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

SMC: Sensor Module Cabinet

p0141[0...n] VSM component number / VSM comp_no

A_INF_828, S_INF_828	Changeable: C1(4)	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: p0140	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0

Description: The VSM data set is assigned to a VSM evaluation using this parameter.
 This unique component number is assigned when parameterizing the topology.
 Only a component number can be entered that corresponds to a VSM evaluation.

p0142[0...n] Encoder component number / Encoder comp_no

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	Function plan: 4704
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0

Description: This parameter is used to assign the encoder data set to an encoder.
 This assignment is made using the unique component number that was assigned when parameterizing the topology.
 Only component numbers can be entered into this parameter that correspond to an encoder.

Note

If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.
 For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

p0144[0...n] Sensor Module detection via LED / SM detection LED

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0

Description: Detects the Sensor Module assigned to this drive and data set.

Note

While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module.

p0144[0...n] Voltage Sensing Module detection via LED / VSM detection LED

A_INF_828, S_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0

Description: Detects the Voltage Sensing Module (VSM) module assigned to this infeed.

p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C1(4), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 2	Default: 1
Description:	Setting to activate/de-activate an encoder interface (Sensor Module).		
Value:	0: De-activate component 1: Activate component 2: Component de-activate and not present		
Recommendation:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	See also: r0146 See also: A01314, A01317		
	Note		
	The de-activation of an encoder interface corresponds to the "parking encoder" function and has the same effect. The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited. With the encoder interface for encoder 1 (motor encoder), the relevant drive object for writing the parameter must be in the "Ready for operation" state. With the encoder interface for encoders 2 and 3, the parameter can also be written during operation. For value = 0, 2: When a component is deactivated it no longer outputs any errors. For a value = 0: The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error. For a value = 1: The component must be available for error-free operation. For a value = 2: A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start. For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.		
p0145[0...n]	Voltage Sensing Module activate/de-activate / VSM act/deact		
A_INF_828, S_INF_828	Changeable: C1(4), T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: p0140	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 2	Default: 1
Description:	Setting to activate/de-activate a Voltage Sensing Module (VSM).		
Value:	0: De-activate component 1: Activate component 2: Component de-activate and not present		
Recommendation:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	See also: r0146 See also: A01314, A01317		

Note

For chassis infeeds, it is not possible to activate/de-activate the Voltage Sensing Module (VSM) via p0145. The VSM can only be activated/de-activated in the group with the appropriate infeed via p0125[0...n].

The activation of a component can be rejected if the component was inserted for the first time.

In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	-
Description:	Displays the "active" or "inactive" state of an encoder interface (Sensor Module).		
Value:	0: Component inactive		
	1: Component active		
Dependency:	See also: p0105, p0145, p0480, p0897		

r0146[0...n]	Voltage Sensing Module active/inactive / VSM act/inact		
A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: p0140	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	-
Description:	Displays the "active" or "inactive" state of a Voltage Sensing Module (VSM).		
Value:	0: Component inactive		
	1: Component active		
Dependency:	See also: p0105, p0145		

r0147[0...n]	Sensor Module EEPROM data version / SM EEPROM version		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the version of the EEPROM data of the Sensor Module.		
Dependency:	See also: r0127, r0157		

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0147[0...n] Voltage Sensing Module EEPROM data version / VSM EEPROM version

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the version of the EEPROM data of the Voltage Sensing Module (VSM).

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0148[0...n] Sensor Module firmware version / SM FW version

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the firmware version of the Sensor Module.

Dependency: See also: r0018, r0128, r0158, r0197, r0198

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0148[0...n] Voltage Sensing Module firmware version / VSM FW version

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the firmware version of the Voltage Sensing Module (VSM).

Dependency: See also: r0018, r0128, r0158, r0197, r0198

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

p0150 VSM2 data sets selection / VSM2 dat_sets qty

A_INF_828, S_INF_828	Changeable: C1(3)	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2	1

Description: Sets the number of VSM2 data sets.

Dependency: The Voltage Sensing Module 2 (VSM2) can only be used if the "line transformer" function module has been activated (r0108.4 = 1).

For the VSM2, parameters p5460 and following are significant.

Note

The Voltage Sensing Module 2 (VSM2) should always be connected to the primary side of the line transformer if at all possible.

p0151[0...n]	Voltage Sensing Module 2 component number / VSM2 comp_no		
A_INF_828, S_INF_828	Changeable: C1(4)	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: p0150	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0
Description:	The VSM2 data set is assigned to a VSM2 evaluation using this parameter.		

p0151	Terminal Module component number / TM comp_no		
TM120, TM150, TM54F_MA, TM54F_SL	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0
Description:	Sets the component number for the Terminal Module. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a Terminal Module.		

p0151[0...1]	DRIVE-CLiQ Hub Module component number / Hub comp_no		
HUB	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0
Description:	This parameter is used to assign the data set to a DRIVE-CLiQ Hub Module. This unique component number is assigned when parameterizing the topology. Only the numbers of components operated as hubs can be entered in these parameters. [0] = DRIVE-CLiQ node 1 [1] = DRIVE-CLiQ node 2		

p0154[0...n]	Voltage Sensing Module 2 detection via LED / VSM2 detection LED		
A_INF_828, S_INF_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: p0150	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Detects the Voltage Sensing Module 2 (VSM2) assigned to this infeed.		

p0154	Terminal Module detection via LED / TM detection LED		
TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Detects the Terminal Module assigned to this drive and data set.		
	Note		
	While p0154 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Terminal Module.		

p0154	DRIVE-CLiQ Hub Module detection via LED / Hub detection LED		
HUB	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Detects any DRIVE-CLiQ Hub Module that has been assigned.		

p0155[0...n]	Voltage Sensing Module 2 activate/de-activate / VSM2 act/deact		
A_INF_828, S_INF_828	Changeable: C1(4), T	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: p0150	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2	1
Description:	Setting to activate/de-activate a Voltage Sensing Module 2 (VSM2).		
Value:	0: De-activate component		
	1: Activate component		
	2: Component de-activate and not present		
Recommendation:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	See also: r0156		
	See also: A01314, A01317		

r0156[0...n]	Voltage Sensing Module 2 active/inactive / VSM2 act/inact		
A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: p0150	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	-
Description:	Displays the "active" or "inactive" state of a Voltage Sensing Module 2 (VSM2).		
Value:	0: Component inactive		
	1: Component active		
Dependency:	See also: p0155		

r0157[0...n] Voltage Sensing Module 2 EEPROM data version / VSM2 EEPROM vers

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: p0150	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the version of the EEPROM data of the Voltage Sensing Module 2 (VSM2).

Note

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

r0157 Terminal Module EEPROM data version / TM EEPROM version

TM120, TM150, TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the version of the EEPROM data of the Terminal Module.

Dependency: See also: r0127, r0147

Note

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

r0157 DRIVE-CLiQ Hub Module EEPROM data version / Hub EEPROM version

HUB	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the version of the EEPROM data for the DRIVE-CLiQ Hub Module.

Note

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

r0158[0...n] Voltage Sensing Module 2 firmware version / VSM2 FW version

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: p0150	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the firmware version of the Voltage Sensing Module 2 (VSM2).

Dependency: See also: r0018, r0197, r0198

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0158	Terminal Module firmware version / TM FW version		
TM120, TM150, TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the firmware version of the Terminal Module.		
Dependency:	See also: r0018, r0128, r0148, r0197, r0198		

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r0158	DRIVE-CLiQ Hub Module firmware version / Hub FW version		
HUB	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the firmware version of the DRIVE-CLiQ Hub Module.		

p0161	Valve component number / Valve comp_no		
HLA_828	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0
Description:	Sets the component number for the valve. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a valve.		

p0161	HF Damping Module component number / HF Damp comp_no		
SERVO_828	Changeable: C1(4)	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	199	0
Description:	Sets the component number for the HF Damping Module. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an HF Damping Module.		

p0162 SERVO_828, SERVO_COMBI	HF Choke Module component number / HF Choke comp_no Changeable: C1(4) Data type: Unsigned8 P group: Terminals Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 199	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the component number for the HF Choke Module. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an HF Choke Module.		

p0162 CU_LINK	CU-LINK slave component number / CU-LINK comp_no Changeable: C1(4) Data type: Unsigned8 P group: Terminals Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 199	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the component number for the expansion component (e.g. CX32, NX10) for CU-LINK. This unique component number is assigned when parameterizing the topology.		

p0165 HLA_828	Hydraulic Module activate/de-activate / HM act/deact Changeable: C1(4), T Data type: Integer16 P group: Data sets Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Setting to activate/de-activate a Hydraulic Module.		
Value:	0: De-activate component 1: Activate component 2: Component de-activate and not present		
Recommendation:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	See also: r0166 See also: A01314, A01317		

Note

The activation of a component can be rejected if the component was inserted for the first time.
In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.
For value = 0, 2:
When a component is deactivated it no longer outputs any errors.
For a value = 0:
The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.
For a value = 1:
The component must be available for error-free operation.
For a value = 2:
A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start.

p0165	Activate/de-activate filter module / FM act/deact		
SERVO_828	Changeable: C1(4), T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2	1
Description:	Setting for activating/de-activating the filter module.		
Value:	0: De-activate component		
	1: Activate component		
	2: Component de-activate and not present		
Recommendation:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	See also: r0166		
	See also: A01314, A01317		
	Note		
	The activation of a component can be rejected if the component was inserted for the first time.		
	In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.		
	For value = 0, 2:		
	When a component is deactivated it no longer outputs any errors.		
	For a value = 0:		
	The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.		
	For a value = 1:		
	The component must be available for error-free operation.		
	For a value = 2:		
	A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start.		
r0166	Hydraulic Module active/inactive / HM act/inact		
HLA_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	-
Description:	Displays the "active/inactive" state of a Hydraulic Module.		
Value:	0: Component inactive		
	1: Component active		
Dependency:	See also: p0165		
r0166	Filter module active/inactive / FM act/inact		
SERVO_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	-
Description:	Displays the "active/inactive" state of a filter module.		
Value:	0: Component inactive		
	1: Component active		

Dependency: See also: p0165

p0170 **Number of Command Data Sets (CDS) / CDS count**
 HLA_828 **Changeable:** C1(3) **Calculation:** - **Access level:** 2
Data type: Unsigned8 **Dynamic index:** - **Function plan:** -
P group: Commands **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 1 1 1

Description: Sets the number of Command Data Sets (CDS).

Note

It is possible to toggle between command parameters (BICO parameters) using this data set changeover.

p0170 **Number of Command Data Sets (CDS) / CDS count**
 A_INF_828, **Changeable:** C1(3) **Calculation:** - **Access level:** 2
 B_INF_828, **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** -
 S_INF_828, **P group:** Commands **Unit group:** - **Unit selection:** -
 S_INF_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_828, **Min:** **Max:** **Default:**
 SERVO_COMBI 1 2 1

Description: Sets the number of Command Data Sets (CDS).

Note

It is possible to toggle between command parameters (BICO parameters) using this data set changeover.

p0180 **Number of Drive Data Sets (DDS) / DDS count**
 HLA_828, **Changeable:** C1(3) **Calculation:** - **Access level:** 2
 SERVO_828, **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** 8565
 SERVO_COMBI **P group:** Data sets **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 1 32 1

Description: Sets the number of Drive Data Sets (DDS).

p0186[0...n] **Motor Data Sets (MDS) number / MDS number**
 HLA_828, **Changeable:** C1(4) **Calculation:** - **Access level:** 3
 SERVO_828, **Data type:** Unsigned8 **Dynamic index:** DDS, p0180 **Function plan:** 8575
 SERVO_COMBI **P group:** Data sets **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0 15 0

Description: Using the parameter, each Drive Data Set (= index) is assigned the associated Motor Data Set (MDS). The parameter value therefore corresponds to the number of the assigned motor data set.

p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number		
SERVO_828, SERVO_COMBI	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	Function plan: 4700, 8570
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	99	99
Description:	Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 1. The value corresponds to the number of the assigned encoder data set. Example: Encoder 1 in drive data set 2 should be assigned to encoder data set 0. --> p0187[2] = 0		

NOTICE

Writing to p0187 is rejected if the pole position identification is selected (p1982 = 1) and additional data sets with the same MDS data set (p0186) are available, which however have a different encoder data set number in p0187. If all data sets with this MDS p0187 are to be changed, then the pole position identification of the data sets involved should be temporarily deselected (p1982 = 0), p0187 changed for all MDS data sets and then the pole position identification reselected (p1982 = 1).
If a motor with pole position identification is to be operated with two different encoders, then for this motor, two motor data sets should be introduced.

Note

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number		
HLA_828	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	Function plan: 4700, 8570
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	99	99
Description:	Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 1. The value corresponds to the number of the assigned encoder data set. Example: Encoder 1 in drive data set 2 should be assigned to encoder data set 0. --> p0187[2] = 0		

Note

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C1(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	Function plan: 4700, 8570
	P group: Data sets	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	99	99
Description:	Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 2. The value corresponds to the number of the assigned encoder data set. Example: Encoder 2 in drive data set 2 should be assigned to encoder data set 1. --> p0188[2] = 1		

Note

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0189[0...n]

Encoder 3 encoder data set number / Enc 3 EDS number

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C1(4)	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: DDS, p0180	Function plan: 4700, 8570
P group: Data sets	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 99	Default: 99

Description:

Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 3.
The value corresponds to the number of the assigned encoder data set.

Note

A value of 99 means that no encoder has been assigned to this drive data set (not configured).

r0192

Power unit firmware properties 1 / PU FW property 1

SERVO_828

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description:

Displays the properties supported by the power unit firmware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Edge modulation possible	Yes	No	-
01	Free telegram can be selected	Yes	No	-
02	Smart mode possible for Active Line Module	Yes	No	-
03	Safety Integrated possible for VECTOR	Yes	No	-
05	Thermal model expanded	Yes	No	-
06	Liquid cooling	Yes	No	-
07	SERVO pulse frequency changeover DDS-dependent	Yes	No	-
08	Simulation mode possible	Yes	No	-
09	Internal armature short-circuit possible	Yes	No	-
10	Autonomous internal armature short-circuit possible	Yes	No	-
11	Infeed temperature inputs X21.1/2	Yes	No	-
12	Integral scaled to half the gating unit clock cycle freq.	Yes	No	-
13	Filtering thermal power unit current limit possible	Yes	No	-
14	Reserved	Yes	No	-
15	PT100 temperature evaluation possible	Yes	No	-
16	Gating unit with pulse frequency wobulation possible	Yes	No	-
17	Compound braking possible	Yes	No	-
18	Extended voltage range possible	Yes	No	-
19	Gating unit available with current limitation control	Yes	No	-
20	Component status possible	Yes	No	-
21	Temperature evaluation via Motor Module / CU terminals possible	Yes	No	-
22	Reduced device supply voltage possible	Yes	No	-
23	Current measurement oversampling available	Yes	No	-
24	Parking keeping the relevant data is available	Yes	No	-

25	Internal fan operating hours counter available	Yes	No	-
26	Software gating unit supported in the Control Unit	Yes	No	-
27	Current controller dynamics higher	Yes	No	-
28	DC link voltage compensation in the power unit.	Yes	No	-
29	Voltage measurement	Yes	No	-
30	Gating unit with all-phase current limiting	Yes	No	-

Dependency:

See also: r0193

NOTICE

This information represents the characteristics/features of the power unit firmware. It does not provide information/data about the characteristics/features of the hardware (e.g. bit 06 = 1 means that although the firmware supports "liquid cooling", a power unit with liquid cooling does not have to be used).

Note

For bit 09:

The Motor Module supports the internal armature short-circuit. The function is internally required for voltage protection (p1231 = 3).

For bit 10:

The Motor Module supports the autonomous internal voltage protection.

If the "internal voltage protection" function is activated (p1231 = 3) the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated.

For bit 23:

The component supports the detection of current actual values (and the detection of valve close durations) with double clocking and phase shift.

r0192**Power unit firmware properties 1 / PU FW property 1**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Function plan:** -**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the properties supported by the power unit firmware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Edge modulation possible	Yes	No	-
01	Free telegram can be selected	Yes	No	-
02	Smart mode possible for Active Line Module	Yes	No	-
03	Safety Integrated possible for VECTOR	Yes	No	-
05	Thermal model expanded	Yes	No	-
06	Liquid cooling	Yes	No	-
07	SERVO pulse frequency changeover DDS-dependent	Yes	No	-
08	Simulation mode possible	Yes	No	-
09	Internal armature short-circuit possible	Yes	No	-
10	Autonomous internal armature short-circuit possible	Yes	No	-
11	Infeed temperature inputs X21.1/2	Yes	No	-
12	Integral scaled to half the gating unit clock cycle freq.	Yes	No	-
13	Filtering thermal power unit current limit possible	Yes	No	-
14	DC link compensation possible in power unit	Yes	No	-
15	PT100 temperature evaluation possible	Yes	No	-
16	Gating unit with pulse frequency wobulation possible	Yes	No	-
17	Compound braking possible	Yes	No	-
18	Extended voltage range possible	Yes	No	-

19	Gating unit available with current limitation control	Yes	No	-
20	Component status possible	Yes	No	-
21	Temperature evaluation via Motor Module / CU terminals possible	Yes	No	-
22	Reduced device supply voltage possible	Yes	No	-
23	Current measurement oversampling available	Yes	No	-
24	Parking keeping the relevant data is available	Yes	No	-
25	Internal fan operating hours counter available	Yes	No	-
26	Software gating unit supported in the Control Unit	Yes	No	-
27	Current controller dynamics higher	Yes	No	-
28	Reserved			-
29	Voltage measurement	Yes	No	-
30	Gating unit with all-phase current limiting	Yes	No	-

Dependency: See also: r0193

NOTICE

This information represents the characteristics/features of the power unit firmware. It does not provide information/data about the characteristics/features of the hardware (e.g. bit 06 = 1 means that although the firmware supports "liquid cooling", a power unit with liquid cooling does not have to be used).

Note

For bit 09:

The Motor Module supports the internal armature short-circuit. The function is internally required for voltage protection (p1231 = 3).

For bit 10:

The Motor Module supports the autonomous internal voltage protection.

If the "internal voltage protection" function is activated (p1231 = 3) the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated.

For bit 23:

The component supports the detection of current actual values (and the detection of valve close durations) with double clocking and phase shift.

r0193

Power unit firmware properties 2 / PU FW property 2

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828

Changeable: -

Data type: Unsigned32

P group: Converter

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the properties supported by the power unit firmware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Component trace	Yes	No	-
06	PT1000	Yes	No	-

Dependency:

See also: r0192

r0194[0...n]

VSM properties / VSM properties

A_INF_828, S_INF_828

Changeable: -

Data type: Unsigned32

P group: Encoder

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: p0140

Unit group: -

Scaling: -

Max:

-

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description: Displays the properties supported by the Voltage Sensing Module (VSM).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Reserved	Yes	No	-

r0196[0...255] Topology component status / Top comp stat

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

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

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

Note

For bit 03 ... 00:

Bit 3, 2, 1, 0 = 0, 0, 0, 0 --> component not available.

Bit 3, 2, 1, 0 = 0, 0, 0, 1 --> power-up, non-cyclic DRIVE-CLiQ communication (LED = orange).

Bit 3, 2, 1, 0 = 0, 0, 1, 0 --> operating mode, cyclic DRIVE-CLiQ communication (LED = green).

Bit 3, 2, 1, 0 = 0, 0, 1, 1 --> alarm (LED = green).

Bit 3, 2, 1, 0 = 0, 1, 0, 0 --> fault (LED = red).

Bit 3, 2, 1, 0 = 0, 1, 0, 1 --> detection via LED and operating mode (LED = green/orange).

Bit 3, 2, 1, 0 = 0, 1, 1, 0 --> detection via LED and alarm (LED = green/orange).

Bit 3, 2, 1, 0 = 0, 1, 1, 1 --> detection via LED and fault (LED = red/orange).

Bit 3, 2, 1, 0 = 1, 0, 0, 0 --> firmware being downloaded (LED = green/red with 0.5 Hz).

Bit 3, 2, 1, 0 = 1, 0, 0, 1 --> firmware download completed, wait for POWER ON (LED = green/red with 2.0 Hz).

For bits 12 ... 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r0197[0...1]	Bootloader version / Bootloader vers		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the bootloader version.
 Index 0:
 Displays the bootloader version.
 Index 1:
 Displays the bootloader version 3 (for CU320-2 and CU310-2)
 Value 0 means that boot loader 3 is not available.

Dependency: See also: r0018, r0128, r0148, r0158, r0198

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

r0198[0...2]	BIOS/EEPROM data version / BIOS/EEPROM vers		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the BIOS and EEPROM data version.
 r0198[0]: BIOS version
 r0198[1]: EEPROM data version EEPROM 0
 r0198[2]: EEPROM data version EEPROM 1

Dependency: See also: r0018, r0128, r0148, r0158, r0197

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

p0199[0...24]	Drive object name / DO name		
All objects	Changeable: C1	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0

Description: Freely assignable name for a drive object.
 In the commissioning software, this name cannot be entered using the expert list, but is specified in the configuration assistant. The object name can be subsequently modified in the Project Navigator using standard Windows resources.

Note
 The parameter is not influenced by setting the factory setting.

r0200[0...n]	Power unit code number actual / PU code no. act		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the unique code number of the power unit.

Note

r0200 = p0201: No power unit found

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0201[0...n]	Power unit code number / PU code no		
SERVO_828	Changeable: C2(2)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0

Description: 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.

Dependency: See also: F07815

NOTICE

When p0201 = 10000, the rated power unit data is reloaded and dependent parameters are set (e.g. p0205, p0210, p0230, p0857, p1800). p0201 is then automatically assigned the value of r0200 if the code number of the power unit could be read. A warm start must be performed after this procedure (automatically if necessary).

Note

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). However, if the comparator in p9906 or p9908 is at 2 (low) or 3 (minimum), the power unit commissioning is automatically set to p0201 = r0200 upon exiting.

When the code number is changed, the connection voltage (p0210) is checked and, if necessary, adjusted.

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0201[0...n]	Power unit code number / PU code no		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(2)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0

Description: 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.

Dependency: See also: F07815

Note

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).

For parallel circuit configurations, the parameter index is assigned to a power unit.

r0203[0...15]	Firmware package name / FW pkg name		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the name of the firmware package on the memory card/device memory.
r0203[0]: Name character 1
...
r0203[15]: Name character 16
For the commissioning software, the ASCII characters are displayed unencoded.

NOTICE
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r0203[0...n]	Actual power unit type / PU actual type		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	2	400	-

Description: Displays the type of power unit found.

Value:

- 2: MICROMASTER 440
- 3: MICROMASTER 411
- 4: MICROMASTER 410
- 5: MICROMASTER 436
- 6: MICROMASTER 440 PX
- 7: MICROMASTER 430
- 100: SINAMICS S
- 101: SINAMICS S (value)
- 102: SINAMICS S (combi)
- 103: SINAMICS S120M (distributed)
- 112: PM220 (SINAMICS G120)
- 113: PM230 (SINAMICS G120)
- 114: PM240 (SINAMICS G120)
- 115: PM250 (SINAMICS G120 / S120)
- 116: PM260 (SINAMICS G120)
- 118: SINAMICS G120 Px
- 120: PM340 (SINAMICS S120)
- 126: SINAMICS ET200PRO
- 130: PM250D (SINAMICS G120D)
- 133: SINAMICS G120C
- 135: SINAMICS PMV40
- 136: SINAMICS PMV60
- 137: SINAMICS PMV80
- 138: SINAMICS G110M
- 150: SINAMICS G
- 151: PM330 (SINAMICS G120)

200:	SINAMICS GM
250:	SINAMICS SM
260:	SINAMICS MC
300:	SINAMICS GL
350:	SINAMICS SL
400:	SINAMICS DCM

Note

For parallel circuit configurations, the parameter index is assigned to a power unit.

r0204[0...n]**Power unit hardware properties / PU HW property**

SERVO_828

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** PDS, p0120**Function plan:** -**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the properties supported by the power unit hardware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Device type	DC/AC device	AC/AC device	-
01	RFI filter available	Yes	No	-
02	Active Line Module available	Yes	No	-
03	Smart Line Module available	Yes	No	-
04	Basic Line Module available with thyristor bridge	Yes	No	-
05	Basic Line Module available with diode bridge	Yes	No	-
06	Liquid cooling with cooling unit (chassis PU)	Yes	No	-
07	F3E regenerative feedback into the line supply	Yes	No	-
08	Internal Braking Module	Yes	No	-
09	Different cooling type supported	Yes	No	-
12	Safe Brake Control (SBC) supported	No	Yes	-
13	Safety Integrated supported	Yes	No	-
14	Internal LC output filter	Yes	No	-
15	Line voltage	1-phase	3-phase	-

Note

For parallel circuit configurations, the parameter index is assigned to a power unit.

r0204[0...n]**Power unit hardware properties / PU HW property**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** PDS, p0120**Function plan:** -**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the properties supported by the power unit hardware.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Device type	DC/AC device	AC/DC device	-
01	RFI filter available	Yes	No	-
02	Active Line Module available	Yes	No	-
03	Smart Line Module available	Yes	No	-

04	Basic Line Module available with thyristor bridge	Yes	No	-
05	Basic Line Module available with diode bridge	Yes	No	-
06	Liquid cooling with cooling unit (chassis PU)	Yes	No	-
07	F3E regenerative feedback into the line supply	Yes	No	-
08	Internal Braking Module	Yes	No	-
09	Different cooling type supported	Yes	No	-
12	Safe Brake Control (SBC) supported	No	Yes	-
13	Safety Integrated supported	Yes	No	-
14	Internal LC output filter	Yes	No	-
15	Line voltage	1-phase	3-phase	-

Note

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0205[0...n]

Valve rated voltage / Valve Un

HLA_828

Changeable: C2(1, 2)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: PDS, p0120

Function plan: -

P group: Converter

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.500 [V]

15.000 [V]

10.000 [V]

Description:

Sets the rated voltage for the valve.

Dependency:

See also: p1832, p1850, p1851

Note

The output valve voltage is between -p0205 + offset (p1832) and p0205 + offset (p1832).
Additional voltage limiting is possible via p1850 and p1851.

p0206[0...n]

Valve transition point flow rate / Valve trans flow

HLA_828

Changeable: C2(1, 2)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: PDS, p0120

Function plan: -

P group: Converter

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.2 [%]

95.0 [%]

10.0 [%]

Description:

Sets the flow rate at the transition point of the valve.

Dependency:

Pre-assignment of p1839 and p1842.

r0206[0...4]

Rated power unit power / PU P_{rated}

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Converter

Unit group: 14_6

Unit selection: p0100

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [kW]

- [kW]

- [kW]

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] = S1 cont duty cyc
- [4] = S6 load duty cycle

Dependency: IECdrives (p0100 = 0): Units kW
 NEMA drives (p0100 = 1): Units hp
 See also: p0100, p0205, r0205

p0207[0...n] **Valve transition point voltage / Valve trans U**
 HLA_828 **Changeable:** C2(1, 2) **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
P group: Converter **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.2 [%] 95.0 [%] 10.0 [%]

Description: Sets the voltage at the transition point of the valve.

r0207[0...4] **Rated power unit current / PU PI_rated**
 A_INF_828, **Changeable:** - **Calculation:** - **Access level:** 2
 B_INF_828, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** 8014
 S_INF_828, **P group:** Converter **Unit group:** - **Unit selection:** -
 S_INF_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_828, **Min:** **Max:** **Default:**
 SERVO_COMBI - [Arms] - [Arms] - [Arms]

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] = S1 cont duty cyc
 [4] = S6 load duty cycle

Dependency: See also: p0205, r0205

p0208[0...n] **Valve rated flow rate / Valve Vn**
 HLA_828 **Changeable:** C2(1, 2) **Calculation:** - **Access level:** 2
Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
P group: Converter **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.000 [ltr/min] 1000.000 [ltr/min] 0.000 [ltr/min]

Description: Sets the nominal flow rate for the valve.

r0208 **Rated power unit line supply voltage / PU U_rated**
 A_INF_828, **Changeable:** - **Calculation:** - **Access level:** 2
 B_INF_828, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** -
 S_INF_828, **P group:** Converter **Unit group:** - **Unit selection:** -
 S_INF_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_828, **Min:** **Max:** **Default:**
 SERVO_COMBI - [Vrms] - [Vrms] - [Vrms]

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 %
 For the Basic Line Module (BLM) the following applies:
 r0208 = 690 : 500 - 690 V +/-10 %

p0209[0...n] **Valve rated pressure drop / Valve Pn**
 HLA_828

Changeable: C2(1, 2)	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1.0 [bar]	Max: 300.0 [bar]	Default: 35.0 [bar]

Description: Sets the nominal pressure drop per control edge for the valve.

r0209[0...4] **Power unit maximum current / PU I_max**
 A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8750, 8850, 8950
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [Arms]	Max: - [Arms]	Default: - [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] = S1 load duty cycle
 [4] = S6 load duty cycle

Dependency: See also: p0205, r0205

p0210 **Drive unit line supply voltage / V_connect**
 SERVO_828,
 SERVO_COMBI

Changeable: C2(2), T	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1 [V]	Max: 63000 [V]	Default: 600 [V]

Description: Sets the drive unit supply voltage.
 AC/AC unit: The rms value of the phase-to-phase line supply voltage should be entered.
 DC/AC unit: The rated DC voltage of the connection busbar should be entered.

Dependency: Set p1254, p1294 (automatic detection of the Vdc switch-on levels) = 0.
 The switch-in thresholds of the Vdc_max controller (r1242, r1282) are then directly determined using p0210.

NOTICE

If, in the switched-off state (pulse inhibit), the 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 the next time the system is switched on. In this case, an appropriate alarm A07401 is output.

Note

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

U_{rated} = 400 V:

- p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V (DC/AC)

U_{rated} = 500 V:

- p0210 = 500 ... 600 V (AC/AC), 675 ... 900 V (DC/AC)

U_{rated} = 660 ... 690 V:

- p0210 = 660 ... 690 V (AC/AC), 890 ... 1035 V (DC/AC)

U_{rated} = 500 ... 690 V:

- p0210 = 500 ... 690 V (AC/AC), 675 ... 1035 V (DC/AC)

The pre-charging switch-in threshold for the DC link voltage (V_{dc}) is calculated from p0210:

V_{dc_pre} = p0210 * 0.82 * 1.35 (AC/AC)

V_{dc_pre} = p0210 * 0.82 (DC/AC)

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

U_{rated} = 400 V:

- U_{min} = p0210 * 0.78 (AC/AC) > 330 V, p0210 * 0.60 (DC/AC) > 380 V

U_{rated} = 500 V:

- U_{min} = p0210 * 0.76 (AC/AC) > 410 V

U_{rated} = 660 ... 690 V:

- U_{min} = p0210 * 0.82 (AC/AC) > 565 V, p0210 * 0.63 (DC/AC) > 650 V

U_{rated} = 500 ... 690 V:

- U_{min} = p0210 * 0.82 (AC/AC) > 420 V, p0210 * 0.63 (DC/AC) > 480 V

p0210

A_INF_828,
S_INF_828,
S_INF_COMBI

Drive unit line supply voltage / V_{connect}

Changeable: C2(1)

Data type: FloatingPoint32

P group: Converter

Not for motor type: -

Min:

70 [Vrms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1000 [Vrms]

Access level: 1

Function plan: 8860, 8960

Unit selection: -

Expert list: 1

Default:

400 [Vrms]

Description:

Sets the drive unit supply voltage (3-ph. AC).

The value corresponds to the rms value of the phase-to-phase rated line supply voltage.

Dependency:

See also: p3400

<p>WARNING</p> <p>If the infeed is continually in the controlled mode with high DC link voltages (p3510 > 660 V), depending on the particular application, this can damage the connected motors that have not been specified for these high voltages. Before an active infeed with a line supply voltage p0210 > 415 V goes into pulsed operation it must be ensured that all of the components connected to the DC link can be permanently operated with DC link voltages exceeding 660 V.</p> <p>Controlled operation of booksize power units for p0210 > 415 V is possible if the maximum steady-state DC link voltage (p0280) is increased as follows: p0280 ≥ 1.5 x p0210 and p0280 > 660 V.</p> <p>In this case, the setpoint of the DC link voltage p3510 is not automatically adapted. We recommend p3510 = 1.5 x p0210. Closed-loop voltage controlled operation is active with p3400.0 = 0 and p3400.3 = 1.</p>
--

<p>NOTICE</p> <p>For p0210 > 415 V for booksize power units with a supply voltage of 3-ph. 380 ... 480 V, the Smart Mode is automatically activated (p3400.0 = 1); this is because in the voltage-controlled mode, the maximum permissible steady-state DC link voltage (p0280) would otherwise be exceeded.</p> <p>For booksize power units with supply voltage of 3-ph. 380 ... 480 V AC, the following applies:</p> <p>380 V ≤ p0210 ≤ 400 V --> Pre-assignment, setpoint for the DC link voltage: p3510 = 600 V</p> <p>401 V ≤ p0210 ≤ 415 V --> Pre-assignment, setpoint for the DC link voltage: p3510 = 625 V</p> <p>416 V ≤ p0210 ≤ 480 V --> Smart Mode with non-regulated DC link voltage: p3510 = 1.35 x p0210</p>
--

Note

When pre-assigning the setpoint for the DC link voltage (p3510), the following is generally valid:
 $p3510 = 1.5 \times p0210$
 The voltage range for the supply voltage depends on the type and the voltage class of the power unit.
 The following applies for the normal range of the supply voltage:
 400 V devices: $380 \text{ V} \leq p0210 \leq 480 \text{ V}$
 690 V devices: $660 \text{ V} \leq p0210 \leq 690 \text{ V}$
 500/690 V devices: $500 \text{ V} \leq p0210 \leq 690 \text{ V}$
 Further, for the following devices an extended voltage range can be set:
 Booksize devices:
 ALM, 400 V device: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
 SLM, 400 V device: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
 Chassis devices:
 ALM, 400 V device: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
 ALM, 500/690 V device: $380 \text{ V} \leq p0210 \leq 690 \text{ V}$
 RLM, 400 V device: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
 RLM, 500/690 V device: $380 \text{ V} \leq p0210 \leq 690 \text{ V}$

p0210

B_INF_828

Drive unit line supply voltage / V_connect

Changeable: C2(1)	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8760
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 70 [Vrms]	Max: 1000 [Vrms]	Default: 400 [Vrms]

Description:

Sets the drive unit supply voltage (3-ph. AC).
 The value corresponds to the rms value of the phase-to-phase rated line supply voltage.

Dependency:

The parameter can be reduced to $p0210 = 70 \text{ V}$ if $p0212.0$ is set.

NOTICE

When connected to 3-ph. 230 V AC (only booksize units) the following must be observed:

- the undervoltage and overvoltage limits change (r0296, r0297).
- when using the internal braking chopper of Basic Line Modules (20 or 40 kW) the threshold when the braking chopper becomes active is reduced to 385 V. When using an external braking chopper, it must be ensured that a suitable activation threshold is used.
- all of the components connected to this DC link must also be adapted to the low line supply voltage. It is especially important that the rated DC voltage of all of the drives connected to this DC link is set with p0210 (e.g. $p0210(\text{SERVO}) = 1.35 \times p0210(\text{B_INF}) = 310 \text{ V}$).
- it is not possible to use a Control Supply Module (CSM) to generate a 24 V supply from the DC link, as the minimum continuous DC link voltage should not be below 430 V.

Note

The supply voltage range depends on the voltage class of the power unit.
 400 V chassis units: $380 \text{ V} \leq p0210 \leq 480 \text{ V}$
 690 V chassis units: $500 \text{ V} \leq p0210 \leq 690 \text{ V}$
 400 V booksize units can also be connected to 3-ph. 230 V AC:
 400 V booksize units: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
 A reduced supply voltage up to 70 V is possible if $p0212.0 = 1$ has been set.

p0211[0...n]	Valve, flow rate ratio A to B side / Flowrate_ratio A/B		
HLA_828	Changeable: C2(1, 2)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.500	Max: 2.000	Default: 1.000
Description:	Sets the flow rate ratio from the A side to the B side.		

p0211	Rated line freq / Rated line freq		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8864, 8964
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10 [Hz]	Max: 100 [Hz]	Default: 55 [Hz]
Description:	Sets the rated line frequency for the infeed.		
Dependency:	See also: p3409		

NOTICE

For p3409 = 1, the following applies:

After operation has been enabled, the rated line supply frequency (p0211) is automatically set to a value of 50 Hz or 60 Hz corresponding to the currently measured frequency. This means that the parameter value of p0211 is, under certain circumstances, changed.

For p3409 = 0, the following applies:

The system does not change parameter p0211.

p0212	Power unit configuration / PU config		
SERVO_828, SERVO_COMBI	Changeable: C2(2)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0000 bin

Description: Sets the power unit configuration.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Drive unit line supply voltage reduced	Yes	No	-
	01	External pre-charging present	Yes	No	-

Dependency: For bit 00:
Reduced supply voltages are only possible for booksize and chassis power units (DC/AC).
Bit 0 = 1 can only be set if r0192.22 = 1.
For bit 01 = 1:
The external pre-charging setting only affects the DC/AC power units.

CAUTION

For bit 00:
Working with reduced input voltages de-activates undervoltage detection.

Note

For bit 00 = 0:
It is not possible to reduce the supply voltage in p0210.
For bit 00 = 1:
With this setting the supply voltage in p0210 can be reduced to 100 V.
For bit 01 = 0:
There is no external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is bypassed.
For bit 01 = 1:
There is external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is calculated.

p0212

Power unit configuration / PU config

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: C2(2)
Data type: Unsigned16
P group: Converter
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
0000 0000 bin

Description: Sets the power unit configuration.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Drive unit line supply voltage reduced	Yes	No	-
	05	Contactors display inputs/outputs status	Yes	No	9814

Dependency: For bit 00:
Reduced supply voltages to 100 V are only possible for booksize power units.
Supply voltages reduced down to 180 V are only possible for A_infeed power units (500 V - 690 V).
Bit 0 = 1 can only be set if r0192.22 = 1.

⚠ CAUTION
For bit 00:
Working with reduced input voltages correspondingly reduces undervoltage detection.
This function may only be used by personnel with expert knowledge!

Note

For bit 00 = 0:
400 V units: It is not possible to reduce the supply voltage in p0210 to below 180 V.
690 V units: It is not possible to reduce the supply voltage in p0210 to below 380 V.
For bit 00 = 1:
400 V units (Booksize): With this setting, the supply voltage in p0210 can be reduced down to 70 V.
690 V units (Chassis): With this setting, the supply voltage in p0210 can be reduced down to 180 V.
The activation of this function is retentively saved in the unit and for incorrect design of the application can result in loss of warranty!
For bit 05 = 1:
The status of the inputs/outputs for the power unit contactors is displayed in r0256.
This only applies to chassis power units with 3 AC line connection and line contactors.
The status display is only effective after parameter save and POWER ON.

p0212

Power unit configuration / PU config

B_INF_828

Changeable: C2(2)
Data type: Unsigned16
P group: Converter
Not for motor type: -
Min:
-


Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
0000 0000 bin

Description: Sets the power unit configuration.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Drive unit line supply voltage reduced	Yes	No	-
	02	Supply voltage tolerance range extended	Yes	No	-
	05	Contactors display inputs/outputs status	Yes	No	9814

Dependency: For bit 00:
Reduced supply voltages are only possible on booksize power units.
Bit 0 = 1 can only be set if r0192.22 = 1.
See also: r0192, p0210

 CAUTION
For bit 00: Working with reduced input voltages de-activates undervoltage detection. This function may only be used by personnel with expert knowledge!
For bit 03: If the automatic setting of the Vdc max limit is deactivated, then all of the components connected to the DC link must be suitable for the maximum DC link voltage of the power unit (e.g. 820 V for 400 V units).

Note

For bit 00 = 0:
It is not possible to reduce the supply voltage in p0210 to below 180 V.

For bit 00 = 1:
With this setting the supply voltage in p0210 can be reduced to 70 V. Bit 0 = 1 can only be set for booksize power units with a rated power of up to 40 kW.
The activation of this function is retentively saved in the unit and for incorrect design of the application can result in loss of warranty!

For bit 05 = 1:
The status of the inputs/outputs for the power unit contactors is displayed in r0256.
This only applies to chassis power units with 3 AC line connection and line contactors.
The status display is only effective after parameter save and POWER ON.

p0216[0...n]	Valve natural frequency / Valve fn		
HLA_828	Changeable: C2(1, 2)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: 4966
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1.0 [Hz]	Max: 1000.0 [Hz]	Default: 150.0 [Hz]
Description:	Sets the natural frequency for the valve.		

p0217[0...n]	Valve damping / Valve D		
HLA_828	Changeable: C2(1, 2)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.400	Max: 1.000	Default: 0.800
Description:	Sets the damping for the valve.		

p0218[0...n]	Cylinder safety configuration / Cyl safety config			
HLA_828	Changeable: C2(1, 2)	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -	
	P group: Converter	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0111 bin	
Description:	Sets the configuration for the cylinder safety circuit.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Close shutoff valve for power inhibit (PI)	Yes	No
	01	Shutdown control valve supply for power inhibit (PI)	Yes	No
	02	Valve feedback signal available	Yes	No
	03	Invert valve feedback signal	Yes	No
				FP
				-
				4990
				-
				-
	Note			
	PI: power inhibit			
	For bit 01 = 0 and power inhibit:			
	When the control valve is switched in, the valve setpoint is interlocked to 0. If bit 0 = 0 (shutoff valve for power inhibit does not close) the drive can drift.			

p0220	Hydraulic oil modulus of elasticity / Hydr_oil e_module			
HLA_828	Changeable: C2(1, 2)	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -	
	P group: Converter	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	1000.0 [bar]	21000.0 [bar]	11000.0 [bar]	
Description:	Sets the value of the modulus of elasticity for the hydraulic oil being used.			
	Note			
	The value defines the compressibility of the hydraulic fluid.			

p0220[0...1]	Infeed line filter type / INF line filt type			
A_INF_828	Changeable: C2(1)	Calculation: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Function plan: 8950	
	P group: Converter	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0	90	0	
Description:	Sets the line filter type for the Active Line Module (ALM).			
	Using the line filter type, filter capacitance (p0221), filter resistance (p0222) and inductance (p0223) and resistance (p0224) of the reactor are pre-assigned.			
	For an Active Line Module (ALM), the power is automatically selected corresponding to the Active Interface Module (AIM) and the line filter type (p0220) pre-set as follows:			
	- "booksize" format: p0220 = 41 ... 45			
	- "chassis" format: p0220 = 10 ... 19			
Value:	0:	No line filter		
	1:	Wideband Line Filter booksize 400 V 16 kW (6SL3000-0BE21-6AA0)		
	2:	Wideband Line Filter booksize 400 V 36 kW (6SL3000-0BE23-6AA0)		
	3:	Wideband Line Filter booksize 400 V 55 kW (6SL3000-0BE25-5AA0)		
	4:	Wideband Line Filter booksize 400 V 80 kW (6SL3000-0BE28-0AA0)		

5:	Wideband Line Filter booksize 400 V 120 kW (6SL3000-0BE31-2AA0)
10:	AIM F 400 V 132 kW 160 kW (6SL3300-7TE32-6Ax0)
11:	AIM G 400 V 235 kW (6SL3300-7TE33-8Ax0)
12:	AIM G 400 V 300 kW (6SL3300-7TE35-0Ax0)
13:	AIM H 400 V 380 kW 500 kW (6SL3300-7TE38-4Ax0)
14:	AIM J 400 V 630 kW 900 kW (6SL3300-7TE41-4Ax0)
15:	AIM F 690 V 150 kW (6SL3300-7Tx31-4Ax0)
16:	AIM G 690 V 330 kW (6SL3300-7Tx33-1Ax0)
17:	AIM H 690 V 560 kW (6SL3300-7Tx35-8Ax0)
18:	AIM J 690 V 800 kW (6SL3300-7Tx37-4Ax0)
19:	AIM J 690 V 1100 kW 1400 kW (6SL3300-7Tx41-3Ax0)
31:	Basic Line Filter booksize 400 V 16 kW (6SL3000-0BE21-6DA0)
32:	Basic Line Filter booksize 400 V 36 kW (6SL3000-0BE23-6DA0)
33:	Basic Line Filter booksize 400 V 55 kW (6SL3000-0BE25-5DA0)
34:	Basic Line Filter booksize 400 V 80 kW (6SL3000-0BE28-0DAx)
35:	Basic Line Filter booksize 400 V 120 kW (6SL3000-0BE31-2DAx)
41:	AIM 400 V 16 kW (6SL3100-0BE21-6AB0)
42:	AIM 400 V 36 kW (6SL3100-0BE23-6AB0)
43:	AIM 400 V 55 kW (6SL3100-0BE25-5AB0)
44:	AIM 400 V 80 kW (6SL3100-0BE28-0AB0)
45:	AIM 400 V 120 kW (6SL3100-0BE31-2AB0)
78:	AIM LC 400 V 900 kW (6SL3305-7TE41-4AA3)
87:	AIM LC 690 V 800 kW (6SL3305-7TG37-4AA3)
88:	AIM LC 690 V 1100 kW (6SL3305-7TG41-0AA3)
89:	AIM LC 690 V 1400 kW (6SL3305-7TG41-3AA3)
90:	AIM LC 690 V 1700 kW (6SL3305-7TG41-6AA3)

Index:

[0] = Line filter
 [1] = Line filter optional

NOTICE**"Booksized" format:**

When using an Active Interface Module (AIM), it is absolutely necessary that the terminals for the temperature switch between the Active Interface Module (X121.1/2) and the Active Line Module (X21.1/2) are connected.

Note

For booksized units, when using an Active Interface Module in p0220[0] it is also possible to use a Basic Filter that is parameterized in p0220[1].

The setting of the filter capacitance (p0221) and filter resistance (p0222) - derived from p0220[0, 1] - are required in the closed-loop voltage controlled mode to automatically compensate the filter reactive current.

For two power ratings, the same line filter is used for both power ratings.

AIM: Active Interface Module

p0221**System pressure / p_system**

HLA_828

Changeable: C2(1, 2)**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** -**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.0 [bar]

10000.0 [bar]

0.0 [bar]

Description:

Sets the system pressure that the drive unit supplies.

p0221[0...1]	Infeed filter capacitance / INF C_filter		
A_INF_828	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8950
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µF]	Max: 100000.00 [µF]	Default: 0.00 [µF]
Description:	Sets the filter capacitance of the line filter (connected in a delta configuration).		
Index:	[0] = Line filter [1] = Line filter optional		

Note

When a Siemens line filter is used (p0220) this parameter is automatically pre-set with the correct value. For a parallel circuit, the value corresponds to the capacitance of a power unit. Index 0 refers to the first line filter from p0220[0]. Index 1 refers to the optional second line filter from p0220[1].

p0222[0...n]	Valve precontrol pressure / Valve p_prectrl		
HLA_828	Changeable: C2(1, 2)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [bar]	Max: 350.0 [bar]	Default: 0.0 [bar]
Description:	Sets the precontrol pressure for pre-controlled valve. For a value = 0, the following applies: Directly controlled (not precontrolled) valve. For values not equal to 0, the following applies: Precontrol pressure for the precontrolled valve.		

Note

The natural frequency of the precontrolled valve is obtained from the valve natural frequency multiplied by the square root of the precontrolled pressure divided by 100 bar.

p0222[0...1]	Infeed filter resistance / INF R_filter		
A_INF_828	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [ohm]	Max: 100.00000 [ohm]	Default: 0.00000 [ohm]
Description:	Sets the filter resistance in series with the filter capacitance.		
Index:	[0] = Line filter [1] = Line filter optional		

Note

When a Siemens line filter is used (p0220) this parameter is automatically pre-set with the correct value. For a parallel circuit, the value corresponds to the resistance of a power unit. Index 0 refers to the first line filter from p0220[0]. Index 1 refers to the optional second line filter from p0220[1].

p0223	Infeed inductance between filter and power unit / INF L filter/PU		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [mH]	Max: 1000.000 [mH]	Default: 2.100 [mH]
Description:	Sets the inductance between the filter and power unit.		
	Note The parameter is automatically pre-assigned depending on the power unit being used and matches the specified Siemens line reactors. For a parallel circuit, the value corresponds to the inductance of a power unit.		
p0224	Infeed resistance between filter and power unit / INF R filter/PU		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [ohm]	Max: 100.00000 [ohm]	Default: 0.00100 [ohm]
Description:	Sets the resistance between the filter and power unit		
	Note The parameter is automatically pre-assigned depending on the power unit being used and matches the specified Siemens line reactors. For a parallel circuit, the value corresponds to the resistance of a power unit.		
p0225	Infeed inductance between line supply and filter / INF L line/filter		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [mH]	Max: 1000.000 [mH]	Default: 0.001 [mH]
Description:	Sets the inductance between line supply and filter.		
	Note The value must be, for example, appropriately increased if an additional inductance (reactor or transformer is installed in front of the filter).		
p0226	Infeed resistance between line supply and filter / INF R line/filter		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ohm]	Max: 100.00 [ohm]	Default: 0.00 [ohm]
Description:	Sets the resistance between the line supply and filter.		
	Note The value must be, for example, appropriately increased if an additional resistor is installed in front of the filter.		

p0227	Infeed DC link capacitance, power unit / INF C		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [mF]	Max: 1000.00 [mF]	Default: 1.00 [mF]
Description:	Sets the total DC link capacitance.		
	Note The total DC link capacitance of a DC link group comprises the sum of the sub-capacitances of all motor/infeed modules and the additional DC link capacitors.		

p0230[0...n]	Manipulated variable inhibit time / Manip var t_inhib		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 1000 [ms]	Default: 300 [ms]
Description:	Setting the manipulated variable inhibit time. The manipulated variable inhibit time starts after controlling the shutoff valve (opening) or after switching-on the power supply voltage of the control valve and during this time keeps the velocity setpoint at zero.		
	Note For p0218.1 = 1 (shutdown control valve supply for power inhibit), the following applies: The system waits for the manipulated variable inhibit time to expire – also after the close command for the shutoff valve – and then the power supply voltage of the control valve is shut down. For p0218.0 = 0 (do not close shutoff valve for power inhibit) and p0218.1 = 0 (do not switch off control valve supply for power inhibit), the following applies: Parameter p0230 is not effective.		

p0231[0...n]	Power enable inhibit time / Pow_enab t_inhib		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 300 [ms]	Default: 100 [ms]
Description:	Sets the inhibit time for the shutoff valve after the power enable. If a shutoff valve is being used (p0218.0/.1 = 1), then the following applies: Sets the time that the control valve requires to go to the center position from the fail-safe position. If a shutoff valve is not being used, the following applies: Set the time to zero.		
Dependency:	See also: p0230		

p0232[0...n] HLA_828	Valve monitoring time / Valve t_monit Changeable: T, U Data type: FloatingPoint32 P group: Converter Not for motor type: - Min: 1 [ms]	Calculation: - Dynamic index: PDS, p0120 Unit group: - Scaling: - Max: 1000 [ms]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 50 [ms]
Description:	Sets the monitoring time for the valve.		
p0233 SERVO_828, SERVO_COMBI	Power unit motor reactor / PU mot reactor Changeable: C2(2), T, U Data type: FloatingPoint32 P group: Converter Not for motor type: - Min: 0.000 [mH]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1000.000 [mH]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0.000 [mH]
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. See also: p0230		
	Note The parameter cannot be changed if the power unit has an internal sine-wave filter.		
p0234 SERVO_828, SERVO_COMBI	Power unit sine-wave filter capacitance / PU sine filter C Changeable: C2(2), T, U Data type: FloatingPoint32 P group: Converter Not for motor type: - Min: 0.000 [μ F]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1000.000 [μ F]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0.000 [μ F]
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. See also: p0230		
	Note The parameter value includes the sum of all of the capacitances of a phase connected in series (phase - ground). The parameter cannot be changed if the power unit has an internal sine-wave filter.		
r0238 SERVO_828, SERVO_COMBI	Internal power unit resistance / PU R internal Changeable: - Data type: FloatingPoint32 P group: Converter Not for motor type: - Min: - [ohm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [ohm]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: - [ohm]
Description:	Displays the internal resistance of the power unit (IGBT and line resistance).		
	Note For a parallel circuit, the value corresponds to the resistance of a power unit.		

p0240[0...n] **Pressure sensor A reference value at 10 V / Sensor A ref 10V**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
 Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 50.0 [bar] 1000.0 [bar] 200.0 [bar]

Description: Sets the reference value for pressure sensor A to 10 V.

p0241[0...n] **Pressure sensor A offset correction / Sensor A offs**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
 Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 -5000.000 [bar] 5000.000 [bar] 0.000 [bar]

Description: Sets the offset correction for pressure sensor A
Dependency: After changing the reference value (p0240) this value must be adapted.
 See also: p0240

p0242[0...n] **Pressure sensor B reference value at 10 V / Sensor B ref 10V**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
 Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 50.0 [bar] 1000.0 [bar] 200.0 [bar]

Description: Sets the reference value for pressure sensor B to 10 V.

p0243[0...n] **Pressure sensor B offset correction / Sensor B offs**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
 Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 -5000.000 [bar] 5000.000 [bar] 0.000 [bar]

Description: Sets the offset correction for pressure sensor B
Dependency: See also: p0242

Note
 After changing the reference value (p0242) this value must be adapted.

p0244[0...n] **Pressure sensor P reference value at 10 V / Sensor P ref 10V**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
 Data type: FloatingPoint32 **Dynamic index:** PDS, p0120 **Function plan:** -
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 50.0 [bar] 1000.0 [bar] 200.0 [bar]

Description: Sets the reference value for pressure sensor P (system pressure) to 10 V.

p0245[0...n]	Pressure sensor P offset correction / Sensor P offs		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -5000.000 [bar]	Max: 5000.000 [bar]	Default: 0.000 [bar]

Description: Sets the offset correction for pressure sensor P (system pressure).

Dependency: See also: p0244

Note

After changing the reference value (p0244) this value must be adapted.

p0246	CI: System pressure external / Sys pressure ext		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal source for the external system pressure.

Dependency: See also: r0069

Note

For several hydraulic drives with the same system pressure, and only one system pressure measurement, the value can be interconnected from another axis via this connector input.

To do this, the following BICO interconnection should be set:

p0264 (axis without system pressure measurement) = r0069 (axis with system pressure measurement).

CI: p0246 = 0:

The analog measurement of its own axis is effective (p0244, p0245).

CI: p0246 > 0:

The value of the source is accepted, and displayed in r0069 of its own axis.

p0249	Power unit cooling type / PU cool type		
S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: C2(1, 2)	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0

Description: Sets the cooling type for booksize compact power units.

This therefore defines whether for these power units, the internal air cooling is shut down and instead, the "Cold-Plate" cooling type is used.

Value:
0: Air cooling int
1: Cold-Plate

Note

For booksize compact power units, there is a 4 at the 5th position in the Order No.

The parameter is irrelevant for all other power unit types.

p0251[0...n]	Operating hours counter power unit fan / PU fan t_oper		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: PDS, p0120	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [h]	Max: 4294967295 [h]	Default: 0 [h]
Description:	Displays the power unit fan operating hours. The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).		
Dependency:	See also: p0252 See also: A30042		

Note

For liquid-cooled chassis power units, the operating hours of the inner fan are displayed in p0251 and not in p0254.

p0252	Maximum operating time power unit fan / PU fan t_oper max		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [h]	Max: 100000 [h]	Default: 40000 [h]
Description:	Sets the maximum operating time of the power unit fan. The pre-alarm (warning) is output 500 hours before this set value. The monitoring is de-activated with p0252 = 0.		
Dependency:	See also: p0251		

p0254[0...n]	Operating hours counter power unit fan inside the converter / PU inner fan t_op		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: PDS, p0120	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [h]	Max: 4294967295 [h]	Default: 0 [h]
Description:	Displays the power unit fan operating hours of the internal fan in the power unit. The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).		
Dependency:	See also: A30042		

Note

For liquid-cooled chassis power units, the operating hours of the inner fan are displayed in p0251 and not in p0254.

p0255[0...7]	Power unit contactor monitoring time / PU cont t_monit		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1 [ms]	Max: 65535 [ms]	Default: [0] 0 [ms] [1] 0 [ms] [2] -1 [ms] [3] -1 [ms] [4...7] 0 [ms]

Description: Sets the monitoring time for internal monitoring of the contactor feedback contacts. For a value 0.0 or negative values, the particular monitoring is deactivated. For index 0 ... 3: Is used to monitor the delay time between the control and feedback signals of the particular contactor. For index 4 ... 7: Is used for simultaneity monitoring for a parallel connection. After a contactor has been opened or closed, this checks whether, after the monitoring time has expired, all contactors of the parallel connection have assumed the same state. For Index 2, 3: The value -1.0 means that the particular opening time is taken from Index 0 or 1.

Index:

- [0] = Pre-charging contactor closing time
- [1] = Bypass contactor closing time
- [2] = Pre-charging contactor opening time
- [3] = Bypass contactor opening time
- [4] = Simultaneity pre-charging contactor closing time
- [5] = Simultaneity bypass contactor closing time
- [6] = Simultaneity pre-charging contactor opening time
- [7] = Simultaneity bypass contactor opening time

Dependency: See also: r0256
See also: F05118, F05119, F30060, F30061

NOTICE

For index 4 ... 7:
The simultaneity monitoring is only activate after parameter save and POWER ON.

Note

- This parameter is only effective for chassis power units with 3 AC line connection and line contactors.
- The simultaneity monitoring can only be activated for a parallel connection.
- The feedback signal input of an open bypass contactor must be displayed in r0256 = 0.
- The feedback signal input of an open pre-charging contactor must be displayed in r0256 = 1.
- Determining practical monitoring times can be supported by a tracing r0256.

For power unit firmware version less than 4.6, the following applies:

There are no separate monitoring times for the delay time between opening and closing. In this case, the maximum of the opening time and closing time is effective.

r0256.0...31	CO/BO: Power unit contactor inputs/outputs status / PU contact IO stat		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 9814
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Display and BICO output for the status of the inputs/outputs of the power unit contactors.
The display is activated in p0212.5.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	PDS0 pre-charging/line contactor control output	High	Low	-
	01	PDS0 pre-charging/line contactor feedback signal input	High	Low	-
	02	PDS0 bypass contactor control output	High	Low	-
	03	PDS0 bypass contactor feedback signal input	High	Low	-
	04	PDS1 pre-charging/line contactor control output	High	Low	-
	05	PDS1 pre-charging/line contactor feedback signal input	High	Low	-
	06	PDS1 bypass contactor control output	High	Low	-
	07	PDS1 bypass contactor feedback signal input	High	Low	-
	08	PDS2 pre-charging/line contactor control output	High	Low	-
	09	PDS2 pre-charging/line contactor feedback signal input	High	Low	-
	10	PDS2 bypass contactor control output	High	Low	-
	11	PDS2 bypass contactor feedback signal input	High	Low	-
	12	PDS3 pre-charging/line contactor control output	High	Low	-
	13	PDS3 pre-charging/line contactor feedback signal input	High	Low	-
	14	PDS3 bypass contactor control output	High	Low	-
	15	PDS3 bypass contactor feedback signal input	High	Low	-
	16	PDS4 pre-charging/line contactor control output	High	Low	-
	17	PDS4 pre-charging/line contactor feedback signal input	High	Low	-
	18	PDS4 bypass contactor control output	High	Low	-
	19	PDS4 bypass contactor feedback signal input	High	Low	-
	20	PDS5 pre-charging/line contactor control output	High	Low	-
	21	PDS5 pre-charging/line contactor feedback signal input	High	Low	-
	22	PDS5 bypass contactor control output	High	Low	-
	23	PDS5 bypass contactor feedback signal input	High	Low	-
	24	PDS6 pre-charging/line contactor control output	High	Low	-
	25	PDS6 pre-charging/line contactor feedback signal input	High	Low	-
	26	PDS6 bypass contactor control output	High	Low	-
	27	PDS6 bypass contactor feedback signal input	High	Low	-
	28	PDS7 pre-charging/line contactor control output	High	Low	-
	29	PDS7 pre-charging/line contactor feedback signal input	High	Low	-
	30	PDS7 bypass contactor control output	High	Low	-
	31	PDS7 bypass contactor feedback signal input	High	Low	-

Dependency: See also: p0212

Note

This parameter is only effective for chassis power units with 3 AC line connection and line contactors.
PDS: Power unit Data Set

p0260

Cooling unit starting time 1 / RKA start time 1

A_INF_828 (Cool_unit), B_INF_828 (Cool_unit), S_INF_828 (Cool_unit)	Changeable: T, U Data type: FloatingPoint32 P group: Converter Not for motor type: - Min: 0.0 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 60.0 [s]	Access level: 3 Function plan: 9795 Unit selection: - Expert list: 1 Default: 5.0 [s]
---	---	--	---

Description: Sets starting time 1 to monitor the cooling unit after power-on command.
After powering up, the following signals must be present within starting time 1:
- "RKA powered up"
- "RKA liquid flow OK"
When a fault occurs, an appropriate message is output.

Dependency: See also: F49152, F49153

Note

RKA: Cooling unit

p0261 Cooling unit starting time 2 / RKA start time 2

A_INF_828 (Cool_unit),	Changeable: T, U	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9795
S_INF_828 (Cool_unit)	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [s]	1200.0 [s]	180.0 [s]

Description: Sets starting time 2 to monitor the cooling unit after power-on command.
After powering up, the following signals must be present within starting time 2:
- "RKA conductivity, no fault"
- "RKA conductivity, no alarm"
When a fault occurs, an appropriate message is output.

Dependency: See also: p0266
See also: F49151, A49171

p0262 Cooling unit fault conductivity delay time / RKA cond t_del

A_INF_828 (Cool_unit),	Changeable: T, U	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9795
S_INF_828 (Cool_unit)	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [s]	30.0 [s]	0.0 [s]

Description: Sets the delay time for the fault "RKA: Conductive limit value exceeded" during operation.
The fault is only output if, during operation, the conductivity exceeds the permissible fault value and the value remains for a longer time than is set in this parameter.

Dependency: See also: F49151

p0263 Cooling unit fault liquid flow delay time / RKA flow t_del

A_INF_828 (Cool_unit),	Changeable: T, U	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9795
S_INF_828 (Cool_unit)	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [s]	20.0 [s]	3.0 [s]

Description: Sets the delay time for the fault "RKA: Liquid flow too low".
The fault is only output if the cause is present for a time longer than is set in this parameter.

Dependency: See also: F49153

p0264 Cooling unit run-on time / RKA run-on time

A_INF_828 (Cool_unit),	Changeable: T, U	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9795
S_INF_828 (Cool_unit)	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [s]	180.0 [s]	30.0 [s]

Description: Sets the run-up time of the cooling unit after a power-off command.

r0265.0...3 BO: Cooling unit control word / RKA STW

A_INF_828 (Cool_unit),	Changeable: -	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: Unsigned8	Dynamic index: -	Function plan: -
S_INF_828 (Cool_unit)	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the control word for the cooling unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power up cooling unit	Activating	De-activating	-
	01	Message converter off	OFF	ON	-
	02	Acknowledge faults	Acknowledgment	No acknowledgment-	
	03	Leakage sensing OK	No leaked liquid	Leaked liquid	-

p0266[0...7] BI: Cooling unit feedback signals signal source / RKA fdbk S_src

A_INF_828 (Cool_unit),	Changeable: T, U	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
S_INF_828 (Cool_unit)	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	1

Description: Sets the signal sources for the feedback signals from the cooling unit.

Index:

- [0] = Cooling unit powered up
- [1] = Cooling unit ready for switch on
- [2] = Cooling unit no alarm present
- [3] = Cooling unit no fault present
- [4] = Cooling unit no leaked liquid
- [5] = Cooling unit liquid flow OK
- [6] = Cooling unit conductivity < fault threshold
- [7] = Cooling unit conductivity < alarm threshold

r0267.0...7 BO: Cooling unit status word / RKA ZSW

A_INF_828 (Cool_unit),	Changeable: -	Calculation: -	Access level: 3
B_INF_828 (Cool_unit),	Data type: Unsigned16	Dynamic index: -	Function plan: -
S_INF_828 (Cool_unit)	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status word of the cooling unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
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00	RKA powered up	Yes	No	-
01	RKA ready for switching on	Yes	No	-
02	RKA no alarm present	Yes	No	-
03	RKA no fault present	Yes	No	-
04	RKA no leaked fluid	Yes	No	-
05	RKA liquid flow OK	Yes	No	-
06	RKA conductivity no fault	Yes	No	9974
07	RKA conductivity no alarm	Yes	No	9974

Dependency: See also: p0266

p0278 DC link voltage undervoltage threshold reduction / Vdc U_under red

SERVO_828,
SERVO_COMBI

Changeable: T	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -80 [V]	Max: 0 [V]	Default: 0 [V]

Description: Sets the absolute value by which the threshold to initiate the undervoltage fault (F30003) is reduced.

Dependency: See also: p0210, r0296

See also: F30003

NOTICE

When using a Control Supply Module (CSM) for 24 V supply from the DC link, the minimum continuous DC link voltage may not lie below 430 V. DC link voltages in the range 300 ... 430 V are permissible up to a duration of 1 min. For chassis power units, this parameter has no significance.

Note

The resulting shutdown threshold can be read in r0296 and is dependent on the selected rated voltage (p0210) and the power unit being used.

p0279 DC link voltage offset alarm threshold / Vdc offs A thresh

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8760, 8864, 8964
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [V]	Max: 500 [V]	Default: 0 [V]

Description: Sets the voltage threshold to initiate alarm A06810.

The value represents an offset so that the alarm threshold is obtained from the total of r0296 and p0279.

Dependency: See also: p0210, r0296

See also: A06810

Note

The absolute value of the undervoltage threshold r0296 depends on the selected unit supply voltage (p0210).

p0280 DC link voltage maximum steady-state / Vdc_max stat

A_INF_828

Changeable: C2(1), T	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940, 8964
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 50 [V]	Max: 1500 [V]	Default: 660 [V]

Description: Sets the maximum steady-state DC link voltage. When the DC link voltage setpoint reaches the threshold, alarm A06800 is output.
 The setpoint for the DC link voltage in p3510 is limited to the value in p0280.
 The voltage can be increased (boosted) using the modulation depth reserve controller. The modulation depth reserve (p3480) can be too low if p0210 (drive unit supply voltage) was incorrectly parameterized, a line overvoltage condition is present or a high reactive current is required.

Dependency: See also: p0210
 See also: A06800

⚠ WARNING
 Before increasing the voltage limit for pulsed operation of a controlled booksize infeed with line supply voltages p0210 > 415 V it should be checked whether the motors connected to the DC link are specified for the higher motor voltages. The warning information associated with p0210 must be carefully observed.

⚠ CAUTION
 All motors connected to the DC link must be rated for the maximum DC link voltage set in this parameter.

NOTICE
 For chassis power units, for the extended line supply voltage range from 500 V to 690 V, the value in p0280 is automatically adapted if the line supply voltage in p0210 is changed. The individual parameter setting for p0280 is then lost and if necessary must be re-entered.

Note
 A brief dynamic increase of the DC link voltage does not result in an alarm.
 Pre-setting values:
 380 ... 480 V booksize units: 660 V
 380 ... 480 V chassis units: 750 V
 500 ... 690 V chassis units: $0.875 * p0210 + 502$ V
 Maximum values:
 380 ... 480 V booksize units: 785 V
 380 ... 480 V chassis units: 785 V
 500 ... 690 V chassis units: 1130 V

p0281 **Line supply overvoltage alarm threshold / U_I over A thresh**

A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8860, 8960
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 100 [%]	Max: 200 [%]	Default: 110 [%]

Description: Sets the alarm threshold for a line supply overvoltage condition.
 The setting is made as a percentage of the drive unit supply voltage (p0210).

Dependency: See also: p0211, p0221, p0222, p0223, p0224, p0225, p0226

Note
 If synchronizing voltages are not detected, the line supply voltage is estimated using a model. It is therefore important to ensure that drive unit data is correctly specified.

p0282 **Line supply undervoltage alarm threshold / U_I under A thresh**

A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8860, 8960
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10 [%]	Max: 100 [%]	Default: 85 [%]

Description: Sets the alarm threshold for a line undervoltage condition.
The setting is made as a percentage of the drive unit supply voltage (p0210).

Dependency: See also: p0222, p0224, p0225, p0226, p3421, p3422
See also: A06105

Note

If synchronizing voltages are not detected, the line supply voltage is estimated using a model. It is therefore important to ensure that drive unit data is correctly specified.

p0283**Line supply undervoltage shutdown (trip) threshold / U_I_under tr_thrsh**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: C2(1), T**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 8860, 8960**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

10 [%]

100 [%]

75 [%]

Description: Sets the shutdown threshold for the line supply undervoltage.
The setting is made as a percentage of the drive unit supply voltage (p0210).

Dependency: See also: p0282
See also: F06100

NOTICE

For booksize Active Line Modules, the following applies:
When operated without Active Interface Module (p0220 = 41 ... 45), the minimum shutdown threshold is 75 %.

p0284**Line supply frequency exceeded alarm threshold / f_I_exc A thresh**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 8864, 8964**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

100.0 [%]

300.0 [%]

118.0 [%]

Description: Sets the alarm threshold for an excessively high line frequency.

Dependency: Set as a percentage of the rated line frequency.
See also: p0211

p0285**Line supply frequency undershot alarm threshold / f_I_under A thresh**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 8864, 8964**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.0 [%]

100.0 [%]

82.0 [%]

Description: Sets the alarm threshold for an excessively low line frequency.

Dependency: Set as a percentage of the rated line frequency.
See also: p0211

p0287[0...1]

A_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Ground fault monitoring thresholds / Gnd fit threshold

Changeable: T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
0.0 [%]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
100.0 [%]

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
[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: See also: F30021

Note

The parameter only applies to booksize and chassis power units.
De-activating the ground fault monitoring:
- Sequence: --> p0287[1] = 0 --> p0287[0] = 0
- irrespective of the firmware version of the power unit.
Sets the thresholds:
- the prerequisite is at least firmware version 2.2 of the power unit.

r0289

SERVO_828,
SERVO_COMBI

CO: Maximum power unit output current / PU I_outp max

Changeable: -
Data type: FloatingPoint32
P group: Displays, signals
Not for motor type: -
Min:
- [Arms]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: p2002
Max:
- [Arms]

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
- [Arms]

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

p0290

SERVO_828,
SERVO_COMBI

Power unit overload response / PU overld response

Changeable: T
Data type: Integer16
P group: Converter
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
13

Access level: 3
Function plan: 8014
Unit selection: -
Expert list: 1
Default:
0

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 (for closed-loop speed/velocity or torque/force control) 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 (only for vector control).

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)
 12: I_output or f_output and automatic pulse frequency reduction
 13: Automatic pulse frequency reduction

Dependency: For a thermal power unit overload, an appropriate alarm or fault is output, and r2135.15 or r2135.13 set.
 p0290 = 2, 3, 12, 13 are applicable only for blocksize power units.
 See also: r0036, r0037, p0108, r0108, p0230, r2135
 See also: A05000, A05001, A07805

NOTICE

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 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, the current and torque limit are reduced, and therefore the motor is braked and forbidden speed ranges (e.g. minimum speed p1080 and suppression [skip] speeds p1091 ... p1094) can be passed through. When the motor data identification routine is selected, p0290 cannot be changed.

r0293

SERVO_828,
 SERVO_COMBI

CO: Power unit alarm threshold model temperature / PU A_thr mod_temp

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8014
P group: Converter	Unit group: 21_1	Unit selection: p0505
Not for motor type: -	Scaling: p2006	Expert list: 1
Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Temperature alarm threshold for the difference from the chip and heat sink temperature in the thermal model.

Dependency: See also: r0037
 See also: F30024

Note

The parameter is only relevant for chassis power units.

p0294

A_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Power unit alarm with I2t overload / PU I2t alarm thresh

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8014
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 10.0 [%]	Max: 100.0 [%]	Default: 95.0 [%]

Description: Sets the alarm threshold for the I2t power unit overload.
 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.

Dependency: See also: r0036, p0290
 See also: A07805

Note

The I2t fault threshold is 100 %. If this value is exceeded, fault F30005 is output.

p0294	Power unit alarm with I2t overload / PU I2t alarm thresh		
B_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8014
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.0 [%]	Max: 100.0 [%]	Default: 95.0 [%]

Description: Sets the alarm threshold for the I2t power unit overload.

Dependency: See also: r0036
See also: A07805

Note
The parameter is only relevant for booksize units!

p0295	Fan run-on time / Fan run-on time		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [s]	Max: 600 [s]	Default: 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.

r0296	DC link voltage undervoltage threshold / Vdc U_lower_thresh		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]

Description: Threshold to detect a DC link undervoltage.
If the DC link voltage falls below this threshold, the drive unit is tripped due to a DC link undervoltage condition.

Dependency: See also: p0278
See also: F30003

Note
The value depends on the device type and the selected device rated voltage (p0210).
For booksize drive units, the following applies:
The undervoltage threshold can be reduced with p0278.

r0296	DC link voltage undervoltage threshold / Vdc U_lower_thresh		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: Unsigned16	Calculation: - Dynamic index: -	Access level: 2 Function plan: 8750, 8760, 8850, 8864, 8950, 8964
	P group: Converter Not for motor type: -	Unit group: - Scaling: -	Unit selection: - Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Threshold to detect a DC link undervoltage. If the DC link voltage falls below this threshold, the drive unit is tripped due to a DC link undervoltage condition.		
Dependency:	See also: F30003		
	Note The value depends on the device type and the selected device rated voltage (p0210).		

r0297	DC link voltage overvoltage threshold / Vdc U_upper_thresh		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16	Calculation: - Dynamic index: -	Access level: 2 Function plan: 8750, 8760, 8850, 8864, 8950, 8964
	P group: Converter Not for motor type: -	Unit group: - Scaling: -	Unit selection: - Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Threshold to detect a DC link overvoltage. If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.		
Dependency:	See also: F30002		

p0300[0...n]	Motor type selection / Mot type sel		
SERVO_COMBI	Changeable: C2(1, 3) Data type: Integer16	Calculation: - Dynamic index: MDS, p0130	Access level: 1 Function plan: -
	P group: Motor Not for motor type: -	Unit group: - Scaling: -	Unit selection: - Expert list: 1
	Min: 0	Max: 10100	Default: 0
Description:	Selects the motor type or start to read in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000). For p0300 < 10000 the following applies: 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 3 = Linear induction motor (reserved) 4 = Linear 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/AOP).		
Value:	0: No motor 1: Induction motor 2: Synchronous motor 4: Synchronous motor linear 102: 1PH2 induction motor 107: 1PH7 induction motor		

- 108: 1PH8 induction motor
- 111: xxxx induction motor OEM
- 136: 1PM6 induction motor
- 166: 1PL6 induction motor
- 200: 1PH8 synchronous motor
- 206: 1FT6 synchronous motor
- 207: 1FT7 synchronous motor
- 222: xxxx synchronous motor OEM
- 231: 1FG1 synchronous motor
- 236: 1FK6 synchronous motor
- 237: 1FK7 synchronous motor
- 261: 1FE1 synchronous motor
- 283: 1FW3 synchronous motor
- 286: 1FW6 synchronous motor
- 291: 2SP1 synchronous motor
- 444: xxxx synchronous motor linear OEM
- 10000: Motor with DRIVE-CLiQ
- 10001: Motor with DRIVE-CLiQ 2nd data set
- 10100: Motor with DRIVE-CLiQ (only read in motor data)

Dependency:

When the motor type is changed, the code number in p0301 may be reset to 0.

If p0300 is changed during quick commissioning (p0010 = 1), then the matching technological application (p0500) is automatically pre-assigned. This does not occur when commissioning the motor (p0010 = 3). If p0300 = 10000 is written for a parameter download, p0500 is pre-assigned with DRIVE-CLiQ corresponding to the motor type.

See also: p0301

NOTICE
<p>If a catalog motor is selected (p0300 >= 100) and an associated motor code number (p0301), then the parameters that are associated with this list cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx). Write protection is automatically canceled when the results of motor data identification are copied to the motor parameters.</p> <p>The motor type of a catalog motor corresponds to the upper three digits of the code number or the following assignment (if the particular motor type is listed):</p> <p>Type/code number ranges</p> <ul style="list-style-type: none"> 102 / 102xx, 112xx, 122xx 104 / 104xx, 114xx, 124xx 107 / 107xx, 117xx, 127xx 108 / 108xx, 118xx, 128xx, 138xx, 148xx, 158xx 134 / 134xx, 144xx, 154xx 136 / 136xx, 146xx, 156xx 166 / 166xx, 176xx, 186xx 200 / 200xx, 210xx, 220xx 204 / 204xx, 214xx, 224xx 206 / 206xx, 216xx, 226xx 207 / 207xx, 217xx, 227xx 237 / 237xx, 247xx, 257xx 261 / 261xx, 262xx 283 / 283xx, 293xx 286 / 286xx, 296xx 403 / 403xx, 413xx 406 / 406xx, 416xx, 426xx

Note

With p0300 = 10000, for a motor with DRIVE-CLiQ, the motor parameters are automatically downloaded, with p0300 = 10001, the motor parameters of a second data set (if available).

If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.

A motor type with a value above p0300 >= 100 describes motors for which a motor parameter list exists.

Motor types with a value below p0300 < 100 correspond to the selection of a third-party motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for a third-party motor.

This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 or 10001 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

With p0300 = 10100, when the system powers up, for a motor with DRIVE-CLiQ, the motor data are loaded, without subsequently newly calculating the control parameters. This means that control parameters that are already optimized are kept. To load the data, motor code number p0301 must match the code number of the connected encoder r0302.

p0300[0...n]	Motor type selection / Mot type sel		
SERVO_828	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10100	0
Description:	<p>Selects the motor type or start to read in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000). For p0300 < 10000 the following applies:</p> <p>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:</p> <p>1 = Rotating induction motor 2 = Rotating synchronous motor 3 = Linear induction motor (reserved) 4 = Linear synchronous motor</p> <p>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/AOP).</p>		
Value:	<p>0: No motor 1: Induction motor 2: Synchronous motor 4: Synchronous motor linear 102: 1PH2 induction motor 104: 1PH4 induction motor 107: 1PH7 induction motor 108: 1PH8 induction motor 111: xxxx induction motor OEM 134: 1PM4 induction motor 136: 1PM6 induction motor 166: 1PL6 induction motor 200: 1PH8 synchronous motor 206: 1FT6 synchronous motor 207: 1FT7 synchronous motor 222: xxxx synchronous motor OEM 231: 1FG1 synchronous motor 236: 1FK6 synchronous motor 237: 1FK7 synchronous motor 261: 1FE1 synchronous motor</p>		

276:	1FS6 synchronous motor
283:	1FW3 synchronous motor
286:	1FW6 synchronous motor
291:	2SP1 synchronous motor
401:	1FN1 synchronous motor linear
403:	1FN3 synchronous motor linear
406:	1FN6 synchronous motor linear
444:	xxxx synchronous motor linear OEM
10000:	Motor with DRIVE-CLiQ
10001:	Motor with DRIVE-CLiQ 2nd data set
10100:	Motor with DRIVE-CLiQ (only read in motor data)

Dependency:

When the motor type is changed, the code number in p0301 may be reset to 0.

If p0300 is changed during quick commissioning (p0010 = 1), then the matching technological application (p0500) is automatically pre-assigned. This does not occur when commissioning the motor (p0010 = 3). If p0300 = 10000 is written for a parameter download, p0500 is pre-assigned with DRIVE-CLiQ corresponding to the motor type.

See also: p0301

NOTICE

If a catalog motor is selected (p0300 >= 100) and an associated motor code number (p0301), then the parameters that are associated with this list cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx). Write protection is automatically canceled when the results of motor data identification are copied to the motor parameters.

The motor type of a catalog motor corresponds to the upper three digits of the code number or the following assignment (if the particular motor type is listed):

Type/code number ranges

- 102 / 102xx, 112xx, 122xx
- 104 / 104xx, 114xx, 124xx
- 107 / 107xx, 117xx, 127xx
- 108 / 108xx, 118xx, 128xx, 138xx, 148xx, 158xx
- 134 / 134xx, 144xx, 154xx
- 136 / 136xx, 146xx, 156xx
- 166 / 166xx, 176xx, 186xx
- 200 / 200xx, 210xx, 220xx
- 204 / 204xx, 214xx, 224xx
- 206 / 206xx, 216xx, 226xx
- 207 / 207xx, 217xx, 227xx
- 237 / 237xx, 247xx, 257xx
- 261 / 261xx, 262xx
- 283 / 283xx, 293xx
- 286 / 286xx, 296xx
- 403 / 403xx, 413xx
- 406 / 406xx, 416xx, 426xx

Note

With p0300 = 10000, for a motor with DRIVE-CLiQ, the motor parameters are automatically downloaded, with p0300 = 10001, the motor parameters of a second data set (if available).

If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.

A motor type with a value above p0300 >= 100 describes motors for which a motor parameter list exists.

Motor types with a value below p0300 < 100 correspond to the selection of a third-party motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for a third-party motor.

This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 or 10001 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

With p0300 = 10100, when the system powers up, for a motor with DRIVE-CLiQ, the motor data are loaded, without subsequently newly calculating the control parameters. This means that control parameters that are already optimized are kept. To load the data, motor code number p0301 must match the code number of the connected encoder r0302.

p0301[0...n]	Motor code number selection / Mot code No. sel		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: SESM	Scaling: -	Expert list: 1
	Min: 0	Max: 65535	Default: 0
Description:	The parameter is used to select a motor from a motor parameter list. When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.		
Dependency:	Code numbers can only be selected for motor types that correspond to the motor type selected in p0300. For 1PH2, 1PH4, 1PH7, 1PM4, 1PM6, 1FT6 motors, code numbers are also possible, whose fourth decimal position is greater by a value of 1 or 2 than the matching motor type in p0300. For 1FE1 motors, the third decimal position can be higher by a value of 1. See also: p0300		
	Note The motor code number can only be changed if the matching catalog motor was first selected in p0300. For a motor with DRIVE-CLiQ, p0301 cannot be changed. In this case, p0301 is automatically written to the code number of the motor parameter read in (r0302) if p0300 is set to 10000. When selecting a catalog motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected. If, for direct drives, the motor code number (p0301) is changed, this does not automatically result in the angular commutation offset being determined (p0431).		
r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Mot code mot w/ DQ		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the motor code number from the saved motor data from a motor with DRIVE-CLiQ.		
	Note Drive commissioning can only be exited if the code number that was downloaded (r0302) matches the stored code number (p0301). If the numbers differ, then the motor data set should be re-loaded using p0300 = 10000. The motor data are always expected from the first encoder that is assigned to the drive data sets (refer to p0187 = encoder 1) data set number. The value is not updated cyclically but only on specific events (e.g. update DRIVE-CLiQ device). r0302 = 0: No motor with DRIVE-CLiQ found		
r0303[0...n]	Motor with DRIVE-CLiQ status word / Motor w DQ ZSW		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Displays the status word of the automatic motor parameter sensing of a motor with DRIVE-CLiQ.
 Motor parameter sensing takes place in the following events if the SMI is connected to the Motor Module and the encoder is activated (p0145):

- Warm restart
- downloading projects.
- POWER ON (off/on).
- where p0300 = 10000, 10001.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor data set selected	MDS1	MDS0	-
	01	Motor connection type	Delta	Star	-
	02	Windings can be changed	Yes	No	-
	03	Windings can be changed number	2	0	-

Dependency: See also: p0145, p0300

Note
 SMI: SINAMICS Sensor Module Integrated

p0304[0...n] Rated motor voltage / Mot U_{rated}

SERVO_828,
 SERVO_COMBI

Changeable: C2(1, 3)	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [Vrms]	Max: 20000 [Vrms]	Default: 0 [Vrms]

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

Dependency: See also: p0349

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

p0305[0...n] Rated motor current / Mot I_{rated}

SERVO_828,
 SERVO_COMBI

Changeable: C2(1, 3)	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]

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

Dependency: See also: p0349

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.
 If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

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

p0306[0...n]	Number of motors connected in parallel / Motor qty		
SERVO_COMBI	Changeable: C2(1, 3)	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: RESM	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	10	1

Description: Sets the number (count) of motors that can be operated in parallel using one motor data set. Depending on the motor number entered, internally an equivalent motor is calculated.

The following should be carefully observed for motors connected in series:

The following rating plate data should only be entered for one motor:

- resistances and inductances: p0350, p0352, p0353, p0354, p0356, p0357, p0358, p0360
- currents: p0305, p0318, p0320, p0323, p0325, p0329, p0338, p0391, p0392
- torques/forces: p0312, p0319
- power ratings: p0307
- masses/moments of inertia: p0341, p0344

All other parameters take into account the replacement/equivalent motor (e.g. r0331, r0370, r0373, r0374).

Recommendation: For motors connected in parallel, external thermal protection should be provided for each individual motor.

Dependency: See also: r0331, r0370, r0373, r0374, r0376, r0377, 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! Especially for synchronous motors, the pole position of motors that are rigidly coupled with one another (mechanically) must be identical.

The number of motors set must correspond to the number of motors that are actually connected in parallel. After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1).

For synchronous motors connected in parallel with p1300 >= 20, the 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. This is not the case when commissioning the motor (p0010 = 3).

p0306[0...n]	Number of motors connected in parallel / Motor qty		
SERVO_828	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: Unsigned8	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: RESM	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	10	1

Description: Sets the number (count) of motors that can be operated in parallel using one motor data set. Depending on the motor number entered, internally an equivalent motor is calculated. The following should be carefully observed for motors connected in series:
 The following rating plate data should only be entered for one motor:
 - resistances and inductances: p0350, p0352, p0353, p0354, p0356, p0357, p0358, p0360
 - currents: p0305, p0318, p0320, p0323, p0325, p0329, p0338, p0391, p0392
 - torques/forces: p0312, p0319
 - power ratings: p0307
 - masses/moments of inertia: p0341, p0344
 All other parameters take into account the replacement/equivalent motor (e.g. r0331, r0370, r0373, r0374).

Recommendation: For motors connected in parallel, external thermal protection should be provided for each individual motor.

Dependency: See also: r0331, r0370, r0373, r0374, r0376, r0377, r0382

<p>⚠ CAUTION</p> <p>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! Especially for synchronous motors, the pole position of motors that are rigidly coupled with one another (mechanically) must be identical.</p> <p>The number of motors set must correspond to the number of motors that are actually connected in parallel. After changing p0306, it is imperative that the control parameters are adapted (e.g. using automatic calculation with p0340 = 1).</p> <p>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.</p> <p>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.</p>
<p>NOTICE</p> <p>If p0306 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).</p>

p0307[0...n] **Rated motor power / Mot P_{rated}**

SERVO_828, **Changeable:** C2(1, 3) **Calculation:** - **Access level:** 1
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -
 P group: Motor **Unit group:** 14_6 **Unit selection:** p0100
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.00 [kW] 100000.00 [kW] 0.00 [kW]

Description: Sets the rated motor power (rating plate).

Dependency: IECdrives (p0100 = 0): Units kW
 NEMA drives (p0100 = 1): Units hp
 See also: p0100

<p>NOTICE</p> <p>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.</p>
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p0308[0...n] **Rated motor power factor / Mot cos phi rated**

SERVO_828, **Changeable:** C2(1, 3) **Calculation:** - **Access level:** 1
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: PMSM, REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.000 1.000 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 and displayed in r0332.

Dependency: This parameter is only available for IEC motors (p0100 = 0).
See also: p0100, r0332

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

p0310[0...n] **Cylinder piston diameter / Cyl piston diam**

HLA_828 **Changeable:** C2(1, 3) **Calculation:** - **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -

P group: Motor **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min: **Max:** **Default:**

 0.0 [mm] 2500.0 [mm] 0.0 [mm]

Description: Sets the piston diameter of the hydraulic cylinder.

p0310[0...n] **Rated motor frequency / Mot f_{rated}**

SERVO_828, **Changeable:** C2(1, 3) **Calculation:** - **Access level:** 1
SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -

P group: Motor **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min: **Max:** **Default:**

 0.00 [Hz] 3000.00 [Hz] 0.00 [Hz]

Description: Sets the rated motor frequency (rating plate).

Dependency: The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0.
If p0310 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly.
See also: p0311, r0313, p0313, p0314

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.

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

For synchronous motors, the parameter is not required and must therefore be pre-assigned zero. For p0310 = 0, it is not possible to calculate the pole pair; instead, it must be entered in p0314.

p0311[0...n] **Cylinder piston rod diameter A side / Cyl PistRodDiam A**

HLA_828 **Changeable:** C2(1, 3) **Calculation:** - **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -

P group: Motor **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min: **Max:** **Default:**

 0.0 [mm] 2400.0 [mm] 0.0 [mm]

Description: Sets the piston rod diameter on the A side.

p0311[0...n]

SERVO_828,
SERVO_COMBI

Rated motor speed / Mot n_{rated}

Changeable: C2(1, 3)

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.0 [rpm]

Calculation: -

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

210000.0 [rpm]

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.0 [rpm]

Description: Sets the rated motor speed (rating plate).

Dependency: If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically.

See also: p0310, r0313, p0313, p0314

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.

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).

p0312[0...n]

HLA_828

Cylinder piston rod diameter B side / Cyl rod diam B

Changeable: C2(1, 3)

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.0 [mm]

Calculation: -

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

2400.0 [mm]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.0 [mm]

Description: Sets the piston rod diameter on the B side.

p0312[0...n]

SERVO_828,
SERVO_COMBI

Rated motor torque / Mot M_{rated}

Changeable: C2(3)

Data type: FloatingPoint32

P group: Motor

Not for motor type: ASM, SESM, REL, RESM

Min:

0.00 [Nm]

Calculation: -

Dynamic index: MDS, p0130

Unit group: 7_4

Scaling: -

Max:

1000000.00 [Nm]

Access level: 3

Function plan: -

Unit selection: p0100

Expert list: 1

Default:

0.00 [Nm]

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

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.

p0313[0...n]

HLA_828

Cylinder piston stroke / Cyl pist stroke

Changeable: C2(1, 3)

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.0 [mm]

Calculation: -

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

3000.0 [mm]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.0 [mm]

Description: Enter the piston stroke of the hydraulic cylinder.

r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act		
SERVO_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: 5300
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the number of motor pole pairs. The value is used for internal calculations. r0313 = 1: 2-pole motor r0313 = 2: 4-pole motor, etc.		
Dependency:	For p0314 > 0, the entered value is displayed in r0313. For p0314 = 0, the pole pair number (r0313) is automatically calculated from the rated frequency (p0310) and the rated speed (p0311). See also: p0310, p0311, p0314		
	Note For the automatic calculation, the pole pair number is set to the value of 2 if the rated speed or the rated frequency is zero.		

p0314[0...n]	Cylinder dead volume A side / Cyl_dead vol A		
HLA_828	Changeable: C2(1, 3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [ccm]	200000.0 [ccm]	0.0 [ccm]
Description:	Sets the cylinder dead volume on the A side.		

p0314[0...n]	Motor pole pair number / Mot pole pair No.		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4000	0
Description:	Sets the motor pole pair number. p0314 = 1: 2-pole motor p0314 = 2: 4-pole motor, etc.		
Dependency:	For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311) and displayed in r0313.		

NOTICE

If p0314 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).

For induction motors, the value need only be input if the rated data of a generator is entered therefore resulting in a negative rated slip. In this case, the number of pole pairs in r0313 is too low by 1 and must be manually corrected.

p0315[0...n]	Cylinder dead volume B side / Cyl_dead vol B		
HLA_828	Changeable: C2(1, 3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [ccm]	200000.0 [ccm]	0.0 [ccm]

Description: Sets the cylinder dead volume on the B side.

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.

p0316[0...n]	Motor torque constant / Mot kT		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3), T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 28_1	Unit selection: p0100
	Not for motor type: ASM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [Nm/A]	4000.00 [Nm/A]	0.00 [Nm/A]

Description: Sets the torque constant of the synchronous motor.
 p0316 = 0:
 The torque constant is calculated from the motor data.
 p0316 > 0:
 The selected value is used as torque constant.

Dependency: See also: r0334, r1937

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
This parameter is not used for induction motors (p0300 = 1xx).

p0317[0...n]	Motor voltage constant / Mot kE		
SERVO_828, SERVO_COMBI	Changeable: C2(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [Vrms]	240000.0 [Vrms]	0.0 [Vrms]

Description: Sets the voltage constant for synchronous motors.
 Units for rotating synchronous motors: Vrms/(1000 rpm), phase-to-phase

Dependency: See also: r1938

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
This parameter is not used for induction motors (p0300 = 1xx).

p0318[0...n]	Motor stall current / Mot I_standstill		
SERVO_828, SERVO_COMBI	Changeable: C2(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]
Description:	Sets the stall current for synchronous motors (p0300 = 2xx).		

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 is used for the I2t monitoring of the motor (refer to p0611).
This parameter is not used for induction motors (p0300 = 1xx).

p0319[0...n]	Motor stall torque / Mot M_standstill		
SERVO_828, SERVO_COMBI	Changeable: C2(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 7_4	Unit selection: p0100
	Not for motor type: ASM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: 0.00 [Nm]	Max: 100000.00 [Nm]	Default: 0.00 [Nm]
Description:	Sets the standstill (stall) torque for rotating synchronous motors (p0300 = 2xx).		

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

This parameter is not used for induction motors (p0300 = 1xx).
This parameter value is not evaluated from a control-related perspective.

p0320[0...n]	Motor rated magnetizing current/short-circuit current / Mot I_mag_rated		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5722
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: SESM, REL	Scaling: -	Expert list: 1
	Min: 0.000 [Arms]	Max: 5000.000 [Arms]	Default: 0.000 [Arms]
Description:	<p>Induction motors: Sets the rated motor magnetizing current. For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331.</p> <p>Synchronous motors: Sets the rated motor short-circuit current.</p>		

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 magnetization current p0320 for induction motors (not for catalog motors) is reset when quick commissioning is exited with p3900 > 0.

VECTOR:

If, for induction motors, the magnetizing current p0320 is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance p0360 is changed so that the EMF r0337 remains constant.

p0322[0...n]

SERVO_828,
SERVO_COMBI

Maximum motor speed / Mot n_max

Changeable: C2(1, 3)

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.0 [rpm]

Calculation: -

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

210000.0 [rpm]

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.0 [rpm]

Description:

Sets the maximum motor speed.

Dependency:

See also: p1082, r1082

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. If p0322 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

The parameter has no significance for a value of p0322 = 0.

p0322[0...n]

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Maximum motor speed / Mot n_max

Changeable: C2(1, 3)

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.0 [rpm]

Calculation: -

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

260000.0 [rpm]

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.0 [rpm]

Description:

Sets the maximum motor speed.

Dependency:

See also: p1082, r1082

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. If p0322 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

The parameter has no significance for a value of p0322 = 0.

p0323[0...n]	Maximum motor current / Mot I_max		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5722
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, RESM	Scaling: -	Expert list: 1
	Min: 0.00 [Arms]	Max: 20000.00 [Arms]	Default: 0.00 [Arms]
Description:	Sets the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).		

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.
If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

Note

The parameter has no effect for induction motors.
For synchronous motors, a value must always be entered for the maximum motor current.
p0323 is a motor data. The user-selectable current limit is entered into p0640.

p0324[0...n]	Winding maximum speed / Winding n_max		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [rpm]	Max: 210000.0 [rpm]	Default: 0.0 [rpm]
Description:	Sets the maximum speed for the winding. The following applies when calculating the maximum speed (p1082): - for p0324 = 0 or p0532 = 0, p0322 is used. - for p0324 > 0 and p0532 > 0, the minimum value from the two parameters is used.		
Dependency:	See also: p0322, p0532, p1082, r1082		

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.
If p0324 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3).

p0325[0...n]	Motor pole position identification current 1st phase / Mot PolID I 1st ph		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.000 [Arms]	Max: 10000.000 [Arms]	Default: 0.000 [Arms]
Description:	Sets the current for the 1st phase of the two-stage technique for pole position identification routine. The current of the 2nd phase is set in p0329. The two-stage technique is selected with p1980 = 4.		
Dependency:	See also: p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992 See also: F07995		

NOTICE

When the motor code (p0301) is changed, it is possible that p0325 is not pre-assigned. p0325 can be pre-assigned using p0340 = 3.

Note

The value is automatically pre-assigned for the following events:
 - For p0325 = 0 and automatic calculation of the closed-loop control parameters (p0340 = 1, 2, 3).
 - for quick commissioning (p3900 = 1, 2, 3).

p0326[0...n]

SERVO_828,
SERVO_COMBI

Motor stall torque correction factor / Mot M_stall_corr

Changeable: C2(3), T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: SESM, REL, RESM	Scaling: -	Expert list: 1
Min: 5 [%]	Max: 300 [%]	Default: 60 [%]

Description:

Sets the correction factor for the stall torque/force at a 600 V DC link voltage.

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

When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).
 The reference value for this parameter is inversely proportional to the leakage inductance of the motor (p0353, p0354, p0356).
 The following applies for firmware version 2.6 SP2 and higher:
 If leakage inductances are changed for motor data identification, the value in p0326 is automatically adapted to maintain the stall torque.

p0327[0...n]

SERVO_828,
SERVO_COMBI

Optimum motor load angle / Mot phi_load opt

Changeable: C2(3), T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5722, 6721
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: ASM, SESM, RESM	Scaling: -	Expert list: 1
Min: 0.0 [°]	Max: 135.0 [°]	Default: 90.0 [°]

Description:

Sets the optimum load angle for synchronous motors with reluctance torque (e.g. 1FE motors).
 SERVO: The load angle is measured at 1.5 x rated motor current.
 VECTOR: The load angle is measured at the rated motor current.

Dependency:

See also: r1947

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

This parameter has no significance for induction motors.
 For synchronous motors without reluctance torque, a angle of 90 degrees must be set.
 When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (p0300).

p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: -1000.00 [mH]	Max: 1000.00 [mH]	Default: 0.00 [mH]
Description:	Sets the reluctance torque constant for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction motors.		
Dependency:	See also: r1939		

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

For synchronous motors without reluctance torque, the value 0 must be set.

p0329[0...n]	Motor pole position identification current / Mot PolID current		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]
Description:	Sets the current for the pole position identification routine (p1980 = 1). For a two-stage technique (p1980 = 4), the current is set for the 2nd phase. The current for the 1st phase is set in p0325.		
Dependency:	The following applies for vector drives: If a maximum current (p0323) was not parameterized, then p0329 is limited to the rated motor current. See also: p0325, p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992 See also: F07995		

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.

r0330[0...n]	Rated motor slip / Mot slip_rated		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: - [Hz]	Max: - [Hz]	Default: - [Hz]
Description:	Displays the rated motor slip.		
Dependency:	The rated slip is calculated from the rated frequency, rated speed and number of pole pairs. See also: p0310, p0311, r0313, p0313		

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		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5722, 6722, 6724
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: SESM, REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [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.		
	Note In the case of multi-motor operation r0331 is increased by the factor p0306 compared to p0320.		

r0332[0...n]	Rated motor power factor / Mot cos phi rated		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the rated power factor for induction motors. For IEC motors, the following applies (p0100 = 0): For p0308 = 0, the internally-calculated power factor is displayed. For p0308 > 0, this value is displayed. For NEMA motors, the following applies (p0100 = 1, 2): For p0309 = 0, the internally-calculated power factor is displayed. For p0309 > 0, this value is converted into the power factor and displayed.		
Dependency:	If p0308 is not entered, the parameter is calculated from the rating plate parameters.		
	Note The parameter is not used for synchronous motors (p0300 = 2xx).		

r0333[0...n]	Rated motor torque / Mot M_rated		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 7_4	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Displays the rated motor torque.		
Dependency:	IEC drives (p0100 = 0): unit Nm NEMA drives (p0100 = 1): unit lbf ft		

Note

For induction and reluctance motors, r0333 is calculated from p0307 and p0311.

For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed.

In the case of multi-motor operation r0333 is increased by the factor p0306 compared to the rated torque of an individual motor.

r0334[0...n]**Actual motor-torque constant / Mot kT act**

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: MDS, p0130

Function plan: -

P group: Motor

Unit group: 28_1

Unit selection: p0100

Not for motor type: ASM, SESM, REL, RESM

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [Nm/A]

- [Nm/A]

- [Nm/A]

Description:

Displays the torque constant of the synchronous motor used.

Dependency:

IEC drives (p0100 = 0): unit Nm / A

NEMA drives (p0100 = 1): unit lbf ft / A

See also: p0316

Note

This parameter is not used for induction motors (p0300 = 1xx).

For synchronous motors, parameter r0334 = p0316 is displayed. For p0316 = 0, r0334 is calculated from p0305 and p0312.

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

SERVO_828,
SERVO_COMBI

Changeable: C2(1, 3), T

Calculation: -

Access level: 1

Data type: Integer16

Dynamic index: MDS, p0130

Function plan: -

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: PMSM, SESM, REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

128

0

Description:

Sets the motor cooling system used.

Value:

0: Natural ventilation
1: Forced cooling
2: Liquid cooling
4: Natural ventilation and internal fan
5: Forced cooling and internal fan
6: Liquid cooling and internal fan
128: No fan

Dependency:

For 1LA5 and 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.

1LA1 and 1LA8 motors are characterized by the fact that they have an internal rotor fan. This "internal cooling" lies within the motor frame and is not visible. Air is not directly exchanged with the motor ambient air.

For 1PQ8 motors, p0335 should be set to 5 as these motors are force-ventilated motors.

The setting p0335 = 128 applies for 1LA7 motors, frame size 56 (these are operated without a fan).

r0336[0...n] SERVO_828, SERVO_COMBI	Actual rated motor frequency / Mot f_{rated act}		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [Hz]	Max: - [Hz]	Default: - [Hz]
Description:	Displays the rated frequency of the motor. For p0310 > 0, this value is displayed.		
Dependency:	See also: p0311, p0314		

Note
For p0310 = 0 or for synchronous motors, the rated motor frequency r0336 is calculated from the rated speed and the pole pair number.
For p0310 > 0, this value is displayed (not for synchronous motors).

r0337[0...n] SERVO_828, SERVO_COMBI	Rated motor EMF / Mot EMF_{rated}		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: REL, RESM	Scaling: -	Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]
Description:	Displays the rated EMF of the motor.		

Note
EMF: Electromotive force

p0338[0...n] SERVO_828, SERVO_COMBI	Motor limit current / Mot I_{limit}		
	Changeable: C2(1, 3)	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]
Description:	Sets the motor limit current for synchronous motors (for a 600 V DC link voltage). Using this current, the maximum torque is achieved at the rated speed (voltage limit characteristic).		

Dependency: If p0338 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).

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.

r0339[0...n] SERVO_828, SERVO_COMBI	Rated motor voltage / Mot U_{rated}		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]
Description:	Displays the rated motor voltage.		

Note

For induction motors (p0300 = 1xx) the parameter is set to p0304.

For synchronous motors, parameter r0339 = p0304 is displayed. If p0304 = 0, then r0339 is calculated from p0305 and p0316.

p0340[0...n]

HLA_828

Automatic parameter calculation / Auto par calc**Changeable:** C2(1, 3), T**Data type:** Unsigned16**P group:** Motor**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** DDS, p0180**Unit group:** -**Scaling:** -**Max:**

-

Access level: 2**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0000 0000 bin

Description:

Setting to automatically calculate the corresponding values from the valve, cylinder and system data.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Preassign reference values	Yes	No	-
01	Preassign loop gain and natural frequencies	Yes	No	-
02	Preassign characteristic values	Yes	No	-
03	Preassign controller values	Yes	No	-
04	Preassign limit values	Yes	No	-

NOTICE

The following parameters are influenced using p0340:

p0340.0 = 1:

- p2000 ... p2003

p0340.1 = 1:

- p0350 ... p0354, p1475, p1570 ... p1572, p1700, p1830, p1831, p3998

p0340.2 = 1:

- p1833, p1834, p1836, p1837, p1839 ... p1848

p0340.3 = 1:

- p1400.5, p1433, p1434, p1460 ... p1467, p1715 ... p1719, p1820

p0340.4 = 1:

- p1082, p1083, p1086, p1520, p1521, p1532, p1850, p1851, p2162, p2177

Note

When quick commissioning is exited using p3900 = 3, p0340 is automatically called = 1 1111 bin.

At the end of the calculations, p0340 is automatically set to 0.

p0340[0...n]SERVO_828,
SERVO_COMBI**Automatic calculation motor/control parameters / Calc auto par****Changeable:** C2(3), T**Data type:** Integer16**P group:** Motor**Not for motor type:** -**Min:**

0

Calculation: -**Dynamic index:** DDS, p0180**Unit group:** -**Scaling:** -**Max:**

5

Access level: 2**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0

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.

The following parameters are influenced using p0340:

The parameters designated with (*) are not overwritten for catalog motors (p0300 > 100).

SERVO:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (*)

--> p0342, p0344, p0600, p0640, p1082, p2000, p2001, p2002, p2003, p2005, p2007

p0340 = 2:

--> p0350 (*), p0354 (*), p0356 (*), p0358 (*), p0360 (*)

--> p0625 (matching p0350), p0626 ... p0628

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0325 (is only calculated for p0325 = 0)

--> p0348 (*) (is only calculated for p0348 = 0)

--> p0441, p0442, p0443, p0444, p0445 (only for 1FT6, 1FK6, 1FK7 motors)

--> p0492, p1082, p1980, p1319, p1326, p1327, p1612, p1752, p1755

p0340 = 4:

--> p0118, p1441, p1460, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1596, p1656, p1657, p1658, p1659, p1715, p1717

--> p1461 (for p0348 > p0322, p1461 is set to 100 %)

--> p1463 (for p0348 > p0322, p1463 is set to 400 %)

p0340 = 5:

--> p1037, p1038, p1520, p1521, p1530, p1531, p2140 ... p2142, p2148, p2150, p2155, p2161 ... p2164, p2175, p2177, p2194, p3820 ... p3829

VECTOR:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (*)

--> p0342, p0344, p0600, p0640, p1082, p1145, p1231, p1232, p1333, p1349, p1360, p1362, p1441, p1442, p1576, p1577, p1609, p1610, p1611, p1619, p1620, p1621, p1654, p1726, p1825, p1828 ... p1832, p1901, p1909, p1959, p2000, p2001, p2002, p2003, p2005, p2007, p3806, p3927, p3928

p0340 = 2:

--> p0350 (*), p0354 ... p0361 (*), p0652 ... p0660

--> p0625 (matching p0350)

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0346, p0347, p0492, p0622, p1262, p1320 ... p1327, p1582, p1584, p1612, p1616, p1744, p1748, p1749, p1755, p1756, p2178

p0340 = 4:

--> p1290, p1292, p1293, p1299, p1338, p1339, p1340, p1341, p1345, p1346, p1460, p1461, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1600, p1628, p1629, p1630, p1643, p1703, p1715, p1717, p1740, p1756, p1757, p1760, p1761, p1764, p1767, p1780, p1781, p1783, p1785, p1786, p1795, p7036, p7037, p7038

p0340 = 5:

--> p0260 ... p0264, p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1750, p1802, p1803, p2140, p2142, p2148, p2150, p2161 ... p2164, p2175, p2177, p2194, p3207, p3208, p3236, p3237, p3806, p3815, p3820 ... p3829

Note

The calculation is not performed, if the power unit is deactivated.

p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5 without overwriting the motor parameters from the Siemens motor lists (p0301 > 0).

p0340 = 2 calculates the motor parameters (p0350 ... p0360), but only if it does not involve a Siemens catalog motor (p0301 = 0).

p0340 = 3 contains the calculations of p0340 = 4, 5.

p0340 = 4 only calculates the controller parameters.

p0340 = 5 only calculates the controller limits.

When quick commissioning is exited using p3900 > 0, p0340 is automatically set to 1.

At the end of the calculations, p0340 is automatically set to 0.

If the STARTER commissioning software writes a 3 into p0340 when "downloading to target device", then this corresponds to a "complete calculation of the motor/control parameters without equivalent circuit diagram data". The same calculations are carried out as for p0340 = 1, however, without the equivalent circuit diagram parameters of the motor (p0340 = 2), the motor moment of inertia (p0341) and the motor mass (p0344).

For third-party linear synchronous motors (p0300 = 4) equivalent circuit diagram data are not calculated (p0340 = 2).

p0340

A_INF_828,
S_INF_828,
S_INF_COMBI

Automatic calculation control parameters / Calc auto par

Changeable: T

Data type: Integer16

P group: Closed-loop control

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

2

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Setting to reset and automatically calculate filter and control (closed-loop) parameters.

Value:

0: No calculation

1: Complete re-calculation of control parameters with COMM data

2: Reset control 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.

The following parameters are influenced using p0340:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2

--> p3421 = p0223, p0225

--> p3422 = p0227

--> p3424 = p0225

--> p3415, p3425, p3555, p3614, p3620, p3622 are reset to the factory settings dependent on the particular unit.

p0340 = 2:

--> p3560, p3562, p3564, p3603, p3615 and p3617 are reset to the factory setting.

For S_INF, these control parameters are not available.

Note

When quick commissioning is exited using p3900 > 0, p0340 is automatically set to 1.

At the end of the calculations, p0340 is automatically set to 0.

p0341[0...n]

HLA_828

Cylinder weight / Cyl weight

Changeable: C2(1, 3), T, U

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.000000 [kg]

Calculation: -

Dynamic index: MDS, p0130

Unit group: 27_1

Scaling: -

Max:

10000.000000 [kg]

Access level: 3

Function plan: -

Unit selection: p0100

Expert list: 1

Default:

0.000000 [kg]

Description: Sets the inertia mass.

p0341[0...n]	Motor moment of inertia / Mot M_mom of inert		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5042, 5210, 6020, 6030, 6031
	P group: Motor	Unit group: 25_1	Unit selection: p0100
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000000 [kgm ²]	Max: 100000.000000 [kgm ²]	Default: 0.000000 [kgm ²]

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.
 See also: p0342, r0345, p0345

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
 SERVO:
 p0341 * p0342 + p1498 influence the speed/torque pre-control in encoderless operation.
 VECTOR:
 The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5042, 5210, 6020, 6030, 6031
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 1.000	Max: 10000.000	Default: 1.000

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.
 See also: p0341, r0345, p0345, p1498

Note
 SERVO:
 p0341 * p0342 + p1498 influence the speed/torque pre-control in encoderless operation.
 VECTOR:
 The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

p0343[0...n]	Valve/cylinder configuration / Valve/cyl config		
HLA_828	Changeable: C2(1, 3)	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0000 bin

Description: Sets the configuration for valve and cylinder.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Valve/cylinder connection configuration	Valve A at cyl B	Valve A at cyl A	-
	01	Cylinder mounting type	Piston rod	Cylinder	-

p0344[0...n] Cylinder mounting position A side / Cyl mount pos A

HLA_828	Changeable: C2(3), T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -90.0 [°]	Max: 90.0 [°]	Default: 0.0 [°]

Description: Adjustment of the mounting position referred to the A side of the cylinder.

Note

The mounting position specifies to what extent the forces due to weight of the moved mass is taken into account when calculating the loop gain and the maximum retraction/extension.

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

SERVO_828, SERVO_COMBI	Changeable: C2(3), T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 27_1	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [kg]	Max: 50000.0 [kg]	Default: 0.0 [kg]

Description: Sets the motor weight.

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

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 model of the induction motor.
The parameter is not used for synchronous motors (p0300 = 2xx).

p0345[0...n] Required damping controlled axis / Damped ctrl axis

HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.200	Max: 2.000	Default: 0.700

Description: Sets the required damping for the controlled axis.
With this value, for "Calculate controller data", the control loop (gain, integral time, rate time) is calculated.

p0346[0...n]	Line length A side / Line length A		
HLA_828	Changeable: C2(3), T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [mm]	Max: 10000.0 [mm]	Default: 0.0 [mm]
Description:	Sets the hydraulic line length on the A side.		
Dependency:	See also: p0347		

p0347[0...n]	Line length B side / Line length B		
HLA_828	Changeable: C2(3), T	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [mm]	Max: 10000.0 [mm]	Default: 0.0 [mm]
Description:	Sets the hydraulic line length on the B side.		
Dependency:	See also: p0346		

p0347[0...n]	Motor de-excitation time / Mot t_de-excitat		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [s]	Max: 20.000 [s]	Default: 0.000 [s]
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. For SERVO, the de-excitation time is only used for DC current braking.		

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).

p0348[0...n]	Internal line diameter / Line_inner diam		
HLA_828	Changeable: C2(3), T	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [mm]	Max: 100.0 [mm]	Default: 5.0 [mm]
Description:	Sets the internal line diameter for the A and B sides.		

p0348[0...n]	Speed at the start of field weakening Vdc = 600 V / n_strt field weak		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5722
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [rpm]	Max: 210000.0 [rpm]	Default: 0.0 [rpm]
Description:	Sets the speed at the start of field weakening for a DC link voltage of 600 V.		
Dependency:	See also: p0320, r0331		

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.

p0349	System of units motor equivalent circuit diagram data / Unit_sys mot ESB		
SERVO_828, SERVO_COMBI	Changeable: C2(3)	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 2	Default: 1
Description:	Sets the actual system of units for motor equivalent circuit diagram data.		
Value:	1: System of units, physical 2: System of units, referred		
Dependency:	The parameter can only be changed in an offline project using the commissioning software. See also: p0304, p0305, p0310		

Note

The reference parameter for resistances of the rated motor impedance $Z = p0304 / (1.732 * p0305)$ is in the % units system.

Inductances are converted into a resistance using the factor $2 * \text{Pi} * p0310$.

If a reference parameter (p0304, p0305, p0310) is zero, then it is not possible to make a changeover to "referred" values (per unit values).

p0350[0...n]	Damping uncontrolled axis / Damp unctrl axis		
HLA_828	Changeable: C2(3), T	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.010	Max: 2.000	Default: 0.100
Description:	Sets the damping for the uncontrolled axis.		

p0350[0...n]	Motor stator resistance cold / Mot R_stator cold		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 16_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [ohm]	Max: 2000.00000 [ohm]	Default: 0.00000 [ohm]
Description:	Sets the stator resistance of the motor at ambient temperature p0625 (phase value).		

Dependency: See also: p0625, r1912

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).

p0351[0...n] **Piston position natural frequency minimum / Piston pos fn min**
 HLA_828
Changeable: C2(3), T **Calculation:** CALC_MOD_EQU **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Motor **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.0 [mm] 3000.0 [mm] 0.0 [mm]


Description: Sets the piston position for minimum natural frequency.

p0352[0...n] **Axis natural frequency A side / Axis fn A**
 HLA_828
Changeable: C2(3), T **Calculation:** CALC_MOD_EQU **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Motor **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 1.0 [Hz] 2000.0 [Hz] 1.0 [Hz]

Description: Sets the natural frequency for the axis on the A side.

p0352[0...n] **Cable resistance / R_cable**
 SERVO_828,
 SERVO_COMBI
Changeable: C2(3), T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -
P group: Motor **Unit group:** 16_1 **Unit selection:** p0349
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00000 [ohm] 120.00000 [ohm] 0.00000 [ohm]

Description: Resistance of the power cable between the Motor Module 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 routine does not change the cable resistance. This is subtracted from the total measured stator resistance in order to calculate the stator resistance (p0350, p0352).
 The cable resistance is reset when quick commissioning is exited with p3900 > 0.

p0353[0...n]	Axis natural frequency center / Axis fn center		
HLA_828	Changeable: C2(3), T	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1.0 [Hz]	Max: 2000.0 [Hz]	Default: 1.0 [Hz]
Description:	Sets the axis natural frequency at the center position.		
p0353[0...n]	Motor series inductance / Mot L_series		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 15_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [mH]	Max: 1000000.000 [mH]	Default: 0.000 [mH]
Description:	Sets the series inductance.		
	Note		
	For the automatic calculation with p0340 = 1 or 3, the calculation of p0348 is influenced by p0353 if p0348 was 0.		
	For the automatic calculation with p0340 = 1, 3 or 4, the calculation of p1715 is influenced by p0353.		
	The series inductance is reset when quick commissioning is exited with p3900 > 0.		
	The reference value for p0326 is inversely proportional to the leakage inductance of the motor (p0353, p0354, p0356).		
p0354[0...n]	Axis natural frequency B side / Axis fn B		
HLA_828	Changeable: C2(3), T	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: RESM	Scaling: -	Expert list: 1
	Min: 1.0 [Hz]	Max: 2000.0 [Hz]	Default: 1.0 [Hz]
Description:	Sets the natural frequency for the axis on the B side.		
p0354[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold/R_D d		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 16_1	Unit selection: p0349
	Not for motor type: PMSM, REL, RESM	Scaling: -	Expert list: 1
	Min: 0.00000 [ohm]	Max: 300.00000 [ohm]	Default: 0.00000 [ohm]
Description:	Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625.		
	For separately-excited synchronous motors: Sets the damping resistance in the rotor direction (d-axis).		
	This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor data identification routine (p1910) (not for separately-excited synchronous motors).		
Dependency:	See also: 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 parameter is not used for synchronous motors (p0300 = 2xx).
 The reference value for p0326 is inversely proportional to the leakage inductance of the motor (p0353, p0354, p0356).

p0356[0...n]

Motor stator leakage inductance / Mot L_stator leak.

SERVO_828,
 SERVO_COMBI

Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: 15_1	Unit selection: p0349
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00000 [mH]	Max: 1000.00000 [mH]	Default: 0.00000 [mH]

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

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 reference value for p0326 is inversely proportional to the leakage inductance of the motor (p0353, p0354, p0356).

p0358[0...n]

Motor rotor leakage inductance / damping inductance d axis / Mot L_r leak / LDd

SERVO_828,
 SERVO_COMBI

Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: 15_1	Unit selection: p0349
Not for motor type: PMSM, REL, RESM	Scaling: -	Expert list: 1
Min: 0.00000 [mH]	Max: 1000.00000 [mH]	Default: 0.00000 [mH]

Description: Sets the rotor/secondary section leakage inductance of the motor.
 For separately-excited synchronous motors: Sets the damping inductance in the rotor direction (d-axis).
 This value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).

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 is not used for synchronous motors (p0300 = 2xx).
 VECTOR:
 If the rotor leakage inductance (p0358) for induction motors is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). You are then advised to repeat the measurement for the saturation characteristic (p1960).

p0360[0...n]

Motor magnetizing inductance/magn. inductance d axis saturated / Mot Lh/Lh d sat

SERVO_828,
 SERVO_COMBI

Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: 15_1	Unit selection: p0349
Not for motor type: PMSM, REL, RESM	Scaling: -	Expert list: 1
Min: 0.00000 [mH]	Max: 10000.00000 [mH]	Default: 0.00000 [mH]

Description: Sets the magnetizing inductance of the motor.
 For separately-excited synchronous motors: Sets the saturated magnetizing inductance in the rotor direction (d-axis).
 This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).

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

r0370[0...n] **Motor stator resistance cold / Mot R_stator cold**
 SERVO_828 **Changeable:** - **Calculation:** - **Access level:** 4
 Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -
 P group: Motor **Unit group:** 16_1 **Unit selection:** p0349
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - [ohm] - [ohm] - [ohm]

Description: Displays the motor stator resistance at an ambient temperature (p0625).
 The value does not include the cable resistance.

Dependency: See also: p0625

r0373[0...n] **Motor rated stator resistance / Mot R_stator rated**
 SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 4
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -
 P group: Motor **Unit group:** 16_1 **Unit selection:** p0349
 Not for motor type: PMSM, SESM, REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - [ohm] - [ohm] - [ohm]

Description: Displays the rated motor stator resistance at rated temperature (total of p0625 and p0627).

Dependency: See also: p0627

Note

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

r0374[0...n] **Motor rotor resistance cold / damping resistance d axis / Mot R_r cold/R_D d**
 SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 4
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** -
 P group: Motor **Unit group:** 16_1 **Unit selection:** p0349
 Not for motor type: PMSM, REL, RESM **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - [ohm] - [ohm] - [ohm]

Description: Displays the rotor/secondary section resistance of the motor for the ambient temperature p0625.
 For separately-excited synchronous motors:
 Displays the damping resistance in the rotor direction (d-axis).

Dependency: See also: p0625

Note

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

r0376[0...n] SERVO_828, SERVO_COMBI	Rated motor rotor resistance / Mot rated R_rotor		
	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 16_1	Unit selection: p0349
	Not for motor type: PMSM, SESM, REL, RESM	Scaling: -	Expert list: 1
	Min: - [ohm]	Max: - [ohm]	Default: - [ohm]
Description:	Displays the nominal rotor / secondary section resistance of the motor at the rated temperature. The rated temperature is the sum of p0625 and p0628.		
Dependency:	See also: p0628		

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

r0377[0...n] SERVO_828	Motor leakage inductance total / Mot L_leak total		
	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 6640
	P group: Motor	Unit group: 15_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [mH]	Max: - [mH]	Default: - [mH]

Description: Displays the total stray inductance of the motor.
Induction motor:
Displays the stator leakage inductance of the motor including the series inductance (p0353).
Synchronous motor:
Displays the stator quadrature axis inductance of the motor including the series inductance (p0353).

r0382[0...n] SERVO_828, SERVO_COMBI	Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat		
	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: 15_1	Unit selection: p0349
	Not for motor type: PMSM, REL, RESM	Scaling: -	Expert list: 1
	Min: - [mH]	Max: - [mH]	Default: - [mH]

Description: Displays the magnetizing inductance of the motor.
For separately-excited synchronous motors:
Displays the saturated magnetizing inductance in the rotor direction (d-axis).

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

r0384[0...n] SERVO_828, SERVO_COMBI	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd		
	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 6722
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL, RESM	Scaling: -	Expert list: 1
	Min: - [ms]	Max: - [ms]	Default: - [ms]

Description: Displays the rotor time constant.
For separately-excited synchronous motors:
Displays the damping time constant to the rotor direction (d axis).

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/damping 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}**

SERVO_828

Changeable: -**Calculation:** -**Access level:** 4**Data type:** FloatingPoint32**Dynamic index:** MDS, p0130**Function plan:** -**P group:** Motor**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

- [ms]

- [ms]

- [ms]

Description:

Displays the stator leakage time constant.

Note

The value is calculated from the total of all leakage inductances (p0233*, p0353, p0356, p0358) divided by the total of all motor resistances (p0350, p0352, p0354). The temperature adaptation of the resistances is not taken into account.

* only applies for VECTOR (r0107).

p0391[0...n]**Current controller adaptation starting point KP / I_{adapt pt KP}**SERVO_828,
SERVO_COMBI**Changeable:** C2(3), T, U**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** MDS, p0130**Function plan:** 5714**P group:** Motor**Unit group:** -**Unit selection:** -**Not for motor type:** REL**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.00 [Arms]

6000.00 [Arms]

0.00 [Arms]

Description:

Sets the starting point of the current-dependent current controller adaptation where the current controller gain p1715 is effective.

Dependency:

See also: p0392, p0393, p1402, p1715

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

For p0393 = 100 % or p1402.2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

p0392[0...n]**Current controller adaptation starting point KP adapted / I_{adapt pt KP adap}**SERVO_828,
SERVO_COMBI**Changeable:** C2(3), T, U**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** MDS, p0130**Function plan:** 5714**P group:** Motor**Unit group:** -**Unit selection:** -**Not for motor type:** REL**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.00 [Arms]

6000.00 [Arms]

0.00 [Arms]

Description:

Sets the starting point of the current-dependent current controller adaptation where the adapted current controller gain p1715 x p0393 is effective.

Dependency:

See also: p0391, p0393, p1402, p1715

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

For p0393 = 100 % or p1402.2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

p0393[0...n]

SERVO_828,
SERVO_COMBI

Current controller adaptation p gain adaptation / I_adapt Kp adapt

Changeable: C2(3), T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 5714
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [%]	Max: 1000.00 [%]	Default: 100.00 [%]

Description: Sets the factor for the current controller P gain in the adaptation range (current > p0392).
The value is referred to p1715.

Dependency: See also: p0391, p0392, p1402, p1715

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

For p0393 = 100 % or p1402.2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

r0395[0...n]

SERVO_828,
SERVO_COMBI

Actual stator resistance / R_stator act

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 6301, 6730, 6731, 6732
P group: Motor	Unit group: 16_1	Unit selection: p0349
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [ohm]	Max: - [ohm]	Default: - [ohm]

Description: Displays the actual stator resistance (phase value).
The parameter value also contains the temperature-independent cable resistance.

Dependency: In the case of induction motors the parameter is also affected by the motor temperature model.
See also: p0350, p0352, p0620

Note

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]

SERVO_828,
SERVO_COMBI

Actual rotor resistance / R_rotor act

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 6730
P group: Motor	Unit group: 16_1	Unit selection: p0349
Not for motor type: PMSM, SESM, REL, RESM	Scaling: -	Expert list: 1
Min: - [ohm]	Max: - [ohm]	Default: - [ohm]

Description: Displays the actual rotor/secondary section resistance (phase value).
The parameter is affected by the motor temperature model.

Dependency: See also: p0354, p0620

Note

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).

p0400[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Encoder type selection / Enc_typ sel

Changeable: C2(1, 4)

Data type: Integer16

P group: Encoder

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

10100

Access level: 1

Function plan: 4700, 4704

Unit selection: -

Expert list: 1

Default:

0

Description:

Selects the encoder from the list of encoder types supported.

Value:

0: No encoder
 202: DRIVE-CLiQ encoder AS20, singleturn
 204: DRIVE-CLiQ encoder AM20, multiturn 4096
 242: DRIVE-CLiQ encoder AS24, singleturn
 244: DRIVE-CLiQ encoder AM24, multiturn 4096
 1001: Resolver 1 speed
 1002: Resolver 2 speed
 1003: Resolver 3 speed
 1004: Resolver 4 speed
 2001: 2048, 1 Vpp, A/B C/D R
 2002: 2048, 1 Vpp, A/B R
 2003: 256, 1 Vpp, A/B R
 2004: 400, 1 Vpp, A/B R
 2005: 512, 1 Vpp, A/B R
 2006: 192, 1 Vpp, A/B R
 2007: 480, 1 Vpp, A/B R
 2008: 800, 1 Vpp, A/B R
 2010: 18000, 1 Vpp, A/B R distance-coded
 2012: 420, 1 Vpp, A/B R
 2013: 675, 1 Vpp, A/B R
 2051: 2048, 1 Vpp, A/B, EnDat, Multiturn 4096
 2052: 32, 1 Vpp, A/B, EnDat, Multiturn 4096
 2053: 512, 1 Vpp, A/B, EnDat, Multiturn 4096
 2054: 16, 1 Vpp, A/B, EnDat, Multiturn 4096
 2055: 2048, 1 Vpp, A/B, EnDat, Singleturn
 2081: 2048, 1 Vpp, A/B, SSI, Singleturn
 2082: 2048, 1 Vpp, A/B, SSI, Multiturn 4096
 2083: 2048, 1 Vpp, A/B, SSI, singleturn, error bit
 2084: 2048, 1 Vpp, A/B, SSI, multiturn 4096, error bit
 2110: 4000 nm, 1 Vpp, A/B R distance-coded
 2111: 20000 nm, 1 Vpp, A/B R distance-coded
 2112: 40000 nm, 1 Vpp, A/B R distance-coded
 2151: 16000 nm, 1 Vpp, A/B, EnDat, resolution 100 nm
 3001: 1024 HTL A/B R
 3002: 1024 TTL A/B R
 3003: 2048 HTL A/B R

- 3005: 1024 HTL A/B
- 3006: 1024 TTL A/B
- 3007: 2048 HTL A/B
- 3008: 2048 TTL A/B
- 3009: 1024 HTL A/B unipolar
- 3011: 2048 HTL A/B unipolar
- 3020: 2048 TTL A/B R, with sense
- 3081: SSI, Singleturn, 24 V
- 3082: SSI, Multiturn 4096, 24 V
- 3090: 4096, HTL, A/B, SSI, Singleturn
- 3109: 2000 nm, TTL, A/B R distance-coded
- 9999: User-defined
- 10000: Identify encoder
- 10050: Encoder with EnDat2.x interface identified
- 10051: DRIVE-CLiQ encoder identified
- 10058: Digital encoder (absolute) identified
- 10059: Digital encoder (incremental) identified
- 10100: Identify encoder (waiting)

NOTICE

An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list. When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to a third-party encoder (p0400 = 9999).

Note

The connected encoder can be identified by setting p0400 to 10000 or 10100. This assumes that the encoder supports this method, which is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface, DRIVE-CLiQ encoder, encoder with SSI interface (only 10100)..

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using a zero mark. If, for a synchronous motor, fine synchronization is to be realized using a zero mark, then the following must be executed:

- set p0400 to 9999
- set p0404.15 to 1

Prerequisite:

Coarse synchronization must be selected (e.g. pole position identification) and the zero pulse of the encoder must be either mechanically or electronically (p0431) adjusted to the pole position.

For p0400 = 10000 the following applies:

If an identification is not possible, then p0400 is set to 0.

For p0400 = 10100 the following applies:

If an identification is not possible, p0400 remains set to 10100 until it becomes possible.

p0401[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Encoder type OEM selection / Enc type OEM sel

Changeable: C2(1, 4)

Data type: Integer16

P group: Encoder

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

32767

Access level: 2

Function plan: 4700, 4704

Unit selection: -

Expert list: 1

Default:

0

Description:

Selects the encoder from the list of encoder types that the OEM supports.

Note

The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

Using p0400 = 20000, the encoder type can be selected from the list of OEM encoders using p0401.

p0402[0...n]	Gearbox type selection / Gearbox type sel			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(1, 4)	Calculation: -	Access level: 1	
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: 1	Max: 10100	Default: 9999	
Description:	Selects the gearbox type to pre-set the inversion and the gearbox factor. Measuring gear factor = motor or load revolutions / encoder revolutions.			
Value:	1: Gearbox 1:1 not inverted 2: Gearbox 2:7 inverted 3: Gearbox 4:17 inverted 4: Gearbox 2:10 inverted 9999: Gearbox user-defined 10000: Identify gearbox 10100: Identify gearbox			
Dependency:	See also: p0410, p0432, p0433			
	Note			
	For p0402 = 1: Automatic setting of p0410 = 0000 bin, p0432 = 1, p0433 = 1. For p0402 = 2: Automatic setting of p0410 = 0011 bin, p0432 = 7, p0433 = 2. For p0402 = 3: Automatic setting of p0410 = 0011 bin, p0432 = 17, p0433 = 4. For p0402 = 4: Automatic setting of p0410 = 0011 bin, p0432 = 10, p0433 = 2. For p0402 = 9999: No automatic setting of p0410, p0432, p0433. The parameters should be manually set. For p0402 = 10000: It is only possible to identify the gearbox type for a motor with DRIVE-CLiQ. Parameters p0410, p0432 and p0433 are set corresponding to the identified gearbox. If an identification is not possible, then p0402 is set to 9999.			
p0404[0...n]	Encoder configuration effective / Enc_config eff			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4010, 4704	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -	Max: -	Default: 0000 0000 0000 0000 0000 0000 0000 0000 bin	
Description:	Settings for the basic encoder properties.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Linear encoder	Yes	No
	01	Absolute encoder	Yes	No

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

NOTICE

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

Note

ZM: Zero mark

SMC: Sensor Module Cabinet

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

The track A/B is adjusted to match the magnetic position of the motor.

For bit 01, 02 (absolute encoder, multiturn encoder):

These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.

For bit 10 (DRIVE-CLiQ encoder):

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

For bit 12 (equidistant zero mark):

The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution or linear encoder with constant zero mark distance).

The bit activates monitoring of the zero mark distance (p0424/p0425, linear/rotary) or in the case of the linear encoder with 1 zero mark and p0424 = 0 zero mark monitoring is activated.

For bit 13 (irregular zero mark):

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

For bit 14 (distance-coded zero mark):

The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

For bit 15 (commutation with zero mark):

Only applicable for synchronous motors.

The function can be de-selected by priority via p0430.23.

For distance-coded zero marks, the following applies:

The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).

The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.

The fine synchronization is only started after two zero marks have been passed.

p0405[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Square-wave encoder track A/B / Sq-wave enc A/B

Changeable: C2(4)

Data type: Unsigned32

P group: Encoder

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 4704

Unit selection: -

Expert list: 1

Default:

0000 1111 bin

Description:

Settings for the track A/B in a square-wave encoder.

For square-wave encoders, p0404.3 must also be 1.

Bit field:

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

NOTICE

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

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note

For bit 02:

When the function is activated, track monitoring can be de-activated by setting p0437.26.

For bit 05:

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

p0407[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Linear encoder grid division / Enc grid div

Changeable: C2(4)

Data type: Unsigned32

P group: Encoder

Not for motor type: -

Min:

0 [nm]

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

250000000 [nm]

Access level: 3

Function plan: 4010, 4704

Unit selection: -

Expert list: 1

Default:

16000 [nm]

Description:

Sets the grid division for a linear encoder.

NOTICE

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

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note

The lowest permissible value is 250 nm.

p0408[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Rotary encoder pulse number / Rot enc pulse No.

Changeable: C2(4)

Data type: Unsigned32

P group: Encoder

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

16777215

Access level: 3

Function plan: 4010, 4704

Unit selection: -

Expert list: 1

Default:

2048

Description:

Sets the number of pulses for a rotary encoder.

NOTICE

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

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note

The number of pole pairs for a resolver is entered here.

The smallest permissible value is 1 pulse.

p0410[0...n]

HLA_828

Encoder inversion actual value / Enc inv act value

Changeable: C2(4)

Data type: Unsigned16

P group: Encoder

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 4965

Unit selection: -

Expert list: 1

Default:

0000 bin

Description:

Setting to invert actual values.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
------------	--------------------	-----------------	-----------------	-----------

00	Invert velocity actual value	Yes	No	4710, 4711, 4715
01	Invert position actual value	Yes	No	4704

Note

The inversion influences the following parameters:

Bit 00: r0061, r0063, r0094

Bit 01: r0482, r0483

p0410[0...n] SERVO_828, SERVO_COMBI	Encoder inversion actual value / Enc inv act value			
	Changeable: C2(4)	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: 4704, 4710, 4711, 4715	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -	Max: -	Default: 0000 bin	
Description:	Setting to invert actual values.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert speed actual value	Yes	No
				4710, 4711, 4715
	01	Invert position actual value	Yes	No
				4704
	Note			
	The inversion influences the following parameters:			
	Bit 00: r0061, r0063 (exception: encoderless control), r0094			
	Bit 01: r0482, r0483			

p0411[0...n] HLA_828, SERVO_828	Measuring gear configuration / Meas gear config			
	Changeable: C2(4)	Calculation: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4704	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -	Max: -	Default: 0000 bin	
Description:	Sets the configuration for position tracking of a measuring gear.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Measuring gear activate position tracking	Yes	No
	01	Axis type	Linear axis	Rotary axis
	02	Measuring gear reset position	Yes	No
	03	Meas. gearbox, activate pos. tracking for incremental encoders	Yes	No
				-
				-
				-

NOTICE

For p0411.3 = 1 the following applies:

If position tracking is activated for incremental encoders, only the position actual value is stored. Axis or encoder motion is not detected when de-activated! Any tolerance window entered in p0413 has no effect.

Note

For the following events, the non-volatile, saved position values are automatically reset:

- when an encoder replacement has been identified.

- when changing the configuration of the Encoder Data Set (EDS).

p0412[0...n] Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev

HLA_828, SERVO_828	Changeable: C2(4)	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4194303	0

Description: Sets the number of rotations that can be resolved for a rotary encoder with activated position tracking of the measuring gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking (p0411.0 = 1) and for an incremental encoder with activated position tracking (p0411.3 = 1).

Note

The resolution that is set must be able to be represented using r0483.

For rotary axes/modulo axes, the following applies:

p0411.0 = 1:

This parameter is pre-set with p0421 and can be changed.

p0411.3 = 1:

The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

For linear axes, the following applies:

p0411.0 = 1:

This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.

p0411.3 = 1:

The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

p0413[0...n] Measuring gear position tracking tolerance window / Pos track window

HLA_828, SERVO_828	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00	4294967300.00	0.00

Description: Sets a tolerance window for position tracking.
 After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:

Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.

Difference outside the tolerance window --> An appropriate message is output.

Dependency: See also: F31501, F32501, F33501

 **CAUTION**

Rotation, e.g. through a complete encoder range is not detected.

Note

The value is entered in integer (complete) encoder pulses.

For p0411.0 = 1, the value is automatically pre-assigned quarter of the encoder range.

Example:

Quarter of the encoder range = (p0408 * p0421) / 4

It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

p0414[0...n]	Redundant coarse position value relevant bits (identified) / Relevant bits		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	16	16
Description:	Sets the number of relevant bits for the redundant coarse position value.		

p0415[0...n]	Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	31	14
Description:	Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.		

Note

MSB: Most Significant Bit

p0416[0...n]	Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4294967295	22000
Description:	Sets the non safety-relevant measuring steps of POS1.		
Dependency:	See also: r0473, p9513		

p0417[0...n]	Encoder safety comparison algorithm (detected) / Safety comp_algo		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	255
Description:	Sets the comparison algorithm for the encoder position monitoring functions.		
Value:	0: SMx20 safety algorithm		
	10: DQL binary safety algorithm		
	11: DQL linear non-binary safety algorithm		
	12: SMC30 safety algorithm		
	255: Safety algorithm unknown		
Dependency:	See also: p9541		

p0418[0...n]	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	Function plan: 4010, 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	2	18	11

Description: Sets the fine resolution in bits of the incremental position actual values.

Note

The parameter applies for the following process data:

- Gx_XIST1
- Gx_XIST2 for reference mark or flying measurement

The fine resolution specifies the fraction between encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048).

For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information.

For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy.

p0419[0...n]	Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	Function plan: 4704, 4710
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	2	18	9

Description: Sets the fine resolution in bits of the absolute position actual values.

Dependency: See also: p0418

Note

This parameter applies to process data Gx_XIST2 when reading the absolute value.

p0420[0...n]	Encoder connection / Enc_connection		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 bin

Description: Selecting the encoder connection.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SUB-D	Yes	No	-
	01	Terminal	Yes	No	-

p0421[0...n]	Absolute encoder rotary multiturn resolution / Enc abs multiturn		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 4294967295	Default: 4096
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder.		

NOTICE

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

p0422[0...n]	Absolute encoder linear measuring step resolution / Enc abs meas step		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [nm]	Max: 4294967295 [nm]	Default: 100 [nm]
Description:	Sets the resolution of the absolute position for a linear absolute encoder.		

NOTICE

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

Note

The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here.

p0423[0...n]	Absolute encoder rotary singleturn resolution / Enc abs singleturn		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1073741823	Default: 8192
Description:	Sets the number of measuring steps per revolution for a rotary absolute encoder. The resolution refers to the absolute position.		

NOTICE

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

p0424[0...n]	Encoder linear zero mark distance / Enc lin ZM_dist		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [mm]	Max: 65535 [mm]	Default: 20 [mm]

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

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

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

p0425[0...n]	Encoder rotary zero mark distance / Enc rot dist ZM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: 4704, 8570
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 16777215	Default: 2048

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

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

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

p0426[0...n]	Encoder zero mark differential distance / Enc ZM Dif_dist		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 65535	Default: 1

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

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

p0427[0...n]	Encoder SSI baud rate / Enc SSI baud rate		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: FloatingPoint32 P group: Encoder Not for motor type: - Min: 0 [kHz]	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: 65535 [kHz]

Description: Sets the baud rate for an SSI encoder.

NOTICE

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

Note

SSI: Synchronous Serial Interface

p0428[0...n]	Encoder SSI monoflop time / Enc SSI t_monoflop		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: Unsigned16 P group: Encoder Not for motor type: - Min: 0 [µs]	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: 65535 [µs]

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

NOTICE

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

p0429[0...n]	Encoder SSI configuration / Enc SSI config		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: Unsigned16 P group: Encoder Not for motor type: - Min: -	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: -

Description: Sets the configuration for an SSI encoder.

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

NOTICE

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

Note

For bit 06:

The quiescent signal level of the data line corresponds to the inverted, set level.

p0430[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Sensor Module configuration / SM config

Changeable: C2(4)
Data type: Unsigned32
P group: Encoder
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: EDS, p0140
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
1110 0000 0000 1000 0000 0000
0000 0000 bin

Description:

Sets the configuration of the Sensor Module.

Bit field:

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

NOTICE

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

Note

For bit 17 (burst oversampling):

- if bit = 1, burst oversampling is switched on.

For bit 18 (continuous oversampling):

- if bit = 1, continuous oversampling is switched on.

For bit 19 (Safety position actual value sensing):

- if bit = 1, the Safety position actual value is transferred in the cyclic telegram.

For bit 20 (speed calculation mode):

- if bit = 1, the speed is calculated via incremental difference without extrapolation.

- if bit = 0, the speed is calculated via edge time measurement with extrapolation. p0453 is effective in this mode.

For bit 21 (zero mark tolerance):

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

For bit 22 (rotor position adaptation):

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

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

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

For bit 24 (commutation with selected zero mark):

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

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

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

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

For bit 27 (extrapolate position values):

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

For bit 28 (cubic correction):

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

For bit 29 (phase correction):

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

For bit 30 (amplitude correction):

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

For bit 31 (offset correction):

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

p0431[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Angular commutation offset / Ang_com offset

Changeable: C2(4)

Data type: FloatingPoint32

P group: Encoder

Not for motor type: -

Min:

-180.00 [°]

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

180.00 [°]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.00 [°]

Description:

Sets the angular commutation offset.

Dependency:

The value is taken into account in r0094.

See also: r0094, r1778

NOTICE

When the firmware is upgraded from V2.3 to V2.4 or higher, the value must be reduced by 60° if all the following conditions are fulfilled:

- The motor is a synchronous motor (p0300 = 2, 2xx, 4, 4xx).

- The encoder is a resolver (p0404.23 = 1).

- The actual speed value is inverted (p0410.0 = 1).

The angular commutation offset cannot be generally taken from other drive systems. As a minimum - the sign of the offset determined for SIMODRIVE 611 digital and SIMODRIVE 611 universal must be reversed for SINAMICS (p0431 (SINAMICS) = -p1016 (SIMODRIVE)).

Note

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

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

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

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

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

p0432[0...n]

Gearbox factor encoder revolutions / Grbx_fact enc_rev

HLA_828, SERVO_828	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	10000	1

Description: Sets the encoder revolutions for the gearbox factor of the encoder evaluation.
The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.
See also: p0402, p0410, p0433

Note

Negative gearbox factors should be implemented with p0410.

p0433[0...n]

Gearbox factor motor/load revolutions / Grbx_fact mot_rev

HLA_828, SERVO_828	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	10000	1

Description: Sets the motor and load revolutions for the gearbox factor of the encoder evaluation.
The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.
See also: p0402, p0410, p0432

Note

Negative gearbox factors should be implemented with p0410.

p0434[0...n]

Encoder SSI error bit / Enc SSI error bit

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0

Description: Sets the position and level of the error bit in the SSI protocol.

NOTICE

The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note

Value = dcba

ba: Position of the error bit in the protocol (0 ... 63).

c: Level (0: Low level, 1: High level).

d: Status of the evaluation (0: Off, 1: On with 1 error bit, 2: On with 2 error bits ... 9: On with 9 error bits).

For several error error bits, the following applies:

- the position specified under ba and the additional bits are assigned increasing consecutively.

- the level set under c applies to all error bits.

Example:

p0434 = 1013

--> The evaluation is switched in and the error bit is at position 13 with a low level.

p0434 = 1113

--> The evaluation is switched in and the error bit is at position 13 with a high level.

p0435[0...n]HLA_828,
SERVO_828,
SERVO_COMBI**Encoder SSI alarm bit / Enc SSI alarm bit****Changeable:** C2(4)**Data type:** Unsigned16**P group:** Encoder**Not for motor type:** -**Min:**

0

Calculation: -**Dynamic index:** EDS, p0140**Unit group:** -**Scaling:** -**Max:**

65535

Access level: 3**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the position and level of the alarm bit in the SSI protocol.

NOTICE

The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note

Value = dcba

ba: Position of the alarm bit in protocol (0 ... 63).

c: Level (0: Low level, 1: High level).

d: State of the evaluation (0: Off, 1: On).

Example:

p0435 = 1014

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

p0435 = 1114

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

p0436[0...n]HLA_828,
SERVO_828,
SERVO_COMBI**Encoder SSI parity bit / Enc SSI parity bit****Changeable:** C2(4)**Data type:** Unsigned16**P group:** Encoder**Not for motor type:** -**Min:**

0

Calculation: -**Dynamic index:** EDS, p0140**Unit group:** -**Scaling:** -**Max:**

65535

Access level: 3**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the position and parity of the parity bit in the SSI protocol.

NOTICE

The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note

Value = dcba

ba: Position of the parity bit in the protocol (0 ... 63).

c: Parity (0: even, 1: uneven).

d: State of the evaluation (0: Off, 1: On).

Example:

p0436 = 1015

--> The evaluation is switched in and the parity bit is at position 15 with even parity.

p0436 = 1115

--> The evaluation is switched in and the parity bit is at position 15 with uneven parity.

p0437[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Sensor Module configuration extended / SM config ext

Changeable: C2(4)

Data type: Unsigned32

P group: Encoder

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0011 0000 0000 0000 0000 1000
0000 0000 bin

Description:

Sets the extended configuration of the Sensor Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Support absolute position for incremental encoder	Yes	No	4750
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Deselect track monitoring	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency:

See also: p0430, r0459

Note

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

For bit 00:

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

For bit 01:

If bit = 0, the zero mark is evaluated by ANDing tracks A and B and the zero mark.

For bit = 1, the zero mark is evaluated depending on the direction of rotation detected. For a positive direction of rotation, the positive edge of the zero mark is considered and for a negative direction of rotation, the negative edge of the zero mark.

For bit 02:

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

For bits 05, 04:

The actual hardware only supports 1x or 4x signal evaluation.

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

Bit 5/4 = 1/0: Illegal setting.

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

Bit 5/4 = 1/1: Illegal setting.

For bit 06:

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

For bit 07:

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

For bit 11:

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

For bit 12:

Additional fault messages can be activated for extended fault diagnostics.

For bit 13:

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

For bit 26:

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

For bit 28:

Monitoring of the difference between incremental and absolute position in the case of linear encoders.

For bit 29:

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

For bit 31:

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

p0438[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Squarewave encoder filter time / Enc t_filt

Changeable: C2(4)

Data type: FloatingPoint32

P group: Encoder

Not for motor type: -

Min:

0.00 [µs]

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

100.00 [µs]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.64 [µs]

Description: Sets the filter time for a squarewave encoder.
 The hardware of the squarewave encoder only supports the following values:
 0: No filtering
 0.04 µs
 0.64 µs
 2.56 µs
 10.24 µs
 20.48 µs

Dependency: See also: r0452

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

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

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

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [ms]	Max: 65535 [ms]	Default: 0 [ms]

Description: Sets the ramp-up time for the encoder.
 The encoder supplies stable track signals once this time has elapsed.

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

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

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 1	Default: 0

Description: Copies the actual serial number of the encoder belonging to this Encoder Data Set (EDS) to p0441 ... p0445.
 Example:
 For p0440[0] = 1, the serial number of the encoder belonging EDS0 is copied to p0441[0] ... p0445[0].

Value:
 0: No action
 1: Transfer serial number

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464, p1990

Note

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

- 1.) When commissioning 1FT6, 1FK6, 1FK7 motors.
- 2.) When writing into p0431.
- 3.) For p1990 = 1.

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

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

p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex
Description:	Serial number part 1 of the encoder for the commissioning.		
Dependency:	See also: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 See also: F07414		

Note

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

p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex
Description:	Serial number part 2 of the encoder for the commissioning.		
Dependency:	See also: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 See also: F07414		

Note

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

p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex
Description:	Serial number part 3 of the encoder for the commissioning.		
Dependency:	See also: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464 See also: F07414		

Note

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

p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex

Description: Serial number part 4 of the encoder for the commissioning.
Dependency: See also: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464
 See also: F07414

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

p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex

Description: Serial number part 5 of the encoder for the commissioning.
Dependency: See also: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464
 See also: F07414

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

p0446[0...n]	Encoder SSI number of bits before the absolute value / Enc SSI bit before		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 65535	Default: 0

Description: Sets the number of bits before the absolute value in the SSI protocol.

NOTICE
 When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note
 This parameter is automatically pre-set for encoders from the encoder list (p0400).
 For example, error bit, alarm bit or parity bit can be positioned at these bits.

p0447[0...n]	Encoder SSI number of bits absolute value / Enc SSI bit val		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 65535	Default: 25

Description: Sets the number of bits for the absolute value in the SSI protocol.

NOTICE

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note

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

p0448[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Encoder SSI number of bits after the absolute value / Enc SSI bit after

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 65535	Default: 0

Description: Sets the number of bits after the absolute value in the SSI protocol.

NOTICE

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

Note

For example, error bit, alarm bit or parity bit can be positioned at these bits.

p0449[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Encoder SSI number of bits filler bits / Enc SSI fill bits

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 65535	Default: 1

Description: Sets the number of filler bits for double absolute value transfer in the SSI protocol.

Dependency: See also: p0429

NOTICE

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

Note

This parameter is only of significance for p0429.2 = 1.

r0451[0...2]

HLA_828,
SERVO_828,
SERVO_COMBI

Commutation angle factor / Enc commut_factor

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 4710
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the relationship between the electrical and mechanical pole positions.

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

Note

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

r0452[0...2]

Squarewave encoder filter time display / Enc t_filt displ

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [µs]	Max: - [µs]	Default: - [µs]

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

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

Dependency: See also: p0438

Note

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

p0453[0...n]

Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.10 [ms]	Max: 10000.00 [ms]	Default: 1000.00 [ms]

Description: Sets the measuring time for evaluating zero speed.
 If no pulses are detected from track A/B during this time, a speed actual value of zero is output.

Dependency: See also: r0452

Note

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

r0455[0...2]

Encoder configuration recognized / Enc config act

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the detected encoder configuration.
 In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-

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

Dependency: See also: p0404

Note

ZM: Zero mark

This parameter is only used for diagnostics.

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

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

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

r0456[0...2]

Encoder configuration supported / Enc_config supp

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Displays the encoder configuration supported by the Sensor Module.

Index:

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B sq-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-

10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excit	Yes	No	-

Dependency: See also: p0404

Note

ZM: Zero mark
 This parameter is only used for diagnostics.
 A value of zero is displayed if an encoder is not present.

r0458[0...2]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Sensor Module properties / SM properties

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 4704
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Sets the Sensor Module configuration.

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder data available	Yes	No	-
	01	Motor data available	Yes	No	-
	02	Temperature sensor connection available	Yes	No	-
	03	Connection for PTC for motor with DRIVE-CLiQ also available	Yes	No	-
	04	Module temperature available	Yes	No	-
	05	Absolute encoder p0408/p0421 no power of 2	Yes	No	-
	06	Sensor Module permits parking/unparking	Yes	No	-
	07	Hall sensor can be combined with actual value inversion	Yes	No	-
	08	Evaluation through several temperature channels possible	Yes	No	-
	09	Encoder fault and its associated information available	Yes	No	-
	10	Speed diagnostics in the Sensor Module	Yes	No	-
	11	Configuring without park state possible	Yes	No	-
	12	Extended functions available	Yes	No	-
	13	Extended encoder fault handling	Yes	No	-
	14	Extended singleturn/multiturn information available	Yes	No	-
	15	Evaluation function reserve	Yes	No	-
	16	Pole position identification	Yes	No	-
	17	Burst oversampling	Yes	No	-
	18	Continuous oversampling	Yes	No	-

19	Safety position actual value sensing	Yes	No	-
20	Extended speed calculation being used (only SMC30)	Yes	No	-
21	Zero mark tolerance	Yes	No	-
22	Rot pos adapt	Yes	No	-
23	Commutation with zero mark can be de-selected	Yes	No	-
24	Commutation with selected zero mark	Yes	No	-
25	Disconnection of encoder power supply on parking supported	Yes	No	-
26	Parking with temperature evaluation	Yes	No	-
27	SSI position value extrapolation	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Dependency: See also: p0437, p0600, p0601

Note

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

For bit 11:

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

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

For bit 12:

The extended functions can be configured using p0437.

For bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

For bit 14:

Only for internal Siemens use.

For bit 23:

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

For bit 24:

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

r0459[0...2]

HLA_828,
SERVO_828,
SERVO_COMBI

Sensor Module properties extended / SM prop ext

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Encoder

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Displays the extended properties supported by the Sensor Module.

Index:

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
09	Function p0426, p0439 supported	Yes	No	-

10	Pulse/direction interface	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Absolute position for incremental encoder supported	Yes	No	-
14	Spindle functionality	Yes	No	-
15	Additional temperature sensor available	Yes	No	-
16	Internal encoder temperature available	Yes	No	-
17	Extended multiturn resolution	Yes	No	-
18	PT1000	Yes	No	-
24	Multiturn via battery	Yes	No	-
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Track monitoring de-selection	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: See also: p0437

Note

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

For bit 09:

Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module.

r0460[0...2]

Encoder serial number part 1 / Enc ser_no 1

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -
Data type: Unsigned32
P group: Encoder
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays the actual serial number part 1 of the appropriate encoder.

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

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464

r0461[0...2]

Encoder serial number part 2 / Enc ser_no 2

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -
Data type: Unsigned32
P group: Encoder
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays the actual serial number part 2 of the appropriate encoder.

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

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464

r0462[0...2]	Encoder serial number part 3 / Enc ser_no 3		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual serial number part 3 of the appropriate encoder.

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

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464

r0463[0...2]	Encoder serial number part 4 / Enc ser_no 4		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual serial number part 4 of the appropriate encoder.

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

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464

r0464[0...2]	Encoder serial number part 5 / Enc ser_no 5		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual serial number part 5 of the appropriate encoder.

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

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463

r0465[0...27]	Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the identification/serial number of encoder 1.
 Index 0 = first character of the identification number
 ...
 Index x = 20 hex (blank) --> separation between the identification number of serial number
 Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
 Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
 Index x + 3 = first character of the serial number
 ...
 Index y with contents = last character of the serial number

Dependency: See also: r0460, r0461, r0462, r0463, r0464

NOTICE
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note
 The individual characters of the identification number/serial number are available coded as ASCII characters.

r0466[0...27]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the identification/serial number of encoder 2.
 Index 0 = first character of the identification number
 ...
 Index x = 20 hex (blank) --> separation between the identification number of serial number
 Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
 Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
 Index x + 3 = first character of the serial number
 ...
 Index y with contents = last character of the serial number

Dependency: See also: r0460, r0461, r0462, r0463, r0464

NOTICE
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note
 The individual characters of the identification number/serial number are available coded as ASCII characters.

r0467[0...27]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Encoder 3 identification number/serial number / Enc3 ID_no/Ser_no

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the identification/serial number of encoder 3.
 Index 0 = first character of the identification number
 ...
 Index x = 20 hex (blank) --> separation between the identification number of serial number
 Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
 Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
 Index x + 3 = first character of the serial number
 ...
 Index y with contents = last character of the serial number

Dependency: See also: r0460, r0461, r0462, r0463, r0464

NOTICE

An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note

The individual characters of the identification number/serial number are available coded as ASCII characters.

r0469[0...2] **Absolute encoder linear measuring step / Enc lin meas step**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [nm]	- [nm]	- [nm]

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

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

Dependency: See also: p0422, p9514

r0470[0...2] **Redundant coarse position value valid bits / Valid bits**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the valid bits of the redundant coarse position value.

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

Dependency: See also: p9323, p9523

r0471[0...2] **Redundant coarse position value fine resolution bits / Fine bit**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the number of valid bits for the fine resolution of the redundant coarse position value.

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

Dependency: See also: p9324, p9524

r0472[0...2] Redundant coarse position value relevant bits / Relevant bits

HLA_828, SERVO_828, SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the number of relevant bits for the redundant coarse position value.

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

r0473[0...2] Non safety-relevant measuring steps position value pos1 / nsrPos1

HLA_828, SERVO_828, SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the non safety-relevant measuring steps of POS1.

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

Dependency: See also: p0416, p9513

r0474[0...2] Redundant coarse position value configuration / Red pos config

HLA_828, SERVO_828, SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the encoder configuration for the redundant coarse position value.

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Incrementer	Yes	No	-
	01	Encoder CRC least significant byte first	Yes	No	-
	02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
	04	Binary comparison not possible	Yes	No	-

Dependency: See also: p9315, p9515

r0475[0...2]	Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

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

Note

MSB: Most Significant Bit

p0476[0...n]	Piston zero point calibration value / Piston 0 pt calib		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-2147483648	2147483647	0

Description: Sets the position offset to the piston zero point in fine pulses.

The piston position is displayed in r0094.

Dependency: See also: r0094, p1909, p1959, p1960

Note

The calibration value can be determined using p1959/p1960 (automatic) or p1909 (manual).

r0477[0...2]	CO: Measuring gear position difference / Meas gear pos diff		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the position difference before the measuring gear between powering down and powering up.

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

Dependency: See also: F31501, F32501, F33501

Note

The increments are displayed in the format the same as r0483. The position difference should be read in encoder increments.

r0479[0...2]	CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the encoder actual position-value Gn_XIST1 according to PROFIdrive for diagnostics. In contrast to r0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

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

⚠ CAUTION

Following ramping-up or after a data set changeover, the new value is present at connector inputs which are interconnected to connector output r0479 and under certain circumstances take 100 ms to become available.
 Reason:
 These interconnections are updated in the background, unlike interconnections involving other connector outputs (e.g. CO: r0482).
 The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

p0480[0...2]	CI: Encoder control word Gn_STW signal source / Enc Gn_STW S_src		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: 4700, 4720, 4750
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

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

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

Note
 When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:
 CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

r0481[0...2]	CO: Encoder status word Gn_ZSW / Enc Gn_ZSW		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 4010, 4704, 4730, 4750
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Function 1 active	Yes	No	-

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

NOTICE

Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature:
SINAMICS S120 Function Manual Drive Functions

Note

For bit 14:

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

For bit 14, 15:

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

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

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

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

r0482[0...2]

HLA_828,
SERVO_828,
SERVO_COMBI

CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1

Changeable: -

Data type: Unsigned32

P group: Encoder

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 4700, 4702, 4704,
4735, 4740, 4750

Unit selection: -

Expert list: 1

Default:

-

Description:

Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive.

Index:

[0] = Encoder 1

[1] = Encoder 2

[2] = Encoder 3

Note

- this value is reset if necessary when the "parking encoder" (r0481.14) function is de-selected.
- in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).
- The update time for the position control (EPOS) corresponds to the position controller clock cycle p0115[4].
- The update time in isochronous operation corresponds to the bus cycle time r2064[1].
- The update time in isochronous operation and with position control (EPOS) corresponds to the position controller clock cycle p0115[4].
- The update time in non-isochronous operation or without position control (EPOS) comprises the following:
Update time = 4 * least common multiple (LCM) of all current controller clock cycles (p0115[0]) in the drive group (infeed + drives). The minimum update time is 1 ms.
Example 1: infeed, servo
Update time = 4 * LCM(250 µs, 125 µs) = 4 * 250 µs = 1 ms
Example 2: infeed, servo, vector
Update time = 4 * LCM(250 µs, 125 µs, 500 µs) = 4 * 500 µs = 2 ms

r0483[0...2]

HLA_828,
SERVO_828,
SERVO_COMBI

CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 4704, 4750
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.

Recommendation: Possible causes:
For Error code = 4097, 4098: Defective Control Unit hardware.
For Error codes = 4099, 4100: Too many measuring pulses have occurred.

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

NOTICE
The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note

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

r0484[0...2]	CO: Redundant coarse encoder position + CRC / Enc red pos+CRC		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check). Upper 16 bits: CRC over the redundant coarse encoder position. Lower 16 bits: Redundant coarse encoder position. On an SMx Sensor Module, the encoder coarse position count direction is opposite to r0482 (encoder actual value Gn_XIST1). The value contains 2 bit fine resolution. With a DRIVE-CLiQ encoder, the encoder coarse position count direction is the same as r0482.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	The values are valid when the safety position actual value sensing is activated (p0430.19 = 1). See also: p0430		
	Note This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".		

r0485[0...2]	CO: Measuring gear encoder raw value incremental / Enc raw val incr		
HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the raw value of the incremental encoder actual value before the measuring gear.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

r0486[0...2]	CO: Measuring gear encoder raw value absolute / Enc raw val abs		
HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the raw value of the absolute encoder actual value before the measuring gear.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

r0487[0...2] HLA_828, SERVO_828, SERVO_COMBI	Diagnostic encoder control word Gn_STW / Enc Gn_STW		
	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 4700, 4704, 4720, 4740
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Request function 1	Yes	No	-
	01	Request function 2	Yes	No	-
	02	Request function 3	Yes	No	-
	03	Request function 4	Yes	No	-
	04	Request command bit 0	Yes	No	-
	05	Request command bit 1	Yes	No	-
	06	Request command bit 2	Yes	No	-
	07	Flying measurement mode/search for reference mark	Flying measurement	Reference marks	-
	13	Request absolute value cyclic	Yes	No	-
	14	Request parking encoder	Yes	No	-
	15	Request acknowledge encoder fault	Yes	No	-

NOTICE

Information on Gn_STW/Gn_ZSW should be taken from the corresponding product documentation.

Note

The signal source for the encoder control word is set with p0480.

p0488[0...2] SERVO_828 (Dig IO)	Measuring probe 1 input terminal / Meas probe 1 inp		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 4740
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 51	Default: 3

Description: Sets the input terminal to connect probe 1.

Value:

0:	No meas probe
1:	DI/DO 9 (X122.10/X121.8)
2:	DI/DO 10 (X122.12/X121.10)
3:	DI/DO 11 (X122.13/X121.11)
4:	DI/DO 13 (X132.10/X131.2)
5:	DI/DO 14 (X132.12/X131.4)
6:	DI/DO 15 (X132.13/X131.5)
7:	DI/DO 8 (X122.9/X121.7)
8:	DI/DO 12 (X132.9/X131.1)
50:	DI/DO 0 decentral (X3.2)
51:	DI/DO 1 decentral (X3.4)

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

Dependency: See also: p0489, p0490, p0728

NOTICE

To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note
DI/DO: Bidirectional Digital Input/Output
The terminal must be set as input (p0728).
Refer to the encoder interface for PROFIdrive.
If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0488[0...2] Measuring probe 1 input terminal / Meas probe 1 inp

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Integer16 P group: Encoder Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 8	Access level: 3 Function plan: 4740 Unit selection: - Expert list: 1 Default: 3
---------------------------------------	---	---	---

Description: Sets the input terminal to connect probe 1.

Value:

0:	No meas probe
1:	DI/DO 9 (X122.10/X121.8)
2:	DI/DO 10 (X122.12/X121.10)
3:	DI/DO 11 (X122.13/X121.11)
4:	DI/DO 13 (X132.10/X131.2)
5:	DI/DO 14 (X132.12/X131.4)
6:	DI/DO 15 (X132.13/X131.5)
7:	DI/DO 8 (X122.9/X121.7)
8:	DI/DO 12 (X132.9/X131.1)

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

Dependency: See also: p0489, p0490, p0728

NOTICE

To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note
DI/DO: Bidirectional Digital Input/Output
The terminal must be set as input (p0728).
Refer to the encoder interface for PROFIdrive.
If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0489[0...2]	Measuring probe 2 input terminal / Meas probe 2 inp		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 4740
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	8	0
Description:	Sets the input terminal to connect probe 2.		
Value:	0: No meas probe 1: DI/DO 9 (X122.10/X121.8) 2: DI/DO 10 (X122.12/X121.10) 3: DI/DO 11 (X122.13/X121.11) 4: DI/DO 13 (X132.10/X131.2) 5: DI/DO 14 (X132.12/X131.4) 6: DI/DO 15 (X132.13/X131.5) 7: DI/DO 8 (X122.9/X121.7) 8: DI/DO 12 (X132.9/X131.1)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	See also: p0488, p0490, p0728		

NOTICE

To the terminal designation:
 The first designation is valid for CU320, the second for CU310.
 To select the values:
 For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note

DI/DO: Bidirectional Digital Input/Output
 The terminal must be set as input (p0728).
 Refer to the encoder interface for PROFIdrive.
 If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0489[0...2]	Measuring probe 2 input terminal / Meas probe 2 inp		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 4740
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	51	0
Description:	Sets the input terminal to connect probe 2.		
Value:	0: No meas probe 1: DI/DO 9 (X122.10/X121.8) 2: DI/DO 10 (X122.12/X121.10) 3: DI/DO 11 (X122.13/X121.11) 4: DI/DO 13 (X132.10/X131.2) 5: DI/DO 14 (X132.12/X131.4) 6: DI/DO 15 (X132.13/X131.5) 7: DI/DO 8 (X122.9/X121.7) 8: DI/DO 12 (X132.9/X131.1)		

50: DI/DO 0 decentral (X3.2)

51: DI/DO 1 decentral (X3.4)

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

Dependency: See also: p0488, p0490, p0728

NOTICE

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

To select the values:

For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note

DI/DO: Bidirectional Digital Input/Output

The terminal must be set as input (p0728).

Refer to the encoder interface for PROFIdrive.

If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0490

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Invert measuring probe or equivalent zero mark / Pr or ZM_equiv inv**Changeable:** T, U**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Function plan:** 4740**P group:** Encoder**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

0000 0000 0000 0000 bin

Description:

Setting to invert the digital input signals to connect a measuring probe or an equivalent zero mark.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9/X121.7)	Inverted	Not inverted	-
09	DI/DO 9 (X122.10/X121.8)	Inverted	Not inverted	-
10	DI/DO 10 (X122.12/X121.10)	Inverted	Not inverted	-
11	DI/DO 11 (X122.13/X121.11)	Inverted	Not inverted	-
12	DI/DO 12 (X132.9/X131.1)	Inverted	Not inverted	-
13	DI/DO 13 (X132.10/X131.2)	Inverted	Not inverted	-
14	DI/DO 14 (X132.12/X131.4)	Inverted	Not inverted	-
15	DI/DO 15 (X132.13/X131.5)	Inverted	Not inverted	-

Dependency:

See also: p0488, p0489, p0493, p0495, p0728

NOTICE

To select the values:

For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note

The terminal must be set as input.

When the measuring probe or the equivalent zero mark is inverted, this has no effect on the status displays of the digital inputs (r0721, r0722, r0723).

DI/DO: Bidirectional Digital Input/Output

p0491	Motor encoder fault response ENCODER / Fault resp ENCODER		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	5	0

Description: Sets the behavior for the ENCODER fault response (motor encoder).
 This means, for example, if an encoder fault occurs, encoderless operation can be automatically selected with a shutdown behavior that can be selected.

- Value:**
- 0: Encoder fault results in OFF2
 - 1: Enc fault results in encoderless oper. and oper. continues
 - 2: Encoder fault results in encoderless operation and OFF1
 - 3: Encoder fault results in encoderless operation and OFF3
 - 4: Encoder fault results in an armature short-cct int/DC braking
 - 5: Enc fault results in encoderless op, operation continues, alarm

Dependency: The following parameters are relevant for encoderless operation.
 See also: p0341, p0342, p1470, p1472, p1517, p1612, p1755
 See also: F07575

⚠ CAUTION

For a value = 1, 2, 3, 5 the following applies:
 - encoderless operation must have been started.
 - if, for synchronous motors, an encoder fault occurs below the switchover speed p1755, when switching over to encoderless operation, the motor can stall.

For a value = 1, 5 the following applies:
 - in spite of the motor encoder fault that has occurred, the motor continues to operate.

Note

For a value = 1, 2, 3, 5 the following applies:
 - Refer to the status signal "encoderless operation due to a fault" (BO: r1407.13).
 - If, with r1407.13 = 1, a different drive data set is selected (e.g. interconnection from p0820), then the open-loop or closed-loop control type p1300 of this data set must match that of the original data set (e.g. p1300 = 21). Encoderless closed-loop controlled operation is kept when changing over.

For a value = 4, the following applies:
 - The value can only be set for all motor data sets when p1231 = 3, 4.
 - For synchronous motors, an armature short circuit is initiated on an encoder fault.
 - For induction motors, DC braking is initiated on an encoder fault. DC braking must be commissioned (p1232, p1233, p1234).

For a value = 5, the following applies:
 Same function as for value = 1. However, encoder faults are output as alarm and the message bit "Fault active" (r2139.3) is not set. The encoder fault has to be acknowledged via the encoder interface in order to resume operation with encoder.

p0491	Motor encoder fault response ENCODER / Fault resp ENCODER		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	5	0

Description: Sets the behavior for the ENCODER fault response (motor encoder).
 This means, for example, if an encoder fault occurs, encoderless operation can be automatically selected with a shutdown behavior that can be selected.

Value:	0:	Encoder fault results in OFF2
	1:	Enc fault results in encoderless oper. and oper. continues
	2:	Encoder fault results in encoderless operation and OFF1
	3:	Encoder fault results in encoderless operation and OFF3
	4:	Encoder fault results in an armature short-cct int/DC braking
	5:	Enc fault results in encoderless op, operation continues, alarm

Dependency: The following parameters are relevant for encoderless operation.
See also: p0341, p0342, p1470, p1472, p1517, p1612, p1755
See also: F07575

CAUTION
For a value = 1, 2, 3, 5 the following applies: - encoderless operation must have been started. - if, for synchronous motors, an encoder fault occurs below the switchover speed p1755, when switching over to encoderless operation, the motor can stall.
For a value = 1, 5 the following applies: - in spite of the motor encoder fault that has occurred, the motor continues to operate.

Note

For a value = 1, 2, 3, the following applies:
- for encoderless operation the following condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2$, etc.
- Refer to the status signal "encoderless operation due to a fault" (BO: r1407.13).
- If, with $r1407.13 = 1$, a different drive data set is selected (e.g. interconnection from p0820), then the open-loop or closed-loop control type p1300 of this data set must match that of the original data set (e.g. $p1300 = 21$). Encoderless closed-loop controlled operation is kept when changing over.
For a value = 4, the following applies:
- The value can only be set for all motor data sets when $p1231 = 3, 4$.
- For synchronous motors, an armature short circuit is initiated on an encoder fault.
- For induction motors, DC braking is initiated on an encoder fault. DC braking must be commissioned ($p1232, p1233, p1234$).

p0492 Square-wave encoder max. velocity difference per sampling cycle / v_dif max/samp_cyc

HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [m/min]	Max: 210000.00 [m/min]	Default: 0.00 [m/min]

Description: Sets the maximum permissible speed difference between two computing cycles when square-wave encoders are evaluated.

The drive is switched off if this value is exceeded.

Dependency: See also: F31118, A31418, F32118, A32418, F33118, A33418

Note

The velocity change monitoring is deactivated for a value = 0.0.
If the set maximum velocity difference is only exceeded for one sampling time, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.

p0492	Square-wave encoder maximum speed difference per sampling cycle / n_dif max/samp_cyc		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 0.00 [rpm]
Description:	Sets the maximum permissible speed difference within the current controller sampling time for squarewave encoders. When the value is exceeded, depending on p0491, either encoderless closed-loop speed/torque control is selected or the drive is powered down.		
Dependency:	See also: F31118, A31418, F32118, A32418, F33118, A33418		

Note

For a value of 0.0, the speed change monitoring is disabled.
 if the set maximum speed difference is only exceeded for one sampling time of the current controller, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.
 The speed actual value used for the monitoring is a floating average between p0115[0] and p0115[1].

p0493[0...n]	Zero mark selection input terminal / ZM_sel inp_term		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 8	Default: 0
Description:	Sets the input terminal for selecting the reference mark via BERO/switching signal when performing referencing with several zero marks. The encoder interface supplies the position of the reference mark, which was detected immediately after the positive edge of the BERO signal.		
Value:	0: No selection via BERO 1: DI/DO 9 (X122.10/X121.8) 2: DI/DO 10 (X122.12/X121.10) 3: DI/DO 11 (X122.13/X121.11) 4: DI/DO 13 (X132.10/X131.2) 5: DI/DO 14 (X132.12/X131.4) 6: DI/DO 15 (X132.13/X131.5) 7: DI/DO 8 (X122.9/X121.7) 8: DI/DO 12 (X132.9/X131.1)		
Dependency:	See also: p0490		

NOTICE
 For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

Note

Refer to the encoder interface for PROFIdrive.

The terminal must be set as input (p0728).

For p0493 = 0 (factory setting) the following applies:

- there is no logic operation between the reference mark search and an input signal.

For p0493 > 0, the following applies:

- the positive edge of the input signal is evaluated. If the negative edge is to be evaluated, signal inversion must be parameterized via p0490.

- if a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0580, p0680, p2517, or p2518.

p0493[0...n]	Zero mark selection input terminal / ZM_sel inp_term		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	51	0
Description:	Sets the input terminal for selecting the reference mark via BERO/switching signal when performing referencing with several zero marks. The encoder interface supplies the position of the reference mark, which was detected immediately after the positive edge of the BERO signal.		
Value:	0: No selection via BERO 1: DI/DO 9 (X122.10/X121.8) 2: DI/DO 10 (X122.12/X121.10) 3: DI/DO 11 (X122.13/X121.11) 4: DI/DO 13 (X132.10/X131.2) 5: DI/DO 14 (X132.12/X131.4) 6: DI/DO 15 (X132.13/X131.5) 7: DI/DO 8 (X122.9/X121.7) 8: DI/DO 12 (X132.9/X131.1) 50: DI/DO 0 decentral (X3.2) 51: DI/DO 1 decentral (X3.4)		
Dependency:	See also: p0490		

NOTICE

For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Note

Refer to the encoder interface for PROFIdrive.

The terminal must be set as input (p0728).

For p0493 = 0 (factory setting) the following applies:

- there is no logic operation between the reference mark search and an input signal.

For p0493 > 0, the following applies:

- the positive edge of the input signal is evaluated. If the negative edge is to be evaluated, signal inversion must be parameterized via p0490.

- if a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0580, p0680, p2517, or p2518.

p0494[0...n]	Equivalent zero mark input terminal / ZM_equiv inp_term		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	8	0

Description: Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

Value:

0:	No equivalent zero mark (evaluation of the encoder zero mark)
1:	DI/DO 9 (X122.10/X121.8)
2:	DI/DO 10 (X122.12/X121.10)
3:	DI/DO 11 (X122.13/X121.11)
4:	DI/DO 13 (X132.10/X131.2)
5:	DI/DO 14 (X132.12/X131.4)
6:	DI/DO 15 (X132.13/X131.5)
7:	DI/DO 8 (X122.9/X121.7)
8:	DI/DO 12 (X132.9/X131.1)

Dependency: See also: p0490

NOTICE

For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
 For p0494 = 0 (factory setting), the setting in p0495 is effective.
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

Note
 Refer to the encoder interface for PROFIdrive.
 The terminal must be set as input.

p0494[0...n]	Equivalent zero mark input terminal / ZM_equiv inp_term		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	51	0

Description: Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

Value:

0:	No equivalent zero mark (evaluation of the encoder zero mark)
1:	DI/DO 9 (X122.10/X121.8)
2:	DI/DO 10 (X122.12/X121.10)
3:	DI/DO 11 (X122.13/X121.11)
4:	DI/DO 13 (X132.10/X131.2)
5:	DI/DO 14 (X132.12/X131.4)
6:	DI/DO 15 (X132.13/X131.5)
7:	DI/DO 8 (X122.9/X121.7)
8:	DI/DO 12 (X132.9/X131.1)
50:	DI/DO 0 decentral (X3.2)
51:	DI/DO 1 decentral (X3.4)

Dependency: See also: p0490

<p>NOTICE</p> <p>For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual). For p0494 = 0 (factory setting), the setting in p0495 is effective. To the terminal designation: The first designation is valid for CU320, the second for CU310.</p>

Note

Refer to the encoder interface for PROFIdrive.
The terminal must be set as input.

p0495[0...2]	Equivalent zero mark input terminal / ZM_equiv input		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 4735
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 8	Default: 0
Description:	Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).		
Value:	0: No equivalent zero mark (evaluation of the encoder zero mark) 1: DI/DO 9 (X122.10/X121.8) 2: DI/DO 10 (X122.12/X121.10) 3: DI/DO 11 (X122.13/X121.11) 4: DI/DO 13 (X132.10/X131.2) 5: DI/DO 14 (X132.12/X131.4) 6: DI/DO 15 (X132.13/X131.5) 7: DI/DO 8 (X122.9/X121.7) 8: DI/DO 12 (X132.9/X131.1)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	See also: p0490, p0494		

<p>NOTICE</p> <p>For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual). For p0494 > 0, the setting in p0494 is effective and p0495 is invalid. To the terminal designation: The first designation is valid for CU320, the second for CU310.</p>

Note

Refer to the encoder interface for PROFIdrive.
The terminal must be set as input.
For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark.
For p0495 > 0, the following applies:
Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated.
- increasing position actual values (r0482) --> the 0/1 edge is evaluated.
- decreasing position actual values (r0482) --> the 1/0 edge is evaluated.
Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in a fault message in Gn_ZSW.
The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion.
An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.

p0495[0...2]	Equivalent zero mark input terminal / ZM_equiv input		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 4735
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	51	0

Description: Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).

- Value:**
- 0: No equivalent zero mark (evaluation of the encoder zero mark)
 - 1: DI/DO 9 (X122.10/X121.8)
 - 2: DI/DO 10 (X122.12/X121.10)
 - 3: DI/DO 11 (X122.13/X121.11)
 - 4: DI/DO 13 (X132.10/X131.2)
 - 5: DI/DO 14 (X132.12/X131.4)
 - 6: DI/DO 15 (X132.13/X131.5)
 - 7: DI/DO 8 (X122.9/X121.7)
 - 8: DI/DO 12 (X132.9/X131.1)
 - 50: DI/DO 0 decentral (X3.2)
 - 51: DI/DO 1 decentral (X3.4)

- Index:**
- [0] = Encoder 1
 - [1] = Encoder 2
 - [2] = Encoder 3

Dependency: See also: p0490, p0494

NOTICE

For CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
 For p0494 > 0, the setting in p0494 is effective and p0495 is invalid.
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

Note

Refer to the encoder interface for PROFIdrive.
 The terminal must be set as input.
 For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark.
 For p0495 > 0, the following applies:
 Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated.
 - increasing position actual values (r0482) --> the 0/1 edge is evaluated.
 - decreasing position actual values (r0482) --> the 1/0 edge is evaluated.
 Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in a fault message in Gn_ZSW.
 The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion.
 An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.

p0496[0...2]	Encoder diagnostic signal selection / Enc diag select		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	86	0

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

Value:	0:	Inactive
	1:	r0497: Mechanical revolution
	10:	r0498: Raw value track A, r0499: Raw value track B
	11:	r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2)
	12:	r0498: Fine position Phi, r0499: -
	13:	r0498: Offset correction X, r0499: Offset correction Y
	14:	r0498: Phase correction X, r0499: Amplitude correction Y
	15:	r0498: Cubic correction X, r0499: Fine position X
	16:	r0498: oversampling channel A, r0499: oversampling channel B
	17:	r0498: fan-out amount, r0499: fan-out number
	18:	r0498: Oversampling angle, r0499: Oversampling amount
	19:	r0498: Fault counter AB, r0499: raw value track A
	20:	r0498: Raw value track C, r0499: Raw value track D
	21:	r0498: CD position X (-D/2), r0499: CD position Y (C/2)
	22:	r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution
	23:	r0497: Zero mark status
	24:	r0498: Raw value track R, r0499: Zero mark status
	25:	r0498: Raw value track A, r0499: Raw value track R
	30:	r0497: Absolute position serial
	31:	r0497: Absolute position incremental
	32:	r0497: Zero mark position
	33:	r0497: Correction absolute position difference
	40:	r0498: Raw temperature, r0499: Temperature in 0.1 °C
	41:	r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C
	42:	r0497: Resistance 2500 Ohm
	51:	r0497: Absolute speed difference (dn/dt)
	52:	r0497: Xact1 corrected quadrants
	60:	Analog sensor: r0498: raw val chann. A, r0499: raw val chann. B
	61:	Analog sensor: r0498: fine pos chann. A, r0499: fine pos chann. B
	62:	Analog sensor: r0498: Fine pos before characteristic, r0499: -
	70:	Resolver: r0498: Transformation ratio, r0499: phase
	80:	Spindle: r0498: Sensor S1 (raw), r0499: Sensor S4 (raw)
	81:	Spindle: r0498: Sensor S5 (raw), r0499: -
	85:	Spindle: r0498: Sensor S1 (cal), r0499: Sensor S4 (cal)
	86:	Spindle: r0498: Sensor S5 (cal), r0499: -

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

Dependency: See also: r0497, r0498, r0499

NOTICE

<p>The setting option depends on the following properties: Sensor Module type, hardware version, firmware version (Sensor Module and Control Units), order number (last digit). Not all combinations are supported.</p>

Note

For p0496 = 1: 360 ° <--> 2^32
 For p0496 = 10 (resolver): 2900 mV <--> 26214 dec
 For p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec
 For p0496 = 11 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected
 For p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected
 For p0496 = 12: 180 ° fine position <--> 32768 dec
 For p0496 = 13 (resolver): 2900 mV <--> 13107 dec
 For p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec
 For p0496 = 14: 1 ° <--> 286 dec, 100% <--> 16384 dec
 For p0496 = 15: 100 % <--> 16384 dec
 For p0496 = 16: (resolver): channel A: 2900 mV <--> 26214 dec, channel B: 2900 mV <--> 26214 dec
 For p0496 = 16: (sin/cos 1 Vpp, EnDat) channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec
 For p0496 = 17 (resolver): absolute value: 2900 mV <--> 13107 dec, number: 1 ... 8
 For p0496 = 17 (sin/cos 1 Vpp, EnDat): absolute value 500 mV <--> 10650 dec, number: 1 ... 8
 For p0496 = 18 (resolver): angle: signal period <--> 2^16, absolute value: 2900 mV <--> 13107 dec
 For p0496 = 18 (sin/cos 1 Vpp, EnDat): angle: signal period <--> 2^16, absolute value: 500 mV <--> 10650 dec
 For p0496 = 19 (resolver): counter: dec, channel A: 2900 mV <--> 26214 dec
 For p0496 = 19 (sin/cos 1 Vpp, EnDat): counter: dec, channel A: 500 mV <--> 21299 dec
 For p0496 = 22: 180 ° <--> 32768 dec
 For p0496 = 23, 24: r0497.31 (r0499.15) set for at least 1 current controller cycle when encoder zero mark detected
 For p0496 = 24, 25: 500 mV <--> 21299 dec
 For p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec
 For p0496 = 31: Absolute position, incremental in 1/4 encoder pulses
 For p0496 = 32: Zero mark position in 1/4 encoder pulses
 For p0496 = 33: counter offset absolute value in 1/4 encoder pulses
 For p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768
 For p0496 = 42: 2500 Ohm <--> 2^32
 For p0496 = 51: 1 rpm <--> 1000 dec
 For p0496 = 52: In 1/4 encoder pulses
 For p0496 = 60: voltage, channel A in mV, voltage, channel B in mV
 For p0496 = 61: Channel A: encoder periods <--> 2^16, channel B: encoder periods <--> 2^16
 For p0496 = 62: encoder periods <--> 2^16
 For p0496 = 70: r: 100% <--> 10000 dec, phase: 180 ° <--> 18000 dec
 For p0496 = 80, 81, 85, 86: 1V <--> 1000 inc

r0497[0...2]

HLA_828,
 SERVO_828,
 SERVO_COMBI

CO: Encoder diagnostic signal double word / Enc diag DW

Changeable: -
Data type: Unsigned32
P group: Encoder
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
 -

Description: Displays the trace signal for encoder diagnostics (double word).
 The signal to be output is selected in p0496.

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

Dependency: See also: p0496, r0498, r0499

r0498[0...2]	CO: Encoder diagnostic signal low word / Enc diag low word		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Integer16 P group: Encoder Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the trace signal for encoder diagnostics (low component). The signal to be output is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	See also: p0496, r0497, r0499		
r0499[0...2]	CO: Encoder diagnostic signal high word / Enc diag high word		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Integer16 P group: Encoder Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the trace signal for encoder diagnostics (high component). The signal to be output is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	See also: p0496, r0497, r0498		
p0500	Technology application / Tec application		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 5), T Data type: Integer16 P group: Applications Not for motor type: - Min: 100	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 102	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 100
Description:	Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0578.		
Value:	100: Standard drive (SERVO) 101: Feed drive (limit current limitation) 102: Spindle drive (rated current limitation)		
Dependency:	See also: p1520, p1521, p1530, p1531, p2000, p2175, p2177		
⚠ CAUTION			
After changing over the technological application and then calculating the open-loop and closed-loop parameters, the behavior of the motor can have changed very significantly (e.g. the same setpoint results in a higher speed due to a different reference speed). For this reason extreme caution must be taken when the motor is started for the first time.			

Note

The calculation of parameters dependent on the technology application can be called up as follows:

- when exiting quick commissioning using p3900 > 0
- when writing p0340 = 1, 3, 5
- when writing p0578 = 1

For p0500 = 100 and when the calculation is initiated, the following parameters are set:

- p1520/p1521 = rated motor torque (r0333)
- p1530/p1531= $2 \cdot \pi \cdot r0333 \cdot p0311$ (rotary) or $r0333 \cdot p0311$ (linear)
- p2000 = rated motor speed (p0311) (only for p0340 = 1, p3900 > 0)
- p2175 = factory setting
- p2177 = factory setting

For p0500 = 101 and when the calculation is initiated, the following parameters are set:

- p1520/p1521 = torque at the maximum motor current (p0323)
- p1530/p1531= power at the maximum motor current (p0323) and rated motor speed (p0311)
- p2000 = rated motor speed (p0311) (only for p0340 = 1, p3900 > 0)
- p2175 = maximum value
- p2177 = 0.2 s

For p0500 = 102 and when the calculation is initiated, the following parameters are set:

- p1520/p1521 = rated motor torque (r0333)
- p1530/p1531= $2 \cdot \pi \cdot r0333 \cdot p0311$ (rotary) or $r0333 \cdot p0311$ (linear)
- p2000 = maximum motor speed (p0322) if p0322 not equal to 0, otherwise rated motor speed (p0311) (only for p0340 = 1, p3900 > 0)
- p2175 = factory setting
- p2177 = factory setting

p0505

Selecting the system of units / Unit sys select

HLA_828, SERVO_828

Changeable: C2(5)

Calculation: -

Access level: 1

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Applications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

1

4

1

Description:

Sets the actual system of units.

Value:

- 1: SI system of units
- 2: System of units referred/SI
- 3: US system of units
- 4: System of units referred/US

Dependency:

The parameter can only be changed in an offline project using the commissioning software.

CAUTION

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. As a consequence, the control behavior can change (see p1576, p1621, p1744, p1752, p1755 and p1609, p1612, p1619, p1620).

Note

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.

p0514[0...9]	User-specific reference quantities / Usrdef_ref		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: FloatingPoint32 P group: Communications Not for motor type: - Min: 0.000001	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 10000000.000000	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1.000000

Description: Sets the reference quantities for the user-specific scaling.
By indexing reference parameter p514[0..9], a total of 10 reference quantities are available:
p514[0]reference quantity 01
p514[1]reference quantity 02
..
p514[8]reference quantity 09
p514[9]reference quantity 10

Up to 20 BiCos can be scaled to each of these 10 reference quantities.
Assignment parameters p515[0..19] up to p524[0..19] have been introduced for this purpose.

p0515[0...19]	Assignment parameter 1 in reference to p514[0] / BiCoList1_ref1		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: 0	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p515[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p515[0] BiCo number assigned p514[0] (reference quantity 01)
..
p515[19] BiCo number assigned p514[0] (reference quantity 01)

Dependency: See also: p0514

p0516[0...19]	Assignment parameter 2 in reference to p514[1] / BiCoList2_ref2		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: 0	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p516[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p516[0] BiCo number assigned p514[1] (reference quantity 02)

..

p516[19] BiCo number assigned p514[1] (reference quantity 02)

Dependency: See also: p0514

p0517[0...19] Assignment parameter 3 in reference to p514[2] / BiCoList3_ref3

A_INF_828,	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
B_INF_828, HLA_828,	Data type: Unsigned32	Dynamic index: -	Function plan: -
S_INF_828,	P group: Communications	Unit group: -	Unit selection: -
S_INF_COMBI,	Not for motor type: -	Scaling: -	Expert list: 1
SERVO_828,	Min:	Max:	Default:
SERVO_COMBI	0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p517[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p517[0] BiCo number assigned p514[2] (reference quantity 03)

..

p517[19] BiCo number assigned p514[2] (reference quantity 03)

Dependency: See also: p0514

p0518[0...19] Assignment parameter 4 in reference to p514[3] / BiCoList4_ref4

A_INF_828,	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
B_INF_828, HLA_828,	Data type: Unsigned32	Dynamic index: -	Function plan: -
S_INF_828,	P group: Communications	Unit group: -	Unit selection: -
S_INF_COMBI,	Not for motor type: -	Scaling: -	Expert list: 1
SERVO_828,	Min:	Max:	Default:
SERVO_COMBI	0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p518[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p518[0] BiCo number assigned p514[3] (reference quantity 04)

..

p518[19] BiCo number assigned p514[3] (reference quantity 04)

Dependency: See also: p0514

p0519[0...19]	Assignment parameter 5 in reference to p514[4] / BiCoList5_ref5		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: 0	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p519[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p519[0] BiCo number assigned p514[4] (reference quantity 05)

..

p519[19] BiCo number assigned p514[4] (reference quantity 05)

Dependency: See also: p0514

p0520[0...19]	Assignment parameter 6 in reference to p514[5] / BiCoList6_ref6		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: 0	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p520[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p520[0] BiCo number assigned p514[5] (reference quantity 06)

..

p520[19] BiCo number assigned p514[5] (reference quantity 06)

Dependency: See also: p0514

p0521[0...19]	Assignment parameter 7 in reference to p514[6] / BiCoList7_ref7		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: 0	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p521[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p521[0] BiCo number assigned p514[6] (reference quantity 07)

..

p521[19] BiCo number assigned p514[6] (reference quantity 07)

Dependency: See also: p0514

p0522[0...19] Assignment parameter 8 in reference to p514[7] / BiCoList8_ref8

A_INF_828,	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
B_INF_828, HLA_828,	Data type: Unsigned32	Dynamic index: -	Function plan: -
S_INF_828,	P group: Communications	Unit group: -	Unit selection: -
S_INF_COMBI,	Not for motor type: -	Scaling: -	Expert list: 1
SERVO_828,	Min:	Max:	Default:
SERVO_COMBI	0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p522[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p522[0] BiCo number assigned p514[7] (reference quantity 08)

..

p522[19] BiCo number assigned p514[7] (reference quantity 08)

Dependency: See also: p0514

p0523[0...19] Assignment parameter 9 in reference to p514[8] / BiCoList9_ref9

A_INF_828,	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
B_INF_828, HLA_828,	Data type: Unsigned32	Dynamic index: -	Function plan: -
S_INF_828,	P group: Communications	Unit group: -	Unit selection: -
S_INF_COMBI,	Not for motor type: -	Scaling: -	Expert list: 1
SERVO_828,	Min:	Max:	Default:
SERVO_COMBI	0	4294967295	0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p523[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:

p523[0] BiCo number assigned p514[8] (reference quantity 09)

..

p523[19] BiCo number assigned p514[8] (reference quantity 09)

Dependency: See also: p0514

p0524[0...19]	Assignment parameter 10 in reference to p514[9] / BiCoList10_ref10		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: 0	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Assignment parameter for user-specific scaling.

By indexing the assignment parameter p524[0..19], a total of 20 BiCos are available, which should be scaled corresponding to the user-specific scaling.

The significance of the assignment parameters is as follows:
p524[0] BiCo number assigned p514[9] (reference quantity 10)
..
p524[19] BiCo number assigned p514[9] (reference quantity 10)

Dependency: See also: p0514

p0528	Controller gain system of units / Ctrl_gain unit_sys		
HLA_828, SERVO_828	Changeable: C2(5) Data type: Integer16 P group: Applications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Sets the system of units for the controller gains.

Value:
0: Representation physical/% (p0505)
1: Representation no dimensions (referred)

Note

For p0528 = 0 (physical/%), the following applies:
Using p0505, the dependent parameters can be changed over between physical and % representation.
For SERVO (r0107) the following applies:
The parameter is pre-assigned a value of 0 and cannot be changed.

p0530[0...n]	Bearing version selection / Bearing vers sel		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3) Data type: Unsigned16 P group: Motor Not for motor type: SESM Min: 0	Calculation: - Dynamic index: MDS, p0130 Unit group: - Scaling: - Max: 104	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Sets the bearing version.
Corresponding to the bearing version entered, its code number (p0531) is automatically set.

0 = No selection
1 = Manual entry
101 = STANDARD
102 = PERFORMANCE
103 = HIGH PERFORMANCE
104 = ADVANCED LIFETIME

Dependency: See also: p0301, p0531, p0532, p1082, r1082

NOTICE
For p0530 = 101, 102, 103, 104, the maximum bearing speed (p0532) is write protected. Write protection is withdrawn with p0530 = 1. If p0530 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3). The maximum speed of the bearing is factored into the limit for the maximum speed p1082.
Note
For a motor with DRIVE-CLiQ, p0530 can only be set to 1.

p0531[0...n]	Bearing code number selection / Bearing codeNo sel		
SERVO_828, SERVO_COMBI	Changeable: C2(3)	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: SESM	Scaling: -	Expert list: 1
	Min: 0	Max: 65535	Default: 0
Description:	Display and setting the code number of the bearing. When setting p0301 and p0530 the code number is automatically preassigned and is write protected. The information in p0530 should be observed when removing write protection.		
Dependency:	See also: p0301, p0530, p0532, p1082, r1082		

NOTICE
If p0531 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3). The maximum speed of the bearing is factored into the limit for the maximum speed p1082.
Note
p0531 cannot be changed on a motor with DRIVE-CLiQ.

p0532[0...n]	Bearing maximum speed / Bearing n_max		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3)	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: SESM	Scaling: -	Expert list: 1
	Min: 0.0 [rpm]	Max: 210000.0 [rpm]	Default: 0.0 [rpm]
Description:	Sets the maximum speed of the bearing. The following applies when calculating the maximum speed (p1082): - for p0324 = 0 or p0532 = 0, p0322 is used. - for p0324 > 0 and p0532 > 0, the minimum value from the two parameters is used.		
Dependency:	See also: p0301, p0322, p0324, p0530, p1082, r1082		

NOTICE
This parameter is pre-assigned in the case of motors from the motor list (p0301) if a bearing version (p0530) is selected. When selecting a catalog motor, this parameter cannot be changed (write protection). The information in p0530 should be observed when removing write protection. If p0532 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned appropriately. This is not the case when commissioning the motor (p0010 = 3).

r0565[0...15]	CO: Probe time stamp / Probe t_stamp		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned16 P group: Displays, signals Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display and connector output for the time stamp MT_ZS_1 up to MT_ZS_16. Displays the measuring time for an edge at the digital input for the "central measuring probe evaluation stage 3" function. The measuring time is specified as 16-bit value with a resolution of 0.25 µs. Priority: MT1 ... MT8, oldest ... newest time stamp		
r0566[0...3]	CO: Probe time stamp reference / Probe t_stamp name		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned16 P group: Displays, signals Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display and connector output for the time stamp reference MT_ZSB1 up to MT_ZSB4.		
r0567	CO: Probe diagnostics word / Probe diag_word		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned16 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display and connector output for diagnostics word MT_DIAG.		
p0570	Inhibit list values effective number / Inhib list no		
SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned8 P group: Applications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 50	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the number of parameters in the inhibit list p0571. This number of parameters can be automatically excluded from the calculation of the motor and control parameters (see p0340, p0578), starting from index 0.		
	Note Defines the number of entries in p0571 that should be taken into account. The inhibit list is deactivated for a value of 0.		

p0571[0..49]	Inhibit list motor/closed-loop control parameter calculation / Inhib list calc		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Applications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2142	0

Description: The inhibit list contains parameters that should be withdrawn from the automatic motor and closed-loop control parameter calculation (p0340, p0578).

- Value:**
- 0: No parameter
 - 348: Speed at the start of field weakening V_{dc} = 600 V
 - 600: Motor temperature sensor
 - 640: Current limit
 - 1082: Maximum speed
 - 1441: Actual speed smoothing time
 - 1460: Speed controller P gain
 - 1462: Speed controller integral time
 - 1470: Speed controller P gain encoderless
 - 1472: Speed controller integral time encoderless
 - 1520: Torque limit upper/motoring
 - 1521: Torque limit lower/regenerative
 - 1530: Power limit motoring
 - 1531: Power limit regenerative
 - 1590: Flux controller P gain
 - 1592: Flux controller integral time
 - 1656: Activates current setpoint filter
 - 2141: Speed threshold 1
 - 2142: Hysteresis speed 1

Note

p0570 defines the number of entries (starting at index 0) for which the inhibit should apply. p0572 can be used to define for which drive data sets the inhibit list should apply.
If a motor data set is entered into a parameter number, then this is not overwritten as soon as only one drive data set refers to the motor data set (p0186).

p0572[0...n]	Activate/de-activate inhibit list / Inh_list act/deact		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: -
	P group: Applications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0

Description: Setting for activating/de-activating the inhibit list.
Depending on the setting, the parameters of the inhibit list (p0571) should be overwritten when calculating the motor and closed-loop control parameters for the particular drive data set (DDS).

- Value:**
- 0: No
 - 1: Yes

Note

For a value = 0:

The automatic calculation (p0340, p0578) also overwrites the parameters of the inhibit list (p0571).

For a value = 1:

The automatic calculation (p0340, p0578) does not overwrite the parameters of the inhibit list (p0571).

p0573**Inhibit automatic reference value calculation / Inhibit calc**

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T, U

Data type: Integer16

P group: Applications

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

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

1: Yes

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

For a value = 0:

The automatic calculation (p0340, p3900) overwrites the reference parameters.

For a value = 1:

The automatic calculation (p0340, p3900) does not overwrite the reference parameters.

p0578[0...n]**Calculate technology-dependent parameters / Calc tec par**

SERVO_828,
SERVO_COMBI

Changeable: C2(5), T

Data type: Integer16

P group: Applications

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

1

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

This parameter is used to calculate all parameters that depend on the technology of the application (p0500).

All of the parameters are calculated that can also be determined using p0340 = 5.

Value:

0: No calculation

1: Complete calculation

Note

At the end of the calculations, p0578 is automatically set to 0.

p0580**Measuring probe input terminal / MT input terminal**

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: T, U

Data type: Integer16

P group: Encoder

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

8

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description: Sets the input terminal for the measuring probe for speed actual value measurement.

- Value:**
- 0: No meas probe
 - 1: DI/DO 9 (X122.10/X121.8)
 - 2: DI/DO 10 (X122.12/X121.10)
 - 3: DI/DO 11 (X122.13/X121.11)
 - 4: DI/DO 13 (X132.10/X131.2)
 - 5: DI/DO 14 (X132.12/X131.4)
 - 6: DI/DO 15 (X132.13/X131.5)
 - 7: DI/DO 8 (X122.9/X121.7)
 - 8: DI/DO 12 (X132.9/X131.1)

Dependency: See also: p0581, p0728
See also: A07498

NOTICE

To the terminal designation:
The first designation is valid for CU320, the second for CU310.
To select the values:
For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note

The terminal must be set as input (p0728).
If a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0488, p0489, p0493, p0494, p0495, p0680, p2517 or p2518.
DI/DO: Bidirectional Digital Input/Output

p0581

HLA_828,
SERVO_828,
SERVO_COMBI

Measuring probe edge / MT edge

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	1	0

Description: Sets the edge to evaluate the measuring probe signal for speed actual value measurement.
0: 0/1 edge
1: 1/0 edge

Dependency: See also: p0580

p0582

HLA_828,
SERVO_828,
SERVO_COMBI

Measuring probe pulses per revolution / MT pulses per rev

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
1	12	1

Description: Sets the number of pulses per revolution (e.g. for disks with holes).

p0583	Measuring probe maximum measuring time / MT t_meas max		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: Encoder Not for motor type: - Min: 0.040 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10.000 [s]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 10.000 [s]
Description:	Sets the maximum measuring time for the measuring probe. If a new pulse is not received before the maximum measuring time has expired, then the speed actual value in r0586 is set to zero. This timer is re-started with the next pulse.		
Dependency:	See also: r0586		
r0586	CO: Measuring probe speed actual value / MT n_act		
SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [rpm]
Description:	Displays the speed actual value measured using the BERO.		
Dependency:	See also: p0580, p0583		
	Note For p0580 = 0 (no measuring probe), a value of zero is displayed here.		
r0586	CO: Measuring probe velocity actual value / MT v_act		
HLA_828	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [m/min]	Calculation: - Dynamic index: - Unit group: 4_1 Scaling: p2000 Max: - [m/min]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [m/min]
Description:	Displays the velocity actual value measured using the BERO.		
Dependency:	See also: p0580, p0583		
	Note For p0580 = 0 (no measuring probe), a value of zero is displayed here.		
r0587	CO: Measuring probe measuring time measured / MT t_meas measured		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Displays, signals Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the time between the last two BERO pulses. The measuring time is specified as 32-bit value with a resolution of 1/48 µs. If a new pulse is not received before the maximum measured time in p0583 expires, then r0587 is set to the maximum measuring time.		
Dependency:	See also: p0580		

Note

For p0580 = 0 (no measuring probe), a value of zero is displayed here.

r0588

HLA_828,
SERVO_828,
SERVO_COMBI

CO: Measuring probe pulse counter / MT pulse counter

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the number of measuring pulses that have occurred (been received) up until now.

Dependency:

See also: p0580

Note

After reaching 4294967295 ($2^{32} - 1$), the counter starts again at 0.

r0589

HLA_828,
SERVO_828,
SERVO_COMBI

Measuring probe delay time / MT t_delay

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the time since the last measuring pulse was detected.
The delay time is specified as 32-bit value with a resolution of 1/48 μs.
When a measuring pulse occurs (is received) the delay time is reset and is limited to the maximum measuring time in p0583.

Dependency:

See also: p0580

Note

For p0580 = 0 (no measuring probe), a value of zero is displayed here.

p0600[0...n]

SERVO_828,
SERVO_COMBI

Motor temperature sensor for monitoring / Mot temp_sensor

Changeable: C2(3), T, U	Calculation: CALC_MOD_ALL	Access level: 2
Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	21	1

Description:

Sets the sensor to monitor the motor temperature.
The sensor type used is set in p0601.

Value:

- 0: No sensor
- 1: Temperature sensor via encoder 1
- 2: Temperature sensor via encoder 2
- 3: Temperature sensor via encoder 3
- 10: Temperature sensor via a BICO interconnection
- 11: Temperature sensor via Motor Module / CU terminals
- 20: Temperature sensor via a BICO interconnection p0608
- 21: Temperature sensor via a BICO interconnection p0609

Dependency:

See also: r0458, p0601, p0603

<p>CAUTION</p> <p>If, for a selected temperature sensor (p0600 > 0), the motor temperature sensor is not connected but another sensor, then the temperature adaptation of the motor resistances must be switched out. Otherwise, in controlled-loop operation, torque errors will occur that will mean that the drive will not be able to be stopped.</p>

<p>NOTICE</p> <p>The parameter is calculated in the drive using p0340 and is inhibited for p0340 > 0. The parameter is set to 1 during commissioning, if a motor encoder is connected (p0187 <> 99). If a temperature sensor is not being used, then p0601 = 0 must be set.</p>

Note

For p0600 = 0:

With induction motors, the motor temperature is calculated using the motor temperature model (see also p0612.1).

For p0600 = 1, 2, 3:

Bimetallic switch (p0601 = 4) and PT100 temperature sensor (p0601 = 5) are not supported.

For p0600 = 10:

The BICO interconnection should be executed via connector input p0603.

For p0600 = 11:

For SINAMICS S120 AC Drive (AC/AC) and using the Control Unit Adapter CUA31, the temperature sensor is connected at the adapter (X210).

For p0600 = 20, 21:

The BICO interconnection should be executed via connector input p0608 or p0609.

Associated parameters: p0601, p4600 ... p4603, p4610 ... p4613

p0601[0...n]	Motor temperature sensor type / Mot_temp_sens type		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	11	2
Description:	Sets the sensor type for the motor temperature monitoring.		
Value:	0: No sensor 1: PTC alarm & timer 2: KTY84 3: KTY84 and PTC (only for motors with DRIVE-CLiQ): 4: Bimetallic NC contact alarm & timer (only for temp_eval via MM) 5: PT100 6: PT1000 7: PT1000 and PTC (only for motors with DRIVE-CLiQ): 10: Evaluation via several temperature channels SME12x 11: Evaluation via several temperature channels BICO		
Dependency:	A thermal motor model is calculated corresponding to p0612. See also: r0458, p0600, p0612		

Note

The temperature sensor for the temperature evaluation is set in p0600.

For p0600 = 10 (temperature sensor via a BICO interconnection), the setting in p0601 has no significance.

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components

- SINAMICS S120 Commissioning Manual

For p0601 = 1:

Tripping resistance = 1650 Ohm.

After the tripping resistance has been exceeded, an appropriate alarm is output and after the delay time set in p0606 has expired, an appropriate fault is output.

For p0601 = 3, 7:

For motors with DRIVE-CLiQ and two temperature sensors, the value is automatically set.

For p0601 = 4:

Tripping resistance = 100 Ohm.

After tripping, an appropriate alarm is output and after the delay time set in p0606 has expired, an appropriate fault is output.

For p0601 = 5:

It is only possible to evaluate a PT100 for p0600 = 11 and r0192.15 = 1.

For p0601 = 10:

Not permitted for p0600 = 0, 10, 11.

Associated parameters: p4600 ... p4603 (can be switched via EDS)

For r0458.8 = 1, a temperature evaluation is supported through several temperature channels.

Examples:

When evaluating using SME120 or SME125, 4 temperature channels are available (parameterized using p4600, p4601, p4602, p4603).

When evaluating using CU310 and CUA32, 2 temperature channels are available (encoder interface: parameterization via p4600, terminal block: parameterization via p4601).

For p0601 = 11:

Not permitted for p0600 = 0, 10, 11.

Associated parameters: p4610 ... p4613 (can be switched via MDS)

p0601

Temperature sensor, sensor type / Temp_sens type

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: C2(3), T, U

Calculation: -

Access level: 2

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

6

0

Description:

Sets the sensor type for the temperature measurement at input X21 (booksize) or X41 (chassis).
The measured value is displayed in r0035.

Value:

- 0: No sensor
- 1: PTC alarm & timer
- 2: KTY84
- 4: Bimetallic NC contact alarm & timer
- 6: PT1000

Dependency:

See also: r0035

Note

The measured value display depends on the selected sensor type.

For p0601 = 0:

--> r0035 = -200 °C

For p0601 = 1:

Tripping resistance = 1650 Ohm (lower resistance --> r0035 = -50 °C, higher resistance --> r0035 = 250 °C).

For p0601 = 2, 6:

Displays the temperature in °C.

For p0601 = 4:

r0035 = -50 °C

--> The tripping resistance is less than 100 Ohm (bimetallic NC contact is closed or has a short-circuit).

r0035 = 250 °C

--> The tripping resistance is greater than 100 Ohm (bimetallic NC contact is open, not connected or has a wire breakage).

When using the following components, a value of 4 is set as the factory setting and can no longer be changed:

- Basic Line Module (BLM) with internal Braking Module.

- Active Line Module (ALM) with line filter Active Interface Module (AIM, p0220[0] = 41 ... 45).

In these cases, in addition to the temperature display, the temperature is also monitored.

p0603

SERVO_828,
SERVO_COMBI

CI: Motor temperature signal source / Mot temp S_src

Changeable: C2(3), T

Data type: Unsigned32 / FloatingPoint32

P group: Motor

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2006

Max:

-

Access level: 2

Function plan: 8016

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the signal source to evaluate the motor temperature via a BICO interconnection.

Dependency:

See also: p0600

Note

Temperature sensor KTY/PT1000: Valid temperature range -48 °C ... 248 °C.

PTC temperature sensor:

For a value = -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC.

For a value = 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC.

Note:

When using a Terminal Module 31 (TM31), the following applies:

- the sensor type used is set using p4100.

- the temperature signal is interconnected using CO: r4105.

p0604[0...n]

SERVO_828,
SERVO_COMBI

Mot_temp_mod 2/sensor alarm threshold / Mod 2/sens A_thr

Changeable: C2(3), T, U

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.0 [°C]

Calculation: -

Dynamic index: MDS, p0130

Unit group: 21_1

Scaling: -

Max:

200.0 [°C]

Access level: 2

Function plan: 8016

Unit selection: p0505

Expert list: 1

Default:

120.0 [°C]

Description:

Sets the alarm threshold for monitoring the motor temperature for motor temperature model 2 or KTY/PT1000.

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:

See also: p0606, p0612

See also: F07011, A07910

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 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).

p0605[0...n]

SERVO_828,
SERVO_COMBI

Mot_temp_mod 1/2 threshold / Mod 1/2 threshold

Changeable: C2(3), T, U

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: MDS, p0130

Function plan: 8016, 8017

P group: Motor

Unit group: 21_1

Unit selection: p0505

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0 [°C]

200.0 [°C]

145.0 [°C]

Description:

Sets the threshold for monitoring the motor temperature for motor temperature model 1/2 or KTY/PT1000.

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/PT1000: fault threshold

- Fault F07011 is output after the fault threshold is exceeded.

Dependency:

See also: p0606, p0611, p0612

See also: F07011, A07012

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.

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 p0318. For p0318 = 0, the rated motor current is used as reference value.

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).

p0606[0...n]

SERVO_828,
SERVO_COMBI

Mot_temp_mod 2/sensor timer / Mod 2/sens timer

Changeable: C2(3), T, U

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: MDS, p0130

Function plan: 8016

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.000 [s]

600.000 [s]

240.000 [s]

Description:

Sets the timer for monitoring the motor temperature for motor temperature model 2 or KTY/PT1000.

This timer is started when the temperature alarm threshold (p0604) is exceeded.

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

If the temperature fault threshold (p0605) is prematurely exceeded before the timer has expired, then fault F07011 is immediately output.

Dependency:

See also: p0604, p0605

See also: F07011, A07910

Note

With p0606 = 0 s, the timer is de-activated and only the fault threshold is effective.

KTY/PT1000: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded.

PTC, bimetallic NC contact: The timer minimum value has no special significance.

p0607[0...n]

SERVO_828,
SERVO_COMBI

Temperature sensor fault timer / Sensor fault time

Changeable: C2(3), T, U

Data type: FloatingPoint32

P group: Motor

Not for motor type: -

Min:

0.000 [s]

Calculation: -

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

600.000 [s]

Access level: 2

Function plan: 8016

Unit selection: -

Expert list: 1

Default:

0.100 [s]

Description:

Sets the timer between the output of alarm and fault for a temperature sensor fault.

If there is a sensor fault, this timer is started.

If the sensor fault is still present after the timer has expired, a corresponding fault is output.

NOTICE

The parameterized time is internally rounded-off to an integer multiple of 48 ms.

Note

If the motor is an induction motor, the timer is switched off when setting the minimum value and no alarm is output.

Temperature monitoring is then based on the thermal model.

p0608[0...3]

SERVO_828,
SERVO_COMBI

CI: Motor temperature signal source 2 / Mot_temp S_src 2

Changeable: C2(3), T

Data type: Unsigned32 / FloatingPoint32

P group: Motor

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2006

Max:

-

Access level: 2

Function plan: 8016

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets signal source 2 to evaluate the motor temperature via a BICO interconnection.

Index:

[0] = Motor temperature channel 1

[1] = Motor temperature channel 2

[2] = Motor temperature channel 3

[3] = Motor temperature channel 4

Dependency:

See also: p0600

Note

Temperature sensor KTY/PT1000:

Valid temperature range -48 °C ... 248 °C.

Temperature sensor PTC/bimetal:

For a value of -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC (bimetal contact closed).

For a value of 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC (bimetal contact open).

Note:

When using a Terminal Module 120 (TM120), the following applies:

- the sensor type used is set using p4100.

- the temperature signal is interconnected using connector output r4105.

p0609[0...3]	CI: Motor temperature signal source 3 / Mot_temp S_src 3		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets signal source 3 to evaluate the motor temperature via a BICO interconnection.

Index:
 [0] = Motor temperature channel 1
 [1] = Motor temperature channel 2
 [2] = Motor temperature channel 3
 [3] = Motor temperature channel 4

Dependency: See also: p0600

Note

Temperature sensor KTY/PT1000:

Valid temperature range -48 °C ... 248 °C.

Temperature sensor PTC/bimetal:

For a value of -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC (bimetal contact closed).

For a value of 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC (bimetal contact open).

Note:

When using a Terminal Module 120 (TM120), the following applies:

- the sensor type used is set using p4100.

- the temperature signal is interconnected using connector output r4105.

p0610[0...n]	Motor overtemperature response / Mot temp response		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016, 8017
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	2	12	12

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

Value:
 2: Messages, no reduction of I_max
 12: Messages, no reduction of I_max, temperature storage

Dependency: See also: p0601, p0604, p0605, p0614, p0615
 See also: F07011, A07012, A07910

Note

For a 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.

For a 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		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0 [s]	Max: 20000 [s]	Default: 0 [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, 4). See also: r0034, p0612, p0615 See also: F07011, A07012, A07910		
NOTICE			
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. When exiting commissioning, p0612 is checked, and where relevant, is preassigned to a value that matches the motor power, if a temperature sensor was not parameterized (see p0601).			
Note			
When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model (refer to p0612). 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				
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: 8017		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: SESM, REL	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: 0000 0010 0000 0010 bin		
Description:	Setting to activate the motor temperature model.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activating motor temperature model 1 (I2t)	Yes	No	-
	01	Activate motor temperature model 2	Yes	No	-
	02	Activate motor temperature model 3	Yes	No	-
	09	Activate motor temperature model 2 expansions	Yes	No	-
Dependency:	For synchronous motors, when exiting commissioning, temperature model 1 is automatically activated if a time constant has been entered in p0611. See also: r0034, p0351, p0604, p0605, p0606, p0611, p0615, p0617, p0618, p0619, p0625, p0626, p0627, p0628 See also: F07011, A07012, F07013, A07014, A07910				
NOTICE					
For 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

For bit 00:

This bit is used to activate/deactivate the motor temperature model for permanent-magnet synchronous motors.

For bit 01 (see also bit 9):

This bit is used to activate/deactivate the motor temperature model for induction motors.

For bit 02:

This bit is used to activate/deactivate the motor temperature model for 1FK7 Basic and 1FL5 motors.

Motor temperature model 3 cannot be simultaneously activated with another motor temperature model.

For bit 09:

This bit is used to extend the motor temperature model 2.

For firmware version < 4.7 following applies (only bit 1):

- This bit has no function. Temperature model 2 operates in the standard mode.

From firmware version 4.7 the following applies (bits 1 and 9):

- This bit should be set. Temperature model 2 then operates in the extended mode and the result of the model is more precise.

p0614[0...n]

SERVO_828,
SERVO_COMBI

Thermal resistance adaptation reduction factor / Therm R_adapt red

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: MDS, p0130

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0 [%]

100 [%]

30 [%]

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:

See also: p0610

Note

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

p0615[0...n]

SERVO_828,
SERVO_COMBI

Mot_temp_mod 1 (I2t) fault threshold / I2t F thresh

Changeable: C2(3), T, U

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: MDS, p0130

Function plan: 8017

P group: Motor

Unit group: 21_1

Unit selection: p0505

Not for motor type: ASM, SESM, REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0 [°C]

220.0 [°C]

180.0 [°C]

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).

See also: r0034, p0611, p0612

See also: F07011, A07012

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 hysteresis is 2 K.

p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8016
	P group: Motor	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [°C]	Max: 200.0 [°C]	Default: 195.0 [°C]
Description:	Sets the alarm threshold 1 for monitoring the motor temperature.		

Note

The alarm threshold is not, as for p0604, coupled to the timer p0606. The hysteresis for canceling the fault is 2 K.

p0617[0...n]	Stator thermally relevant iron component / Stat therm iron		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.0 [%]	Max: 100.0 [%]	Default: 40.0 [%]
Description:	Thermally relevant iron component of the motor as a percentage of p0344.		
Dependency:	See also: p0344		

Note

The sum of p0617, p0618 and p0619 can be more than 100 %.

p0618[0...n]	Stator thermally relevant copper component / Stat therm copper		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.0 [%]	Max: 100.0 [%]	Default: 15.0 [%]
Description:	Thermally relevant copper component of the motor as a percentage of p0344.		
Dependency:	See also: p0344		

Note

The sum of p0617, p0618 and p0619 can be more than 100 %.

p0619[0...n]	Rotor thermally relevant weight / Rotor therm weight		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.0 [%]	Max: 100.0 [%]	Default: 20.0 [%]
Description:	Thermally relevant weight of the motor as a percentage of p0344.		
Dependency:	See also: p0344		

Note

The sum of p0617, p0618 and p0619 can be more than 100 %.

p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 2	Default: 2
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 in r0633. For p0620 = 2, the following applies: The stator resistance is adapted using the temperature in r0035. If applicable, the rotor temperature for adapting the rotor resistance is calculated from the stator temperature (r0035) as follows: $\theta_{R} = (r0628 + r0625) / (r0627 + r0625) * r0035$		

p0624[0...n]	Motor temperature offset PT100 / Mot T_offset PT100		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8016
	P group: Motor	Unit group: 21_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100.0 [K]	Max: 100.0 [K]	Default: 0.0 [K]
Description:	Sets the temperature offset for the PT100 measured value. If there is a difference between the motor temperature displayed in r0035 and the actual motor temperature, this offset can be entered in this parameter, thereby compensating for the difference.		
Dependency:	See also: p0600, p0601		
	Note The parameter only takes effect with the following settings: - Temperature sensor of the power unit detected (p0600 = 11). - Sensor type PT100 selected (p0601 = 5). If the resistance in series with the PT100 (e.g. the cable resistance of the feeder cable) is known, the following conversion formula must be used: Offset in p0624 = Measured resistance in ohms x 2.5 K/Ohm Example: Measured cable resistance = 2 Ohm --> 2 Ohm x 2.5 K / Ohm = 5.0 K		

p0625[0...n]	Motor ambient temperature during commissioning / Mot T_ambient		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Motor	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -40 [°C]	Max: 80 [°C]	Default: 20 [°C]
Description:	Defines the ambient temperature of the motor for calculating the motor temperature model.		

Dependency: See also: p0350, p0354

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).

p0626[0...n]

SERVO_828,
SERVO_COMBI

Motor overtemperature, stator core / Mot T_{over core}

Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
P group: Motor	Unit group: 21_2	Unit selection: p0505
Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
Min: 10 [K]	Max: 200 [K]	Default: 50 [K]

Description: Defines the rated overtemperature of the stator core referred to the ambient temperature.

Dependency: For 1LA5 and 1LA7 motors (p0300 = 15, 17), the parameter is pre-set as a function of p0307 and p0311.
See also: p0625

NOTICE

When selecting a standard induction motor listed in the catalog (p0300 > 100, p0301 > 10000), this parameter is automatically preassigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note

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

p0627[0...n]

SERVO_828,
SERVO_COMBI

Motor overtemperature, stator winding / Mot T_{over stator}

Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
P group: Motor	Unit group: 21_2	Unit selection: p0505
Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
Min: 15 [K]	Max: 200 [K]	Default: 80 [K]

Description: Defines the rated overtemperature of the stator winding referred to the ambient temperature.

Dependency: For 1LA5 and 1LA7 motors (p0300 = 15, 17), the parameter is pre-set as a function of p0307 and p0311.
See also: p0625

NOTICE

When selecting a standard induction motor listed in the catalog (p0300 > 100, p0301 > 10000), this parameter is automatically preassigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

Note

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

p0628[0...n]

SERVO_828,
SERVO_COMBI

Motor overtemperature rotor winding / Mot T_{over rotor}

Changeable: C2(3), T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
P group: Motor	Unit group: 21_2	Unit selection: p0505
Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
Min: 20 [K]	Max: 200 [K]	Default: 100 [K]

Description: Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.
Dependency: For 1LA5 and 1LA7 motors (p0300 = 15, 17), the parameter is pre-set as a function of p0307 and p0311.
 See also: p0625

NOTICE
 When selecting a standard induction motor listed in the catalog (p0300 > 100, p0301 > 10000), this parameter is automatically preassigned and is write protected. Information in p0300 should be carefully observed when removing write protection.

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

r0630[0...n] **Mot_temp_mod ambient temperature / Mod T_ambient**
 SERVO_828, SERVO_COMBI
Changeable: - **Calculation:** - **Access level:** 4
Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** 8017
P group: Motor **Unit group:** 21_1 **Unit selection:** p0505
Not for motor type: SESM, REL **Scaling:** p2006 **Expert list:** 1
Min: - [°C] **Max:** - [°C] **Default:** - [°C]

Description: Displays the ambient temperature of the motor temperature model (models 2 and 3).

r0631[0...n] **Mot_temp_mod stator iron temperature / Mod T_stator**
 SERVO_828, SERVO_COMBI
Changeable: - **Calculation:** - **Access level:** 4
Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** 8017
P group: Motor **Unit group:** 21_1 **Unit selection:** p0505
Not for motor type: SESM, REL **Scaling:** p2006 **Expert list:** 1
Min: - [°C] **Max:** - [°C] **Default:** - [°C]

Description: Displays the stator iron temperature of the motor temperature model (models 2 and 3).

r0632[0...n] **Mot_temp_mod stator winding temperature / Mod T_winding**
 SERVO_828, SERVO_COMBI
Changeable: - **Calculation:** - **Access level:** 4
Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** 8017
P group: Motor **Unit group:** 21_1 **Unit selection:** p0505
Not for motor type: SESM, REL **Scaling:** p2006 **Expert list:** 1
Min: - [°C] **Max:** - [°C] **Default:** - [°C]

Description: Displays the stator winding temperature of the motor temperature model (models 2 and 3).

r0633[0...n] **Mot_temp_mod rotor temperature / Mod rotor temp**
 SERVO_828, SERVO_COMBI
Changeable: - **Calculation:** - **Access level:** 4
Data type: FloatingPoint32 **Dynamic index:** MDS, p0130 **Function plan:** 8017
P group: Motor **Unit group:** 21_1 **Unit selection:** p0505
Not for motor type: SESM, REL **Scaling:** p2006 **Expert list:** 1
Min: - [°C] **Max:** - [°C] **Default:** - [°C]

Description: Displays the rotor temperature of the motor temperature model (model 2).

Note
 For motor temperature model 3 (p0612.2 = 1), this parameter is not valid:

p0640[0...n]	Current limit / Current limit		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3), T, U	Calculation: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5722, 6640
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]
Description:	Sets the current limit.		
Dependency:	See also: r0209, p0209, p0323		
	Note		
	The parameter is part of the quick commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0305, p0323 and p0338.		
	The current limit p0640 is limited to r0209 and p0323. The limit to p0323 is not realized if a value of zero is entered there.		
	The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the Motor Module.		
	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.		
	For VECTOR the following applies (p0107):		
	p0640 is limited to 4.0 x p0305.		
	p0640 is pre-assigned for the automatic self commissioning routine (e.g. to 1.5 x 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).		
	For SERVO the following applies (p0107):		
	p0640 is pre-assigned as follows using the automatic parameterization (p0340 = 1, p3900 > 0) taking into account the limits r0209 and r0323:		
	- for induction motors: p0640 = 1.5 x p0305		
	- for synchronous motors: p0640 = p0338		
p0642[0...n]	Encoderless operation current reduction / Encoderl op I_red		
SERVO_828, SERVO_COMBI	Changeable: C2(1, 3), T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Sets the reduction for the current limit in encoderless operation.		
	The value is referred to p0640.		
Dependency:	See also: r0209, p0209, p0323, p0491, p0640, p1300, p1404		
	Note		
	If the motor is operated both with encoder as well as without encoder (e.g. p0491 is not equal to 0 or p1404 < p1082) then the maximum current can be reduced in encoderless operation. This reduces disturbing saturation-related motor data changes in encoderless operation.		
p0643[0...n]	Overvoltage protection for synchronous motors / Overvolt_protect		
SERVO_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Sets the overvoltage protection for synchronous motors in the field-weakening range.		

Value: 0: No measure
 1: Voltage Protection Module (VPM)

Dependency: See also: p0316, p1082, r1082, p1231, p9601, p9801
 See also: F07432, F07906, F07907

NOTICE
 When the speed limiting is removed, the user is responsible for implementing a suitable overvoltage protection.

Note
 In the field-weakening range, synchronous motors can, when a fault condition exists, generate high DC link voltages. The following possibilities exist to protect the drive system from being destroyed due to overvoltage:
 - limit the maximum speed (p1082) without any additional protection.
 The maximum speed without protection is calculated as follows:
 Rotary motors: $p1082 \text{ [rpm]} \leq 11.695 * r0297/p0316 \text{ [Nm/A]}$
 Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * r0297/0316 \text{ [N/A]}$
 - use a Voltage Protection Module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801).
 When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be suppressed - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM.
 - activating the internal voltage protection (IVP) with p1231 = 3.

p0650[0...n]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Actual motor operating hours / Mot t_oper act

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [h]	Max: 4294967295 [h]	Default: 0 [h]

Description: Displays the operating hours for the corresponding motor.
 The motor operating time counter continues to run when the pulses are enabled. When the pulse enable is withdrawn, the counter is held and the value saved.

Dependency: The following prerequisites must be fulfilled in order to be able to save the operating hours counter in a non-volatile fashion:
 - firmware with V2.2 or higher.
 - Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).
 See also: p0651
 See also: A01590

Note
 The operating hours counter in p0650 can only be reset to 0.
 The operating hours counter only runs with motor data set 0 and 1 (MDS).

p0651[0...n]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Motor operating hours maintenance interval / Mot t_op maint

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [h]	Max: 150000 [h]	Default: 0 [h]

Description: Sets the service/maintenance intervals in hours for the appropriate motor.
 An appropriate fault is output when the operating hours set here are reached.

Dependency: See also: p0650
 See also: A01590

Note

For p0651 = 0, the operating hours counter is disabled.

When setting p0651 to 0, then p0650 is automatically set to 0.

The operating hours counter only runs with motor data set 0 and 1 (MDS).

p0680[0...7]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Central measuring probe input terminal / Cen meas inp

Changeable: T, U

Data type: Integer16

P group: Encoder

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

8

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the digital input used for the function "central measuring probe evaluation".

p0680[0]: Digital input, measuring probe 1

p0680[1]: Digital input, measuring probe 2

...

p0680[7]: Digital input, measuring probe 8

Value:

0: No meas probe

1: DI/DO 9 (X122.10/X121.8)

2: DI/DO 10 (X122.12/X121.10)

3: DI/DO 11 (X122.13/X121.11)

4: DI/DO 13 (X132.10/X131.2)

5: DI/DO 14 (X132.12/X131.4)

6: DI/DO 15 (X132.13/X131.5)

7: DI/DO 8 (X122.9/X121.7)

8: DI/DO 12 (X132.9/X131.1)

Dependency:

See also: p0728

NOTICE

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

To select the values:

For CX32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note

DI/DO: Bidirectional Digital Input/Output

Prerequisite: The DI/DO must be set as input (p0728.x = 0).

If a parameter change is rejected, a check should be performed as to whether the input terminal is already being used in p0488, p0489, p0493, p0494, p0495, p0580, p2517 or p2518.

p0681

CU_I_828,
CU_I_COMBI,
CU_NX_828

BI: Central measuring probe synchronizing signal signal source / Cen meas sync_sig

Changeable: T

Data type: Unsigned32 / Binary

P group: Commands

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the signal source for the synchronizing signal (SYN) of the function "central measuring probe evaluation".

The signal is used to synchronize the common system time between the master and slave.

NOTICE

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

p0682 **CI: Central measuring probe control word signal source / Cen meas STW S_src**
 CU_I_828, **Changeable:** T **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 / Integer16 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Displays, signals **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - 0

Description: Sets the signal source for the control word of the function "central measuring probe evaluation".

p0684 **Central measuring probe evaluation technique / Cen meas eval_tech**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Integer16 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Encoder **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 16 0

Description: Sets the evaluation technique for the "central measuring probe evaluation" function.

Value:
 0: Measurement with handshake
 1: Measurement without handshake 2 edges
 16: Measurement without handshake more than 2 edges

NOTICE
 For p0684 = 16:
 This evaluation procedure is only activated after parameter save and POWER ON.

Note
 During measurement without a handshake, the probe may have a higher evaluation frequency.
 The setting "Measurement without handshake" must be supported by the higher-level control. This setting cannot be used for SIMOTION D with integrated SINAMICS or with CX32.
 For p0684 = 0:
 Changing this evaluation procedure to p0684 = 1 is possible in the RUN state.
 Changing this evaluation procedure to p0684 = 16 is only activated after parameter save and POWER ON.
 Permissible combinations in p0922 are:
 p0922 = 391, 392, 393, 394
 For p0684 = 1:
 Changing this evaluation procedure to p0684 = 0 is possible in the RUN state.
 Changing this evaluation procedure to p0684 = 16 is only activated after parameter save and POWER ON.
 Permissible combinations in p0922 are:
 p0922 = 391, 392, 393, 394
 For p0684 = 16:
 Changing this evaluation procedure to p0684 = 0 or to p0684 = 1 is only activated after parameter save and POWER ON.
 Permissible combinations in p0922 are:
 p0922 = 395

r0685 **Central measuring probe control word display / Cen meas STW disp**
 CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned16 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Commands **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - -

Description: Displays the control word for the function "central measuring probe evaluation".

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Falling edge measuring probe 1	Yes	No	-
	01	Falling edge measuring probe 2	Yes	No	-
	02	Falling edge measuring probe 3	Yes	No	-
	03	Falling edge measuring probe 4	Yes	No	-
	04	Falling edge measuring probe 5	Yes	No	-
	05	Falling edge measuring probe 6	Yes	No	-
	06	Falling edge measuring probe 7	Yes	No	-
	07	Falling edge measuring probe 8	Yes	No	-
	08	Rising edge measuring probe 1	Yes	No	-
	09	Rising edge measuring probe 2	Yes	No	-
	10	Rising edge measuring probe 3	Yes	No	-
	11	Rising edge measuring probe 4	Yes	No	-
	12	Rising edge measuring probe 5	Yes	No	-
	13	Rising edge measuring probe 6	Yes	No	-
	14	Rising edge measuring probe 7	Yes	No	-
	15	Rising edge measuring probe 8	Yes	No	-

r0686[0...7] CO: Central measuring probe measuring time rising edge / CenMeas t_meas 0/1

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: - **Calculation:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Function plan:** -
P group: Displays, signals **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the measuring time for a rising edge at the digital input for the "central measuring probe evaluation" function. The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

r0686[0]: Measuring time, rising edge measuring probe 1
r0686[1]: Measuring time, rising edge measuring probe 2
r0686[2]: Measuring time, rising edge measuring probe 3
r0686[3]: Measuring time, rising edge measuring probe 4
r0686[4]: Measuring time, rising edge measuring probe 5
r0686[5]: Measuring time, rising edge measuring probe 6
r0686[6]: Measuring time, rising edge measuring probe 7
r0686[7]: Measuring time, rising edge measuring probe 8

Note

The parameter is only active for the evaluation procedure p0684 = 0, 1.
For p0684 = 16, r0686[0...7] = 0 is displayed.

r0687[0...7] CO: Central measuring probe measuring time falling edge / CenMeas t_meas 1/0

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: - **Calculation:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Function plan:** -
P group: Displays, signals **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the measuring time for a falling edge at the digital input for the "central measuring probe evaluation" function. The measuring time is specified as 16-bit value with a resolution of 0.25 µs.

- r0687[0]: Measuring time, falling edge measuring probe 1
- r0687[1]: Measuring time, falling edge measuring probe 2
- r0687[2]: Measuring time, falling edge measuring probe 3
- r0687[3]: Measuring time, falling edge measuring probe 4
- r0687[4]: Measuring time, falling edge measuring probe 5
- r0687[5]: Measuring time, falling edge measuring probe 6
- r0687[6]: Measuring time, falling edge measuring probe 7
- r0687[7]: Measuring time, falling edge measuring probe 8

Note

The parameter is only active for the evaluation procedure p0684 = 0, 1.
For p0684 = 16, r0687[0...7] = 0 is displayed.

r0688

CU_I_828,
CU_I_COMBI,
CU_NX_828

CO: Central measuring probe status word display / Cen meas ZSW disp

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the status word for the function "central measuring probe evaluation".

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Digital input measuring probe 1	High	Low	-
	01	Digital input measuring probe 2	High	Low	-
	02	Digital input measuring probe 3	High	Low	-
	03	Digital input measuring probe 4	High	Low	-
	04	Digital input measuring probe 5	High	Low	-
	05	Digital input measuring probe 6	High	Low	-
	06	Digital input measuring probe 7	High	Low	-
	07	Digital input measuring probe 8	High	Low	-
	08	Sub-sampling measuring probe 1	High	Low	-
	09	Sub-sampling measuring probe 2	High	Low	-
	10	Sub-sampling measuring probe 3	High	Low	-
	11	Sub-sampling measuring probe 4	High	Low	-
	12	Sub-sampling measuring probe 5	High	Low	-
	13	Sub-sampling measuring probe 6	High	Low	-
	14	Sub-sampling measuring probe 7	High	Low	-
	15	Sub-sampling measuring probe 8	High	Low	-

p0700

CU_I_828,
CU_I_COMBI,
CU_NX_828

Macro Binector Input (BI) for TMs / Macro BI TM

Changeable: C2(1), T	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 999999	Default: 0

Description: Runs the corresponding macro files.
The selected macro file must be available on the memory card/device memory.
Example:
p0700 = 6 --> macro file PM000006.ACX is run.

Dependency: See also: r8571

NOTICE

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

Note

The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning software.

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

BI: Binector Input

CDS: Command Data Set

p0700[0...n]**Macro Binector Input (BI) / Macro BI**

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: C2(1), T

Data type: Unsigned32

P group: Commands

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: CDS, p0170

Unit group: -

Scaling: -

Max:

999999

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description: Runs the corresponding macro files.
The binector inputs of the corresponding command data set are appropriately interconnected.
The selected macro file must be available on the memory card/device memory.
Example:
p0700 = 6 --> macro file PM000006.ACX is run.

Dependency: See also: p0015, p1000, p1500, r8571

NOTICE

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

Note

The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning software.

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

BI: Binector Input

CDS: Command Data Set

r0721**CU digital inputs terminal actual value / CU DI term act val**

CU_I_828,
CU_I_COMBI

Changeable: -

Data type: Unsigned32

P group: Commands

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 2020, 2030, 2031,
2100, 2119, 2120, 2130, 2131,
2132, 2133

Unit selection: -

Expert list: 1

Default:

-

Description: Displays the actual value at the digital inputs.
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	High	Low	-
	01	DI 1 (X122.2/X121.2)	High	Low	-
	02	DI 2 (X122.3/X121.3)	High	Low	-
	03	DI 3 (X122.4/X121.4)	High	Low	-
	04	DI 4 (X132.1 / -)	High	Low	-
	05	DI 5 (X132.2 / -)	High	Low	-
	06	DI 6 (X132.3 / -)	High	Low	-
	07	DI 7 (X132.4 / -)	High	Low	-
	08	DI/DO 8 (X122.9/X121.7)	High	Low	-
	09	DI/DO 9 (X122.10/X121.8)	High	Low	-
	10	DI/DO 10 (X122.12/X121.10)	High	Low	-
	11	DI/DO 11 (X122.13/X121.11)	High	Low	-
	12	DI/DO 12 (X132.9/X131.1)	High	Low	-
	13	DI/DO 13 (X132.10/X131.2)	High	Low	-
	14	DI/DO 14 (X132.12/X131.4)	High	Low	-
	15	DI/DO 15 (X132.13/X131.5)	High	Low	-
	16	DI 16 (X122.5/X120.3)	High	Low	-
	17	DI 17 (X122.6/X120.4)	High	Low	-
	20	DI 20 (X132.5/X120.9)	High	Low	-
	21	DI 21 (X132.6/X120.10)	High	Low	-

NOTICE
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

Note
 If a DI/DO is parameterized as output (p0728.x = 1), then r0721.x = 0 is displayed.
 DI: Digital Input
 DI/DO: Bidirectional Digital Input/Output

r0721 CU_NX_828	CX digital inputs terminal actual value / CX DI actual value	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 2180, 2190, 2191 Unit selection: - Expert list: 1 Default: -
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Description: Displays the actual value at the digital inputs.
 This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1)	High	Low	-
	01	DI 1 (X122.2)	High	Low	-
	02	DI 2 (X122.3)	High	Low	-
	03	DI 3 (X122.4)	High	Low	-
	08	DI/DO 8 (X122.9)	High	Low	-
	09	DI/DO 9 (X122.10)	High	Low	-
	10	DI/DO 10 (X122.12)	High	Low	-
	11	DI/DO 11 (X122.13)	High	Low	-
	16	DI 16 (X122.5)	High	Low	-

17	DI 17 (X122.6)	High	Low	-
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Note

If a DI/DO is parameterized as output (p0728.x = 1), then r0721.x = 0 is displayed.

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r0722.0...21**CO/BO: CU digital inputs status / CU DI status**

CU_I_828,
CU_I_COMBI

Changeable: -

Calculation: -

Access level: 1

Data type: Unsigned32

Dynamic index: -

Function plan: 2020, 2030, 2031,
2100, 2119, 2120, 2130, 2131,
2132, 2133

P group: Commands

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Displays the status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1 / -)	High	Low	-
05	DI 5 (X132.2 / -)	High	Low	-
06	DI 6 (X132.3 / -)	High	Low	-
07	DI 7 (X132.4 / -)	High	Low	-
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-
16	DI 16 (X122.5/X120.3)	High	Low	-
17	DI 17 (X122.6/X120.4)	High	Low	-
20	DI 20 (X132.5/X120.9)	High	Low	-
21	DI 21 (X132.6/X120.10)	High	Low	-

Dependency:

See also: r0723

NOTICE

To the terminal designation:

The first designation is valid for CU320, the second for CU310.

Note

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r0722.0...17

CU_NX_828

CO/BO: CX digital inputs status / CX DI status

Changeable: -

Data type: Unsigned32

P group: Commands

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 1

Function plan: 2180, 2190, 2191

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1)	High	Low	-
01	DI 1 (X122.2)	High	Low	-
02	DI 2 (X122.3)	High	Low	-
03	DI 3 (X122.4)	High	Low	-
08	DI/DO 8 (X122.9)	High	Low	-
09	DI/DO 9 (X122.10)	High	Low	-
10	DI/DO 10 (X122.12)	High	Low	-
11	DI/DO 11 (X122.13)	High	Low	-
16	DI 16 (X122.5)	High	Low	-
17	DI 17 (X122.6)	High	Low	-

Dependency:

See also: r0723

Note

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r0723.0...21

CU_I_828,
CU_I_COMBI

CO/BO: CU digital inputs status inverted / CU DI status inv

Changeable: -

Data type: Unsigned32

P group: Commands

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 1

Function plan: 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the inverted status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1/X121.1)	High	Low	-
01	DI 1 (X122.2/X121.2)	High	Low	-
02	DI 2 (X122.3/X121.3)	High	Low	-
03	DI 3 (X122.4/X121.4)	High	Low	-
04	DI 4 (X132.1 / -)	High	Low	-
05	DI 5 (X132.2 / -)	High	Low	-
06	DI 6 (X132.3 / -)	High	Low	-
07	DI 7 (X132.4 / -)	High	Low	-
08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-

14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-
16	DI 16 (X122.5/X120.3)	High	Low	-
17	DI 17 (X122.6/X120.4)	High	Low	-
20	DI 20 (X132.5/X120.9)	High	Low	-
21	DI 21 (X132.6/X120.10)	High	Low	-

Dependency: See also: r0722

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

r0723.0...17 CO/BO: CX digital inputs status inverted / CX DI status inv

CU_NX_828

Changeable: -**Data type:** Unsigned32**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 1**Function plan:** 2179, 2180, 2190, 2191**Unit selection:** -**Expert list:** 1**Default:**

-

Description:

Displays the inverted status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1)	High	Low	-
01	DI 1 (X122.2)	High	Low	-
02	DI 2 (X122.3)	High	Low	-
03	DI 3 (X122.4)	High	Low	-
08	DI/DO 8 (X122.9)	High	Low	-
09	DI/DO 9 (X122.10)	High	Low	-
10	DI/DO 10 (X122.12)	High	Low	-
11	DI/DO 11 (X122.13)	High	Low	-
16	DI 16 (X122.5)	High	Low	-
17	DI 17 (X122.6)	High	Low	-

Dependency:

See also: r0722

Note

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0728 CU set input or output / CU DI or DOCU_I_828,
CU_I_COMBI**Changeable:** T**Data type:** Unsigned32**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 1**Function plan:** 2119, 2030, 2031, 2130, 2131, 2132, 2133**Unit selection:** -**Expert list:** 1**Default:**

0000 0000 0000 0000 bin

Description:

Sets the bidirectional digital inputs/outputs as an input or output.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
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08	DI/DO 8 (X122.9/X121.7)	Output	Input	-
09	DI/DO 9 (X122.10/X121.8)	Output	Input	-
10	DI/DO 10 (X122.12/X121.10)	Output	Input	-
11	DI/DO 11 (X122.13/X121.11)	Output	Input	-
12	DI/DO 12 (X132.9/X131.1)	Output	Input	-
13	DI/DO 13 (X132.10/X131.2)	Output	Input	-
14	DI/DO 14 (X132.12/X131.4)	Output	Input	-
15	DI/DO 15 (X132.13/X131.5)	Output	Input	-

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note
DI/DO: Bidirectional Digital Input/Output

p0728

CX set input or output / CX DI or DO

CU_NX_828

Changeable: T	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: 2179, 2190, 2191
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0000 0000 0000 0000 bin

Description: Sets the bidirectional digital inputs/outputs as an input or output.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.9)	Output	Input	2190
	09	DI/DO 9 (X122.10)	Output	Input	2190
	10	DI/DO 10 (X122.12)	Output	Input	2191
	11	DI/DO 11 (X122.13)	Output	Input	2191

Note
DI/DO: Bidirectional Digital Input/Output

r0729

CU digital outputs access authority / CU DO acc_auth

CU_I_828,
CU_I_COMBI

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: 2030, 2031, 2130, 2131, 2132, 2133
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the access authority at the digital outputs.
 Bit = 1:
 The control has access authority to the digital output via PROFIBUS or direct access.
 Bit = 0:
 The drive has access authority to the digital output or the digital input/output is not set as digital output or is not available.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.9/X121.7)	High	Low	-
	09	DI/DO 9 (X122.10/X121.8)	High	Low	-
	10	DI/DO 10 (X122.12/X121.10)	High	Low	-
	11	DI/DO 11 (X122.13/X121.11)	High	Low	-
	12	DI/DO 12 (X132.9/X131.1)	High	Low	-

13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-

Dependency: See also: p0728, p0738, p0739, p0740, p0741, p0742, p0743, p0744, p0745, r0747, p0748

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note

The DI/DO must be connected as output (p0728).
DI/DO: Bidirectional Digital Input/Output

r0729	CX digital outputs access authority / CX DO acc_auth			
CU_NX_828	Changeable: -	Calculation: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: -	Function plan: 2030, 2031, 2130, 2131, 2132, 2133	
	P group: Commands	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	-	

Description: Displays the access authority at the digital outputs.
Bit = 1:
The control has access authority to the digital output via PROFIBUS or direct access.
Bit = 0:
The drive has access authority to the digital output or the digital input/output is not set as digital output or is not available.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.9)	High	Low	-
	09	DI/DO 9 (X122.10)	High	Low	-
	10	DI/DO 10 (X122.12)	High	Low	-
	11	DI/DO 11 (X122.13)	High	Low	-

Dependency: See also: p0728, p0738, p0739, p0740, p0741, p0742, p0743, p0744, p0745, r0747, p0748

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note

The DI/DO must be connected as output (p0728).
DI/DO: Bidirectional Digital Input/Output

p0738	BI: CU signal source for terminal DI/DO 8 / CU S_src DI/DO 8			
CU_I_828, CU_I_COMBI	Changeable: T, U	Calculation: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2119, 2130	
	P group: Commands	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0	

Description: Sets the signal source for terminal DI/DO 8 (X122.9 / X121.7).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.8 = 1).
 DI/DO: Bidirectional Digital Input/Output

p0738

CU_NX_828

BI: CX signal source for terminal DI/DO 8 / CX S_src DI/DO 8

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2179, 2190
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0

Description:

Sets the signal source for terminal DI/DO 8 (X122.9 / X121.7).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.8 = 1).
 DI/DO: Bidirectional Digital Input/Output

p0739

CU_I_828,
 CU_I_COMBI

BI: CU signal source for terminal DI/DO 9 / CU S_src DI/DO 9

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2130
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0

Description:

Sets the signal source for terminal DI/DO 9 (X122.10 / X121.8).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.9 = 1).
 DI/DO: Bidirectional Digital Input/Output

p0739

CU_NX_828

BI: CX signal source for terminal DI/DO 9 / CX S_src DI/DO 9

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2190
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0

Description:

Sets the signal source for terminal DI/DO 9 (X122.10 / X121.8).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.9 = 1).
DI/DO: Bidirectional Digital Input/Output

p0740

CU_I_828,
CU_I_COMBI

BI: CU signal source for terminal DI/DO 10 / CU S_src DI/DO 10

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2131
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for terminal DI/DO 10 (X122.12 / X121.10).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.10 = 1).
DI/DO: Bidirectional Digital Input/Output

p0740

CU_NX_828

BI: CX signal source for terminal DI/DO 10 / CX S_src DI/DO 10

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2191
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for terminal DI/DO 10 (X122.12 / X121.10).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.10 = 1).
DI/DO: Bidirectional Digital Input/Output

p0741

CU_I_828,
CU_I_COMBI

BI: CU signal source for terminal DI/DO 11 / CU S_src DI/DO 11

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2119, 2131
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for terminal DI/DO 11 (X122.13 / X121.11).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

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

Note
 Prerequisite: The DI/DO must be set as an output (p0728.11 = 1).
 DI/DO: Bidirectional Digital Input/Output

p0741 CU_NX_828	BI: CX signal source for terminal DI/DO 11 / CX S_src DI/DO 11	Changeable: T, U	Calculation: -	Access level: 1
		Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2179, 2191
		P group: Commands	Unit group: -	Unit selection: -
		Not for motor type: -	Scaling: -	Expert list: 1
		Min:	Max:	Default:
		-	-	0

Description: Sets the signal source for terminal DI/DO 11 (X122.13 / X121.11).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

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

Note
 Prerequisite: The DI/DO must be set as an output (p0728.11 = 1).
 DI/DO: Bidirectional Digital Input/Output

p0742 CU_I_828, CU_I_COMBI	BI: CU signal source for terminal DI/DO 12 / CU S_src DI/DO 12	Changeable: T, U	Calculation: -	Access level: 1
		Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2119, 2132
		P group: Commands	Unit group: -	Unit selection: -
		Not for motor type: -	Scaling: -	Expert list: 1
		Min:	Max:	Default:
		-	-	0

Description: Sets the signal source for terminal DI/DO 12 (X132.9 / X131.1).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

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

Note
 Prerequisite: The DI/DO must be set as an output (p0728.12 = 1).
 DI/DO: Bidirectional Digital Input/Output

p0743 CU_I_828, CU_I_COMBI	BI: CU signal source for terminal DI/DO 13 / CU S_src DI/DO 13	Changeable: T, U	Calculation: -	Access level: 1
		Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2132
		P group: Commands	Unit group: -	Unit selection: -
		Not for motor type: -	Scaling: -	Expert list: 1
		Min:	Max:	Default:
		-	-	0

Description: Sets the signal source for terminal DI/DO 13 (X132.10 / X131.2).
 To the terminal designation:
 The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.13 = 1).
DI/DO: Bidirectional Digital Input/Output

p0744

CU_I_828,
CU_I_COMBI

BI: CU signal source for terminal DI/DO 14 / CU S_src DI/DO 14

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2133
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for terminal DI/DO 14 (X132.12 / X131.4).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.14 = 1).
DI/DO: Bidirectional Digital Input/Output

p0745

CU_I_828,
CU_I_COMBI

BI: CU signal source for terminal DI/DO 15 / CU S_src DI/DO 15

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2119, 2133
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for terminal DI/DO 15 (X132.13 / X131.5you).
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

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

Note

Prerequisite: The DI/DO must be set as an output (p0728.15 = 1).
DI/DO: Bidirectional Digital Input/Output

r0747

CU_I_828,
CU_I_COMBI

CU digital outputs status / CU DO status

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: 2130, 2131, 2132, 2133
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the status of digital outputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
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08	DI/DO 8 (X122.9/X121.7)	High	Low	-
09	DI/DO 9 (X122.10/X121.8)	High	Low	-
10	DI/DO 10 (X122.12/X121.10)	High	Low	-
11	DI/DO 11 (X122.13/X121.11)	High	Low	-
12	DI/DO 12 (X132.9/X131.1)	High	Low	-
13	DI/DO 13 (X132.10/X131.2)	High	Low	-
14	DI/DO 14 (X132.12/X131.4)	High	Low	-
15	DI/DO 15 (X132.13/X131.5)	High	Low	-

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note
Inversion using p0748 has been taken into account.
DI/DO: Bidirectional Digital Input/Output

r0747

CX digital outputs status / CX DO status

CU_NX_828

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: 2190, 2191
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the status of digital outputs.

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9)	High	Low	-
09	DI/DO 9 (X122.10)	High	Low	-
10	DI/DO 10 (X122.12)	High	Low	-
11	DI/DO 11 (X122.13)	High	Low	-

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note
Inversion using p0748 has been taken into account.
DI/DO: Bidirectional Digital Input/Output

p0748

CU invert digital outputs / CU DO inv

CU_I_828,
CU_I_COMBI

Changeable: T, U	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: 2030, 2031, 2130, 2131, 2132, 2133
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0000 0000 0000 0000 bin

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

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9/X121.7)	Inverted	Not inverted	-
09	DI/DO 9 (X122.10/X121.8)	Inverted	Not inverted	-
10	DI/DO 10 (X122.12/X121.10)	Inverted	Not inverted	-

11	DI/DO 11 (X122.13/X121.11)	Inverted	Not inverted	-
12	DI/DO 12 (X132.9/X131.1)	Inverted	Not inverted	-
13	DI/DO 13 (X132.10/X131.2)	Inverted	Not inverted	-
14	DI/DO 14 (X132.12/X131.4)	Inverted	Not inverted	-
15	DI/DO 15 (X132.13/X131.5)	Inverted	Not inverted	-

NOTICE

If telegram 39x is set via p0922 in SINAMICS Integrated, the inversion of the output has no effect.
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Note

DI/DO: Bidirectional Digital Input/Output

p0748

CU_NX_828

CX invert digital outputs / CX DO inv**Changeable:** T, U**Data type:** Unsigned32**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 1**Function plan:** 2190, 2191**Unit selection:** -**Expert list:** 1**Default:**

0000 0000 0000 0000 bin

Description:

Setting to invert the signals at the digital outputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X122.9)	Inverted	Not inverted	-
09	DI/DO 9 (X122.10)	Inverted	Not inverted	-
10	DI/DO 10 (X122.12)	Inverted	Not inverted	-
11	DI/DO 11 (X122.13)	Inverted	Not inverted	-

NOTICE

If telegram 39x is set via p0922 in SINAMICS Integrated, the inversion of the output has no effect.
To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Note

DI/DO: Bidirectional Digital Input/Output

p0771[0...2]CU_I_828,
CU_I_COMBI,
CU_NX_828**CI: Test sockets signal source / Test skt S_src****Changeable:** T, U**Data type:** Unsigned32 / Integer16**P group:** Terminals**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** PERCENT**Max:**

-

Access level: 2**Function plan:** 8134**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the signal source for the signal to be output at the test sockets.

Index:

[0] = T0

[1] = T1

[2] = T2

Dependency:

Can only be set when p0776 = 99.

See also: r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0772[0...2] **Test sockets output signal / TestSktsSignalVal**
 CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 2
 CU_I_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** 8134
 CU_NX_828 **P group:** Terminals **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - [%] - [%] - [%]

Description: Displays the actual value of the signal to be output.

Index: [0] = T0
 [1] = T1
 [2] = T2

Dependency: See also: p0771, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0774[0...2] **Test sockets output voltage / TestSkts U_output**
 CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 2
 CU_I_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Terminals **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - [V] - [V] - [V]

Description: Displays the actual output voltage for the test sockets.

Index: [0] = T0
 [1] = T1
 [2] = T2

Dependency: See also: p0771, r0772, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

p0776[0...2] **Test socket mode / Test skt mode**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 4
 CU_I_COMBI, **Data type:** Integer16 **Dynamic index:** - **Function plan:** 8134
 CU_NX_828 **P group:** Terminals **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 96 99 99

Description: Sets the mode for the test sockets.

Value: 96: Physical address (32-bit integer signal unsigned)
 97: Physical address (32-bit integer signal)
 98: Physical address (32-bit floating-point signal)
 99: BICO signal

Index: [0] = T0
 [1] = T1
 [2] = T2

Dependency: See also: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784, r0786, p0788, p0789, r0790

p0777[0...2]	Test socket characteristic value x1 / Test skt char x1		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100000.00 [%]	Max: 100000.00 [%]	Default: 0.00 [%]
Description:	The scaling characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the first point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. See also: p0778, p0779, p0780, r0786		
	Note The value 0.00 % corresponds to 2.49 V.		

p0778[0...2]	Test socket characteristic value y1 / Test skt char y1		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [V]	Max: 4.98 [V]	Default: 2.49 [V]
Description:	The scaling characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the first point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. See also: p0777, p0779, p0780, r0786		

p0779[0...2]	Test socket characteristic value x2 / Test skt char x2		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100000.00 [%]	Max: 427.9E9 [%]	Default: 100.00 [%]
Description:	The scaling characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the second point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. See also: p0777, p0778, p0780, r0786		
	Note The value 100.00 % corresponds to 4.98 V.		

p0780[0...2]	Test socket characteristic value y2 / Test skt char y2		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [V]	Max: 4.98 [V]	Default: 4.98 [V]
Description:	The scaling characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the second point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Can only be set when p0776 = 99. See also: p0777, p0778, p0779, r0786		

p0783[0...2]	Test sockets offset / Test skt offset		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -4.98 [V]	Max: 4.98 [V]	Default: 0.00 [V]
Description:	Sets an additional offset for the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		

p0784[0...2]	Test socket limit on/off / TestSktLim on/off		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Sets the limit for a signal to be output via test sockets.		
Value:	0: Limiting off 1: Limiting on		
Index:	[0] = T0 [1] = T1 [2] = T2		

Note

Limiting on:

If signals are output outside the permissible measuring range, the signal is limited to 4.98 V or to 0 V.

Limiting off:

If signals are output outside the permissible measuring range, this causes signal overflow. In the case of signal overflow, the signal jumps from 0 V to 4.98 V or from 4.98 V to 0 V.

r0786[0...2]	Test socket scaling per volt / TestSktScale/Volt		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8134
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the scaling of the signal to be output. A change in the output voltage by 1 volt corresponds to the value in this parameter. The units are determined by the interconnected test signal.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	See also: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784		
	Note Example: r0786[0] = 1500.0 and the measuring signal is r0063 (CO: Actual speed smoothed [rpm]). A change of 1 V at the output of test socket T0 corresponds to 1500.0 [rpm].		
p0788[0...2]	Test sockets physical address / Test skt PhyAddr		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin
Description:	Sets the physical address to output signals via the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Changes only become effective if p0776 does not equal 99. See also: p0789, r0790		
p0789[0...2]	Test sockets physical address gain / TestSktPhyAddrGain		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-340.28235E36	340.28235E36	1.00000
Description:	Sets the gain of a signal output of a physical address via test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Changes only become effective if p0776 does not equal 99. See also: p0788		

r0790[0...2] CU_I_828, CU_I_COMBI, CU_NX_828	Test sockets physical address signal value / TestSksPhyAddrVal		
	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the actual value of a signal determined via a physical address.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Only effective when p0776 = 97 or p0776 = 96. See also: p0788		

p0795 CU_I_828, CU_I_COMBI	CU digital inputs simulation mode / CU DI simulation		
	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2020, 2030, 2031, 2100, 2119, 2120, 2130, 2131, 2132, 2133
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description:	Sets the simulation mode for digital inputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	Simulation	Terminal eval	-
	01	DI 1 (X122.2/X121.2)	Simulation	Terminal eval	-
	02	DI 2 (X122.3/X121.3)	Simulation	Terminal eval	-
	03	DI 3 (X122.4/X121.4)	Simulation	Terminal eval	-
	04	DI 4 (X132.1 / -)	Simulation	Terminal eval	-
	05	DI 5 (X132.2 / -)	Simulation	Terminal eval	-
	06	DI 6 (X132.3 / -)	Simulation	Terminal eval	-
	07	DI 7 (X132.4 / -)	Simulation	Terminal eval	-
	08	DI/DO 8 (X122.9/X121.7)	Simulation	Terminal eval	-
	09	DI/DO 9 (X122.10/X121.8)	Simulation	Terminal eval	-
	10	DI/DO 10 (X122.12/X121.10)	Simulation	Terminal eval	-
	11	DI/DO 11 (X122.13/X121.11)	Simulation	Terminal eval	-
	12	DI/DO 12 (X132.9/X131.1)	Simulation	Terminal eval	-
	13	DI/DO 13 (X132.10/X131.2)	Simulation	Terminal eval	-
	14	DI/DO 14 (X132.12/X131.4)	Simulation	Terminal eval	-
	15	DI/DO 15 (X132.13/X131.5)	Simulation	Terminal eval	-
	16	DI 16 (X122.5/X120.3)	Simulation	Terminal eval	-
	17	DI 17 (X122.6/X120.4)	Simulation	Terminal eval	-
	20	DI 20 (X132.5/X120.9)	Simulation	Terminal eval	-
	21	DI 21 (X132.6/X120.10)	Simulation	Terminal eval	-
Dependency:	The setpoint for the input signals is specified using p0796. See also: p0796, p9620				

NOTICE

If a digital input is used as signal source for the function "STO" (BI: p9620) then it is not permissible to select the simulation mode and this is rejected.

To the terminal designation:

The first designation stands for CU320, the second for CU310.

Note

This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0795

CU_NX_828

CX digital inputs simulation mode / CX DI simulation

Changeable: T, U

Data type: Unsigned32

P group: Commands

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 2180, 2190, 2191

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description:

Sets the simulation mode for digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X122.1)	Simulation	Terminal eval	-
01	DI 1 (X122.2)	Simulation	Terminal eval	-
02	DI 2 (X122.3)	Simulation	Terminal eval	-
03	DI 3 (X122.4)	Simulation	Terminal eval	-
08	DI/DO 8 (X122.9)	Simulation	Terminal eval	-
09	DI/DO 9 (X122.10)	Simulation	Terminal eval	-
10	DI/DO 10 (X122.12)	Simulation	Terminal eval	-
11	DI/DO 11 (X122.13)	Simulation	Terminal eval	-
16	DI 16 (X122.5)	Simulation	Terminal eval	-
17	DI 17 (X122.6)	Simulation	Terminal eval	-

Dependency:

The setpoint for the input signals is specified using p0796.

See also: p0796, p9620

NOTICE

If a digital input is used as signal source for the function "STO" (BI: p9620) then it is not permissible to select the simulation mode and this is rejected.

Note

This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0796CU_I_828,
CU_I_COMBI**CU digital inputs simulation mode setpoint / CU DI simul setp**

Changeable: T, U

Data type: Unsigned32

P group: Commands

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 2020, 2030, 2031,
2100, 2119, 2120, 2130, 2131,
2132, 2133

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description: Sets the setpoint for the input signals in the digital input simulation mode.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1/X121.1)	High	Low	-
	01	DI 1 (X122.2/X121.2)	High	Low	-
	02	DI 2 (X122.3/X121.3)	High	Low	-
	03	DI 3 (X122.4/X121.4)	High	Low	-
	04	DI 4 (X132.1 / -)	High	Low	-
	05	DI 5 (X132.2 / -)	High	Low	-
	06	DI 6 (X132.3 / -)	High	Low	-
	07	DI 7 (X132.4 / -)	High	Low	-
	08	DI/DO 8 (X122.9/X121.7)	High	Low	-
	09	DI/DO 9 (X122.10/X121.8)	High	Low	-
	10	DI/DO 10 (X122.12/X121.10)	High	Low	-
	11	DI/DO 11 (X122.13/X121.11)	High	Low	-
	12	DI/DO 12 (X132.9/X131.1)	High	Low	-
	13	DI/DO 13 (X132.10/X131.2)	High	Low	-
	14	DI/DO 14 (X132.12/X131.4)	High	Low	-
	15	DI/DO 15 (X132.13/X131.5)	High	Low	-
	16	DI 16 (X122.5/X120.3)	High	Low	-
	17	DI 17 (X122.6/X120.4)	High	Low	-
	20	DI 20 (X132.5/X120.9)	High	Low	-
	21	DI 21 (X132.6/X120.10)	High	Low	-

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

NOTICE
To the terminal designation: The first designation is valid for CU320, the second for CU310.

Note
This parameter is not saved when data is backed-up (p0971, p0977).
DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

p0796

CX digital inputs simulation mode, setpoint / CX DI simul setp

CU_NX_828

Changeable: T, U	Calculation: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	Function plan: 2020, 2030, 2031
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the setpoint for the input signals in the digital input simulation mode.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X122.1)	High	Low	-
	01	DI 1 (X122.2)	High	Low	-
	02	DI 2 (X122.3)	High	Low	-
	03	DI 3 (X122.4)	High	Low	-
	08	DI/DO 8 (X122.9)	High	Low	-
	09	DI/DO 9 (X122.10)	High	Low	-
	10	DI/DO 10 (X122.12)	High	Low	-

11	DI/DO 11 (X122.13)	High	Low	-
16	DI 16 (X122.5)	High	Low	-
17	DI 17 (X122.6)	High	Low	-

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

NOTICE

To the terminal designation:
The first designation is valid for CU320, the second for CU310.

Note

This parameter is not saved when data is backed-up (p0971, p0977).

DI: Digital Input

DI/DO: Bidirectional Digital Input/Output

p0799[0...2]**CU inputs/outputs sampling time / CU I/O t_sampl**

CU_I_828,
CU_I_COMBI

Changeable: C1(3)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2020, 2030, 2031

P group: Commands

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [µs]

5000.00 [µs]

4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of the Control Unit.

Index: [0] = Digital inputs/outputs (DI/DO)

[1] = Analog inputs (AI)

[2] = Not available - analog outputs (AO)

Dependency: The parameter can only be modified for p0009 = 3, 29.

See also: p0009

Note

The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).

p0799[0...2]**CX inputs/outputs sampling time / CX I/O t_sampl**

CU_NX_828

Changeable: C1(3)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2020, 2030, 2031

P group: Commands

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [µs]

5000.00 [µs]

4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of the Control Unit.

Index: [0] = Digital inputs/outputs (DI/DO)

[1] = Not available - analog inputs (AI)

[2] = Not available - analog outputs (AO)

Dependency: The parameter can only be modified for p0009 = 3, 29.

See also: p0009

Note

The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).

p0806

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

BI: Inhibit master control / PcCtrl inhibit

Changeable: T
Data type: Unsigned32 / Binary
P group: Commands
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
0

Description: Sets the signal source to block the master control.
Dependency: See also: r0807

Note

The commissioning software (drive control panel) uses the master control, for example.

r0807.0

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

BO: Master control active / PcCtrl active

Changeable: -
Data type: Unsigned8
P group: Displays, signals
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 2
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

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: See also: p0806

NOTICE

The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.

Note

Bit 0 = 0: BICO interconnection active
Bit 0 = 1: Master control for PC/AOP
The commissioning software (drive control panel) uses the master control, for example.

p0809[0...2]

SERVO_828,
SERVO_COMBI

Copy Command Data Set CDS / Copy CDS

Changeable: T
Data type: Unsigned8
P group: Commands
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
15

Access level: 2
Function plan: 8560
Unit selection: -
Expert list: 1
Default:
0

Description: Copies one Command Data Set (CDS) into another.

Index: [0] = Source Command Data Set
[1] = Target Command Data Set
[2] = Start copying procedure

Note

Procedure:

1. In Index 0, enter which command data set should be copied.
 2. In Index 1, enter the command data set that is to be copied into.
 3. Start copying: Set index 2 from 0 to 1.
- p0809[2] is automatically set to 0 when copying is completed.

p0810

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

BI: Command data set selection CDS bit 0 / CDS select., bit 0**Changeable:** T**Data type:** Unsigned32 / Binary**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 3**Function plan:** 8560**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).

Dependency:

See also: r0050, r0836

NOTICE

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

Note

The Command Data Set selected using the binector inputs is displayed in r0836.

The currently effective command data set is displayed in r0050.

A Command Data Set can be copied using p0809.

p0819[0...2]

HLA_828,
SERVO_828,
SERVO_COMBI

Copy Drive Data Set DDS / Copy DDS**Changeable:** C2(15)**Data type:** Unsigned8**P group:** Data sets**Not for motor type:** -**Min:**

0

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

31

Access level: 2**Function plan:** 8565**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Copies one Drive Data Set (DDS) into another.

Index:

[0] = Source Drive Data Set

[1] = Target Drive Data Set

[2] = Start copying procedure

Note

Procedure:

1. In Index 0, enter which drive data set is to be copied.
 2. In Index 1, enter the drive data set data that is to be copied into.
 3. Start copying: Set index 2 from 0 to 1.
- p0819[2] is automatically set to 0 when copying is completed.

p0820[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0**Changeable:** C2(15), T**Data type:** Unsigned32 / Binary**P group:** Data sets**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** CDS, p0170**Unit group:** -**Scaling:** -**Max:**

-

Access level: 3**Function plan:** 8565, 8575**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).

Dependency: See also: r0051, r0837

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

p0821[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1

Changeable: C2(15), T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 8565, 8570
P group: Data sets	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 1 (DDS, bit 1).

Dependency: See also: r0051, r0837

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

p0822[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

BI: Drive Data Set selection DDS bit 2 / DDS select., bit 2

Changeable: C2(15), T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 8565
P group: Data sets	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 2 (DDS, bit 2).

Dependency: See also: r0051, r0837

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

p0823[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

BI: Drive Data Set selection DDS bit 3 / DDS select., bit 3

Changeable: C2(15), T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 8565
P group: Data sets	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 3 (DDS, bit 3).

Dependency: See also: r0051, r0837

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

p0824[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

BI: Drive Data Set selection DDS bit 4 / DDS select., bit 4

Changeable: C2(15), T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 8565, 8575
P group: Data sets	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 4 (DDS, bit 4).

Dependency: See also: r0051, r0837

NOTICE

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

p0826[0...n]

SERVO_828,
SERVO_COMBI

Motor changeover motor number / Mot_chng mot No.

Changeable: C2(3)

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: MDS, p0130

Function plan: 8575

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

15

0

Description: Sets the freely-assignable motor number for the motor changeover.

Dependency: See also: p0827

NOTICE

When changing over motor data sets with the same motor number (e.g. star-delta changeover) and for a motor with brake, the motor brake remains open during the changeover.
--

Note

When the motor data sets are changed over, the following applies:

The same motor number signifies the same thermal model.

p0827[0...n]

SERVO_828,
SERVO_COMBI

Motor changeover status word bit number / Mot_chg ZSW bitNo.

Changeable: C2(3)

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: MDS, p0130

Function plan: 8575

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

15

0

Description: Sets the bit number for every motor data set.

Example:

p0827[0] = 0: For MDS0, r0830.0 is switched.

p0827[1] = 5: For MDS1, r0830.5 is switched.

Dependency: See also: p0826, r0830

Note

A motor is only changed over (a new motor selected) after the pulses have been suppressed.

When the motor data sets are changed over, the following applies:

Bit numbers that are not identical, signify that the motor must be changed over.

p0828[0...n]

SERVO_828,
SERVO_COMBI

BI: Motor changeover feedback signal / Mot_chng fdbk sig

Changeable: C2(3), T

Calculation: -

Access level: 3

Data type: Unsigned32 / Binary

Dynamic index: CDS, p0170

Function plan: 8575

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0

Description: Sets the signal source for the feedback signal when changing over the motor.

For p0833.0 = 1 the following applies:

This feedback signal (0/1 edge) is required after a motor changeover to enable the pulses.

Dependency: See also: p0833

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

r0830.0...15 **CO/BO: Motor changeover status word / Mot_chngov ZSW**

SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 2
 SERVO_COMBI **Data type:** Unsigned16 **Dynamic index:** - **Function plan:** 8575
 P group: Displays, signals **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - -

Description: Displays the status word of the motor changeover.
 These signals can be connected to digital outputs to change over the motor.

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

Dependency: See also: p0827

p0831[0...15] **BI: Motor changeover contactor feedback / Mot_chg cont fdbk**

SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** Unsigned32 / Binary **Dynamic index:** - **Function plan:** 8575
 P group: Motor **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - 0

Description: Sets the signal source for the feedback signal of the contactors when changing over motors. There is a fixed inter-relationship between energizing the contactor and the feedback signal.

Example:
A changeover is to be made between MDS0 (motor 0) and MDS1 (motor 1). The contactors should be switched using bit 4 (contactor 0) and 5 (contactor 1). The changeover should be made with an interconnection of the feedback signal.

Implementation:
MDS0: p0827[0] = 4, interconnect output to switch contactor 0 to r0830.4, p0831[4] = "input, feedback signal, contactor 0"
MDS1: p0827[1] = 5, interconnect output to switch contactor 1 to r0830.5, p0831[5] = "input, feedback signal, contactor 1"

The following sequence applies when changing over from MDS0 to MDS1:

1. The status bit r0830.4 is deleted. When the feedback signal (p0831[4]) is connected, the system waits until the feedback signal "contactor open" is displayed. If the feedback signal is not connected, then the system waits for the switch-off interlocking time of 320 ms.
2. The status bit r0830.5 is set. If the feedback signal (p0831[5]) is connected, the system waits until the feedback signal "contactor closed" is displayed. If the feedback signal is not connected, then the system waits for the switch-on interlocking time of 160 ms.

Index:

- [0] = Feedback signal contactor 0
- [1] = Feedback signal contactor 1
- [2] = Feedback signal contactor 2
- [3] = Feedback signal contactor 3
- [4] = Feedback signal contactor 4
- [5] = Feedback signal contactor 5
- [6] = Feedback signal contactor 6
- [7] = Feedback signal contactor 7
- [8] = Feedback signal contactor 8
- [9] = Feedback signal contactor 9
- [10] = Feedback signal contactor 10
- [11] = Feedback signal contactor 11
- [12] = Feedback signal contactor 12
- [13] = Feedback signal contactor 13
- [14] = Feedback signal contactor 14
- [15] = Feedback signal contactor 15

r0832.0...15 CO/BO: Mot. changeover contactor feedback sig. status word / Mot_chng fdbk ZSW

SERVO_828,
SERVO_COMBI

Changeable: -

Data type: Unsigned32

P group: Displays, signals

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 8575

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the status word of the contactor feedback signals when changing over a motor.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Feedback signal contactor 0	Closed	Opened	-
01	Feedback signal contactor 1	Closed	Opened	-
02	Feedback signal contactor 2	Closed	Opened	-
03	Feedback signal contactor 3	Closed	Opened	-
04	Feedback signal contactor 4	Closed	Opened	-
05	Feedback signal contactor 5	Closed	Opened	-
06	Feedback signal contactor 6	Closed	Opened	-
07	Feedback signal contactor 7	Closed	Opened	-
08	Feedback signal contactor 8	Closed	Opened	-

09	Feedback signal contactor 9	Closed	Opened	-
10	Feedback signal contactor 10	Closed	Opened	-
11	Feedback signal contactor 11	Closed	Opened	-
12	Feedback signal contactor 12	Closed	Opened	-
13	Feedback signal contactor 13	Closed	Opened	-
14	Feedback signal contactor 14	Closed	Opened	-
15	Feedback signal contactor 15	Closed	Opened	-

Dependency: See also: p0831

p0833

Data set changeover configuration / DS_chng config

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(15)
Data type: Unsigned16
P group: Data sets
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 2
Function plan: 8575
Unit selection: -
Expert list: 1
Default:
0000 bin

Description:

Sets the configuration for the motor and encoder changeover.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Contactor changeover from the application/drive	application	Drive	-
01	Pulse suppression by application/drive	application	Drive	-
02	Suppress drive parking for EDS changeover	Yes	No	-

Note

For bit 00:

When the bit is set and the motor has to be changed over, then p0827 must be set differently in the appropriate motor data sets.

For bit 02:

The bit defines whether, for an EDS changeover, the status signal Gn_ZSW.14 is suppressed (parking encoder active).

r0835.0...11

CO/BO: Data set changeover status word / DDS_ZSW

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -
Data type: Unsigned16
P group: Displays, signals
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 2
Function plan: 8575
Unit selection: -
Expert list: 1
Default:
-

Description:

Displays the status word for the drive data set changeover.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor changeover active	Yes	No	8575
01	Encoder changeover active	Yes	No	-
02	Internal parameter calculation active	Yes	No	-
04	Armature short circuit active	Yes	No	-
05	Identification running	Yes	No	-
06	Friction characteristic record running	Yes	No	-
07	Rotating measurement running	Yes	No	-
08	Motor data identification running	Yes	No	-
10	Wait for pulse suppression	Yes	No	-
11	Wait for motor changeover feedback signal	Yes	No	-

Note

This parameter is only supplied with up-to-date values if data set changeover has been selected or is running.

For bit 00:

The signal is only influenced when a motor changeover is set via p0827 (unequal bit numbers).

For bit 01:

The signal is only influenced when an encoder changeover is set via p0187, p0188, or p0189.

For bit 02:

A data set changeover is delayed by the time required for the internal parameter calculation.

For bit 04:

A data set changeover is only carried out when the armature short circuit is not activated.

For bit 05:

The following applies for SERVO:

A data set changeover is only carried out when pole position identification, encoder adjustment, motor data identification, and rotating measurement are not running.

The following applies for VECTOR:

A data set changeover is only carried out when pole position identification is not running.

For bit 06:

A data set changeover is only carried out when the friction characteristic record is not running.

For bit 07 (VECTOR only):

A data set changeover is only carried out when rotating measurement is not running.

For bit 08 (VECTOR only):

A data set changeover is only carried out when motor data identification is not running.

For bit 10:

A motor changeover is set with p0833.1 = 1. It can only be carried out when the application performs pulse suppression.

For bit 11:

A motor changeover is set with p0833.0 = 1. The pulses are only enabled when the "Motor changeover feedback" signal is detected.

r0836.0...3

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828

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

Changeable: -

Data type: Unsigned8

P group: Displays, signals

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 8560

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the command data set (CDS) selected via the binector input.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	CDS select. bit 0	ON	OFF	-
01	CDS select. bit 1	ON	OFF	-
02	CDS select. bit 2	ON	OFF	-
03	CDS select. bit 3	ON	OFF	-

Dependency:

See also: 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...4 **CO/BO: Drive Data Set DDS selected / DDS selected**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: 8565
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the drive data set (DDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DDS select. bit 0	ON	OFF	-
	01	DDS select. bit 1	ON	OFF	-
	02	DDS select. bit 2	ON	OFF	-
	03	DDS select. bit 3	ON	OFF	-
	04	DDS select. bit 4	ON	OFF	-

Dependency: See also: r0051, p0820, p0821, p0822, p0823, p0824

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.

r0838[0...3] **Motor/Encoder Data Set selected / MDS/EDS selected**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: 8565
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the selected Motor Data Set (MDS) and the selected Encoder Data Sets (EDS).

Index:
[0] = Motor Data Set MDS selected
[1] = Encoder 1 Encoder Data Set EDS selected
[2] = Encoder 2 Encoder Data Set EDS selected
[3] = Encoder 3 Encoder Data Set EDS selected

Dependency: See also: r0049, p0186, p0187, p0188, p0189

Note

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

p0839 **Motor changeover contactor control delay time / Mot_chg ctrl t_del**

SERVO_828, SERVO_COMBI	Changeable: C2(3)	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0 [ms]	500 [ms]	0 [ms]

Description: Sets the delay time for the contactor control for the motor changeover.

Note

The delay time is taken into account in the following cases:
- for feedback signal, previous contactor "Open". The new motor contactor is controlled (energized) after the delay time has expired.
- for the feedback signal, new motor contactor "Closed". The pulses are enabled after the delay time has expired.

p0840[0...n]	BI: ON / OFF (OFF1) / ON / OFF (OFF1)		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 / Binary	Calculation: - Dynamic index: CDS, p0170	Access level: 3 Function plan: 2501, 2610, 8720, 8820, 8920
	P group: Commands Not for motor type: - Min: -	Unit group: - Scaling: - Max: -	Unit selection: - Expert list: 1 Default: 0

Description: Sets the signal source for the command "ON/OFF (OFF1)".
For the PROFIdrive profile, this command corresponds to control word 1 bit 0 (STW1.0).

Recommendation: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

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 switching-on inhibited 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, 21), the following applies:
- BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression)
For drives with closed-loop torque control (p1300 = 22, 23), the following applies:
- BI: p0840 = 0 signal: immediate pulse suppression
For drives with closed-loop torque control (activated using p1501), the following applies:
- BI: p0840 = 0 signal: No dedicated braking response, but pulse cancelation when standstill is detected (p1226, p1227)
For drives with closed-loop speed/torque control, the following applies:
- BI: p0840 = 0/1 signal: ON (pulses can be enabled)
For active infeeds (Active Line Module and Smart Line Module) the following applies:
- BI: p0840 = 0 signal: OFF1 (reduce Vdc along the ramp, then pulse suppression and pre-charging contactor/line contactor open)
- BI: p0840 = 0/1 signal: ON (pre-charging contactor/line contactor close, pulses can be enabled)
For passive infeeds (Basic Line Module) the following applies:
- BI: p0840 = 0 signal: OFF1 (pre-charging contactor/line contactor open)
- BI: p0840 = 0/1 signal: ON (pre-charging contactor/line contactor close)
r0863.1 of a drive can also be selected as signal source.

p0844[0...n]	BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 / Binary	Calculation: - Dynamic index: CDS, p0170	Access level: 3 Function plan: 2501, 8720, 8820, 8920
	P group: Commands Not for motor type: - Min: -	Unit group: - Scaling: - Max: -	Unit selection: - Expert list: 1 Default: 1

Description:

Sets the first signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switching on inhibited)

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.

Note

For Active Line Modules, Smart Line Modules and binector input p0844 = 0 signal or p0845 = 0 signal, the following applies:

- pre-charging contactor/line contactor is additionally opened.

p0845[0...n]

BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2

A_INF_828,

Changeable: T

Calculation: -

Access level: 3

B_INF_828, HLA_828,

Data type: Unsigned32 / Binary

Dynamic index: CDS, p0170

Function plan: 2501, 8720, 8820, 8920

S_INF_828,

S_INF_COMBI,

P group: Commands

Unit group: -

Unit selection: -

SERVO_828,

Not for motor type: -

Scaling: -

Expert list: 1

SERVO_COMBI

Min:

Max:

Default:

-

-

1

Description:

Sets the second signal source for the command "No coast down/coast down (OFF2)".

The following signals are AND'ed:

- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).

BI: p0844 = 0 signal or BI: p0845 = 0 signal

- OFF2 (immediate pulse suppression and switching on inhibited)

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.

Note

For Active Line Modules, Smart Line Modules and binector input p0844 = 0 signal or p0845 = 0 signal, the following applies:

- pre-charging contactor/line contactor is additionally opened.

p0848[0...n]

BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1

HLA_828,

Changeable: T

Calculation: -

Access level: 3

SERVO_828,

Data type: Unsigned32 / Binary

Dynamic index: CDS, p0170

Function plan: 2501

SERVO_COMBI

P group: Commands

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:


Default:

-

-

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 switching on inhibited)
 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																		
HLA_828, SERVO_828, SERVO_COMBI	<table border="0"> <tr> <td>Changeable: T</td> <td>Calculation: -</td> <td>Access level: 3</td> </tr> <tr> <td>Data type: Unsigned32 / Binary</td> <td>Dynamic index: CDS, p0170</td> <td>Function plan: 2501</td> </tr> <tr> <td>P group: Commands</td> <td>Unit group: -</td> <td>Unit selection: -</td> </tr> <tr> <td>Not for motor type: -</td> <td>Scaling: -</td> <td>Expert list: 1</td> </tr> <tr> <td>Min:</td> <td>Max:</td> <td>Default:</td> </tr> <tr> <td>-</td> <td>-</td> <td>1</td> </tr> </table>	Changeable: T	Calculation: -	Access level: 3	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501	P group: Commands	Unit group: -	Unit selection: -	Not for motor type: -	Scaling: -	Expert list: 1	Min:	Max:	Default:	-	-	1
Changeable: T	Calculation: -	Access level: 3																	
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501																	
P group: Commands	Unit group: -	Unit selection: -																	
Not for motor type: -	Scaling: -	Expert list: 1																	
Min:	Max:	Default:																	
-	-	1																	

Description: Sets the second signal source for the command "No quick stop/quick stop (OFF3)".
 The following signals are AND'ed:
 - BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
 - BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"
 For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).
 BI: p0848 = 0 signal or BI: p0849 = 0 signal
 - OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
 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).

p0852[0...n]	BI: Enable operation/inhibit operation / Operation enable																		
A_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	<table border="0"> <tr> <td>Changeable: T</td> <td>Calculation: -</td> <td>Access level: 3</td> </tr> <tr> <td>Data type: Unsigned32 / Binary</td> <td>Dynamic index: CDS, p0170</td> <td>Function plan: 2501, 8820, 8920</td> </tr> <tr> <td>P group: Commands</td> <td>Unit group: -</td> <td>Unit selection: -</td> </tr> <tr> <td>Not for motor type: -</td> <td>Scaling: -</td> <td>Expert list: 1</td> </tr> <tr> <td>Min:</td> <td>Max:</td> <td>Default:</td> </tr> <tr> <td>-</td> <td>-</td> <td>1</td> </tr> </table>	Changeable: T	Calculation: -	Access level: 3	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501, 8820, 8920	P group: Commands	Unit group: -	Unit selection: -	Not for motor type: -	Scaling: -	Expert list: 1	Min:	Max:	Default:	-	-	1
Changeable: T	Calculation: -	Access level: 3																	
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501, 8820, 8920																	
P group: Commands	Unit group: -	Unit selection: -																	
Not for motor type: -	Scaling: -	Expert list: 1																	
Min:	Max:	Default:																	
-	-	1																	


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

 CAUTION
When "master control from PC" is activated, this binector input is ineffective.
NOTICE
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0854[0...n] **BI: Control by PLC/no control by PLC / Master ctrl by PLC**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 / Binary P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2501, 8720, 8820, 8920 Unit selection: - Expert list: 1 Default: 1
--	---	--	---

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

 CAUTION
When "master control from PC" is activated, this binector input is ineffective.
NOTICE
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note
 This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.
 If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

p0855[0...n] **BI: Unconditionally release holding brake / Uncond open brake**

SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 / Binary P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2501, 2701, 2707 Unit selection: - Expert list: 1 Default: 0
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Description: Sets the signal source for the command "unconditionally open holding brake".
Dependency: See also: 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: Enable speed controller / n_ctrl enable		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501, 2701, 2707
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 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:	See also: r0898		

Note

If "enable speed controller" is withdrawn, then an existing brake will be closed.
If "enable speed controller" is withdrawn, the pulses are not suppressed.

p0857	Power unit monitoring time / PU t_monit		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8760, 8864, 8964
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 100.0 [ms]	Max: 60000.0 [ms]	Default: 2000.0 [ms]
Description:	Sets the monitoring time for the power unit. The following applies for infeeds and drives: The monitoring time is started after an 0/1 edge of the ON/OFF1 command. If the power unit does not return a READY signal within the monitoring time, then fault F06000 (infeeds) or F07802 (drives) is output. For drives, the following also applies: After the pulse enable (operation enabled, p0852), the monitoring time is re-started. If the infeed does not signal ready to the drive within the monitoring time (using BI: p0864 of the drive), fault F07840 is initiated.		
Dependency:	See also: F06000, F07802, F07840, F30027		

NOTICE

The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum duration of the pre-charging depends on the power class and the power unit design.
The monitoring time for the pre-charging is started after the ON command (BI: p0840 = 0/1 signal). Fault F30027 is output when the maximum pre-charging duration is exceeded.

Note

The factory setting for p0857 depends on the power class and the design of the power unit.
The monitoring time for the ready signal of the power unit includes the time to pre-charge the DC link and, if relevant, the de-bounce time of the contactors.
If an excessively low value is entered into p0857, then after enable, this results in the corresponding fault.

p0857	Power unit monitoring time / PU t_{monit}		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8760, 8864, 8964
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 100.0 [ms]	Max: 60000.0 [ms]	Default: 6000.0 [ms]
Description:	Sets the monitoring time for the power unit. The following applies for infeeds and drives: The monitoring time is started after an 0/1 edge of the ON/OFF1 command. If the power unit does not return a READY signal within the monitoring time, then fault F06000 (infeeds) or F07802 (drives) is output. For drives, the following also applies: After the pulse enable (operation enabled, p0852), the monitoring time is re-started. If the infeed does not signal ready to the drive within the monitoring time (using BI: p0864 of the drive), fault F07840 is initiated.		
Dependency:	See also: F06000, F07802, F07840, F30027		
	NOTICE The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum duration of the pre-charging depends on the power class and the power unit design. The monitoring time for the pre-charging is started after the ON command (BI: p0840 = 0/1 signal). Fault F30027 is output when the maximum pre-charging duration is exceeded.		
	Note The factory setting for p0857 depends on the power class and the design of the power unit. The monitoring time for the ready signal of the power unit includes the time to pre-charge the DC link and, if relevant, the de-bounce time of the contactors. If an excessively low value is entered into p0857, then after enable, this results in the corresponding fault.		

p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501, 2701, 2707
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 9719.13
Description:	Sets the signal source for the command "unconditionally close holding brake".		
Dependency:	See also: 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.		

p0860	BI: Line contactor feedback signal / Line contact feedb		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2634, 8734, 8834, 8934
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 863.1
Description:	Sets the signal source for the feedback signal from the line contactor.		

Recommendation: When the monitoring is activated (BI: p0860 not equal to r0863.1), then to control the line contactor, signal BO: r0863.1 of its own drive object should be used.

Dependency: See also: p0861, r0863
See also: F07300

NOTICE

The line contactor monitoring is de-activated if the control signal of the particular drive object is set as the signal source for the feedback signal of the line contactor (BI: p0860 = r0863.1).

Note

The state of the line contactor is monitored depending on signal BO: r0863.1.
When the monitoring is activated (BI: p0860 not equal to r0863.1), fault F07300 is then also output if the contactor is closed before it is controlled using r0863.1.

p0861**Line contactor monitoring time / LineContact t_mon**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T**Calculation:** -**Access level:** 2**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 2634, 8734, 8834, 8934**P group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0 [ms]

5000 [ms]

100 [ms]

Description:

Sets the monitoring time of the line contactor.

This time starts each time that the line contactor switches (r0863.1). If a feedback signal is not received from the line contactor within the time, a message is output.

Dependency:

See also: p0860, r0863
See also: F07300

Note

The monitoring function is disabled for the factory setting of p0860.

p0862**Power unit ON delay / PU t_on**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 2610, 8732, 8832, 8932**P group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0 [ms]

65000 [ms]

0 [ms]

Description:

Sets the delay time for the control command of the power unit and a line contactor, if used.

Note

This means that it is possible to realize a shifted (delayed) pre-charging or power-on using a single ON command.
When the infeed units are active, before the line contactor is closed, an offset adjustment of the current measurement is carried out for a duration of 120 ms (p3491).

r0863.0**CO/BO: System pressure status word / p_sys ZSW**

HLA_828

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Display and BICO output for the status word of the system pressure.

Recommendation: If the system pressure is measured (r0069), this signal can be interconnected from the binector input "system pressure available" (p0864). To do this, the threshold and hysteresis for the system pressure must be appropriately set (p0865, p0866).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	System pressure reached	Yes	No	-

Dependency: See also: p0864, p0865, p0866

r0863.0...2 CO/BO: Drive coupling status word/control word / CoupleZSW/STW

A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
---	---	--	---

Description: Display and BICO output for the status word and control word of the drive coupling.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Closed-loop control operation	Yes	No	2610, 8710, 8810, 8910
	01	Energize contactor	Yes	No	2610, 2634, 7990, 8734, 8834, 8934
	02	Infeed line supply failure	Yes	No	-

Dependency: See also: p0864

Note

For bit 00:
Bit 0 signals that the infeed is ready.
When the operating signal is transferred via binector output r0863.0 this allows several drives to start (run-up) staggered over time when they are simultaneously powered up.
To realize this, the following connections/interconnections are required:
Drive 1: Interconnect binector input p0864 with binector output r0863.0 of the infeed
Drive 2: Interconnect binector input p0864 with binector output r0863.0 of drive 1
Drive 3: Interconnect binector input p0864 with binector output r0863.0 of drive 2 etc.
The first drive only transfers the operating signal to the next drive after it has reached its ready condition.
For bit 01:
Bit 1 is used to control an external line contactor.
For bit 02:
This bit only signals line supply failure for Active Infeed (A_INF) and Smart Infeed (S_INF).

p0864 BI: System pressure available / p_sys available

HLA_828	Changeable: T Data type: Unsigned32 / Binary P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 1
---------	--	--	---

Description: Sets the signal source for the "system pressure available" signal.

Dependency: See also: r0863, p0865, p0866

Note

An enable is only possible for p0864 = 1 signal.

p0864

SERVO_828,
SERVO_COMBI

BI: Infeed operation / INF operation**Changeable:** T**Data type:** Unsigned32 / Binary**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 2**Function plan:** 2610, 8710, 8910**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the signal source for the operating signal of the infeed (e.g. BO: r0863.0).

Dependency:

See also: r0863

Note

The sequence control of a servo/vector drive requires this signal.

The following applies for an infeed without DRIVE-CLiQ:

For these infeeds, the "ready" message is available via an output terminal. This signal must be connected to a digital input. The drives supplied from this infeed must use this signal as ready signal (BI: p0864 = digital input).

p0865

HLA_828

System pressure switch-on threshold / p_sys thresh**Changeable:** T**Data type:** FloatingPoint32**P group:** -**Not for motor type:** -**Min:**

0.0 [bar]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

10000.0 [bar]

Access level: 3**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0.0 [bar]

Description:

Sets the switch-on threshold to evaluate the measured system pressure.

Recommendation:

If the system pressure is measured (r0069), this signal can be interconnected from the binector input "system pressure available" (p0864). To do this, the threshold and hysteresis for the system pressure must be appropriately set (p0865, p0866).

Dependency:

See also: r0863, p0864, p0866

p0866

HLA_828

System pressure switch-on threshold hysteresis / p_sys hyst**Changeable:** T**Data type:** FloatingPoint32**P group:** -**Not for motor type:** -**Min:**

0.0 [%]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

10000.0 [%]

Access level: 3**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

20.0 [%]

Description:

Sets the hysteresis for the switch-on threshold to evaluate the measured system pressure.

Recommendation:

If the system pressure is measured (r0069), this signal can be interconnected from the binector input "system pressure available" (p0864). To do this, the threshold and hysteresis for the system pressure must be appropriately set (p0865, p0866).

Dependency:

See also: r0863, p0864, p0865

Note

The hysteresis refers to the switch-on threshold (p0865) and acts on the lower threshold.

p0867	Power unit main contactor holding time after OFF1 / PU t_{MC} after OFF1		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 500.0 [ms]	Default: 50.0 [ms]
Description:	Sets the main contactor holding time after OFF1		
Dependency:	See also: p0869		

Note
 After withdrawing the OFF1 enable (source of p0840), the main contactor is opened after the main contactor holding time has elapsed.
 For p0869 = 1 (keep main contactor closed for STO), after withdrawing STO, the switching on inhibited must be acknowledged via the source of p0840 = 0 (OFF1) – and before the main contactor holding time expires, should go back to 1, otherwise the main contactor will open.
 When operating a drive connected to SINUMERIK, which only closes the main contactor with the OFF1 command (blocksize, chassis), p0867 should be set as a minimum to 50 ms.

p0868	Power unit DC switch debounce time / PU DC sw t_{deboun}		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 65000 [ms]	Default: 65000 [ms]
Description:	Sets the debounce time for the DC circuit breaker for Motor Modules in "chassis" format.		

Note
 The following applies if p0868 = 65000 ms:
 The debounce time defined internally in the power unit's EEPROM is implemented.

p0869	Sequence control configuration / Seq_ctrl config				
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Commands	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: 0000 bin		
Description:	Sets the configuration for the sequence control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Keep main contactor closed for STO	Yes	No	-
Dependency:	See also: p0867				

Note
 For bit 00:
 After withdrawing the OFF1 enable (source of p0840), the main contactor is opened after the main contactor holding time has elapsed.
 For p0869.0 = 1, after withdrawing STO, the switching on inhibited must be acknowledged via the source of p0840 = 0 (OFF1) – and before the main contactor holding time expires (p0867), should go back to 1, otherwise the main contactor will open.

r0873	CO/BO: Infeed total operation / INF total oper				
B_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Function plan: 8732, 8832		
	P group: Commands	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the operational readiness of the infeeds when using Smart Line Module (SLM) and Basic Line Module (BLM) together (mixed operation). In order that signal BO: r0873 is available at one of the infeeds, then BI: p0874 of the one infeed must be interconnected to BO: r0863.0 of the other infeed.				
Dependency:	See also: r0863, p0874				
	Note Mixed operation is not possible with the Active Line Module (ALM)!				
p0874	BI: Smart/ Basic Line Module operation / SLM/BLM operation				
B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 2		
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 8732, 8832		
	P group: Commands	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0		
Description:	Setting to interconnect the ready signal for mixed operation of Smart Line Module (SLM) and Basic Line Module (BLM). In order that signal BO: r0873 is available at one of the infeeds, then BI: p0874 of the one infeed must be interconnected to BO: r0863.0 of the other infeed.				
Dependency:	See also: r0863, r0873				
	Note Mixed operation is not possible with the Active Line Module (ALM)!				
r0887.0...13	BO: ESR status word / ESR ZSW				
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: -	Calculation: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the status word for the "ESR" function.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ESR monitoring activated	Yes	No	-
	01	Profile "Extended stopping (integrated in the drive)" active	Yes	No	-
	02	Profile "Extended retraction (integrated in the drive)" active	Yes	No	-
	03	Profile "Generator operation (Vdc controller)" active	Yes	No	-
	09	ESR enabled (p0889)	Yes	No	-
	10	ESR trigger active (p0890)	Yes	No	-
	11	ESR OFF ramp OFF1/OFF3 (p0891)	OFF1	OFF3	-
	12	ESR response initiated	Yes	No	3082
	13	ESR response presently running	Yes	No	-
Dependency:	See also: p0888, p0889, p0890, p0891				


Note
ESR: Extended Stop and Retract

p0888 **ESR configuration / ESR configuration**

HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U Data type: Unsigned16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 4	Access level: 2 Function plan: 3082 Unit selection: - Expert list: 1 Default: 0
---	--	---	---

Description: Sets the configuration for the "ESR" function.
0: No function
1: Extended stopping (integrated in the drive), n_set
2: Extended retraction (integrated in the drive)
3: Generator operation (Vdc controller)
4: Extended stopping (integrated in the drive), n_act

Dependency: See also: p0889, p0891, p0892, p0893, p1240

 **CAUTION**
For p0888 = 3 generator operation (Vdc controller) must be correspondingly configured using p1240.

Note
ESR: Extended Stop and Retract

p0889 **BI: ESR response enable / Response enab**

HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U Data type: Unsigned32 / Binary P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 3082 Unit selection: - Expert list: 1 Default: 2090.9
---	---	---	--

Description: Sets the signal source to enable the response for the "ESR" function.
BI: p0889 = 0 signal
The ESR response is locked. A possible trigger event that occurs is ignored.
BI: p0889 = 1 signal
The ESR response is enabled. A possible trigger event that occurs initiates the response.

Dependency: See also: p0888

Note
ESR: Extended Stop and Retract

p0890[0...4] **BI: ESR trigger / ESR trigger**

HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U Data type: Unsigned32 / Binary P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 3082 Unit selection: - Expert list: 1 Default: [0] 2090.2 [1] 9721.15 [2] 9723.1 [3] 9723.2 [4] 0
---	---	---	--

Description:	Sets the signal sources for the trigger for the "ESR" function. The binector inputs cannot be interconnected or interconnected as follows: Bl: p0890[0] = r2090.2 (CU_STW1.2) Bl: p0890[1] = r9721.15 (Safety Integrated STOP E) Bl: p0890[2] = r9723.1 (Safety Integrated STOP F) Bl: p0890[3] = r9723.2 (Safety Integrated, communication failure) Bl: p0890[4] = can be freely interconnected
Index:	[0] = Trigger for NCK [1] = Trigger for SI STOP E [2] = Trigger for SI STOP F [3] = Trigger for SI communication failure [4] = Trigger can be freely interconnected
Dependency:	See also: p0888

Note

ESR: Extended Stop and Retract

p0891	ESR OFF ramp / ESR OFF ramp		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U Data type: Unsigned16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 2 Function plan: 3082 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the OFF ramp for the "ESR" function. 0: OFF3 1: OFF1		
Dependency:	See also: p0888		

Note

ESR: Extended Stop and Retract

p0892	ESR timer / ESR timer		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: - Min: 0.00 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 20.00 [s]	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 0.50 [s]
Description:	Sets the timer for the brake delay for the "ESR" function.		
Dependency:	The following applies when Safety Integrated is enabled: p0892 < p9580 (SI motion, pulse cancellation delay bus failure) If the setting for the times is not observed, then ESR OFF ramp will not be able to be fully completed. See also: p0888, p9580		

Note

ESR: Extended Stop and Retract

p0893 ESR velocity / ESR velocity

HLA_828 (ESR)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3082
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-340.28235E36 [m/min]	340.28235E36 [m/min]	0 [m/min]

Description: Sets the speed/velocity, which, when triggered, is approached with an OFF3 ramp.
The timer in p0892 is the total time that elapses for the approach and constant velocity travel. After this, depending on the setting in p0891, an OFF1 ramp or OFF3 ramp is realized.

Dependency: See also: p0888, p0889, p0891, p0892

Note

This parameter is only of significance for the profile "retraction" (p0888 = 2).
ESR: Extended Stop and Retract

p0893 ESR speed / ESR speed

SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3082
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-340.28235E36 [rpm]	340.28235E36 [rpm]	0 [rpm]

Description: Sets the speed/velocity, which, when triggered, is approached with an OFF3 ramp.
The timer in p0892 is the total time that elapses for the approach and constant velocity travel. After this, depending on the setting in p0891, an OFF1 ramp or OFF3 ramp is realized.

Dependency: See also: p0888, p0889, p0891, p0892

Note

This parameter is only of significance for the profile "retraction" (p0888 = 2).
ESR: Extended Stop and Retract

p0894 Parking pre-setting / Parking pre-set

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0001 bin

Description: Pre-setting for the "Parking axis" and "Parking encoder" function.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Default with interconnection	Park	Do not park	-

Dependency: See also: p0480, p0897

Note

For bit 00:
If there is at least one BICO interconnection for "Parking axis" or "Parking encoder", this default setting is taken into consideration during power-up.

p0895[0...n]	BI: Activate/de-activate power unit components / PU_comp act/deact		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	1

Description: Sets the signal source to activate/de-activate a power unit component.

Dependency: BI: p0895 = 0 signal
De-activate power unit components.
BI: p0895 = 1 signal
Activate power unit components
See also: p0125, r0126
See also: A05054

CAUTION

It is not permissible to de-activate drive objects with safety functions enabled.

NOTICE

For Active Line Modules in the "Chassis" format, the Voltage Sensing Module (VSM, p0145) belonging to the power unit is automatically activated/deactivated.

Note

The power unit is only de-activated when the pulses are suppressed.
For units connected in parallel, when one of the power units is de-activated, then the enable in p7001 is withdrawn.

r0896.0	BO: Parking axis, status word / Parking axis, ZSW		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status word for the "parking axis" function.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Parking axis active	Yes	No	-

Dependency: See also: p0897

p0897	BI: Parking axis selection / Parking axis sel		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source to select the "parking axis" function.

Dependency: BI: p0897 = 0 signal
The function "parking axis" is not selected.
BI: p0897 = 1 signal
The function "parking axis" is selected.
See also: r0896

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

Note

After it has been selected the "parking axis" function only becomes active when the pulses are suppressed.

r0898.0...15

CU_I_828,
CU_I_COMBI,
CU_NX_828

CO/BO: Control word drive object 1 / STW DO1

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and connector output for the control word of drive object 1 (Control Unit).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Synchronization signal SYN	Yes	No	-
01	Real time synchronization PING	Yes	No	-
07	Acknowledge fault	Yes	No	-
12	Master sign-of-life bit 0	Yes	No	-
13	Master sign-of-life bit 1	Yes	No	-
14	Master sign-of-life bit 2	Yes	No	-
15	Master sign-of-life bit 3	Yes	No	-

r0898.0...14

HLA_828,
SERVO_828,
SERVO_COMBI

CO/BO: Control word sequence control / STW seq_ctrl

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 2501
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and connector output for the control word of the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
02	OC / OFF3	Yes	No	-
03	Operation enable	Yes	No	-
04	Ramp-function generator enable	Yes	No	-
05	Continue ramp-function generator	Yes	No	-
06	Speed setpoint enable	Yes	No	-
07	Command open brake	Yes	No	-
08	Jog 1	Yes	No	3001
09	Jog 2	Yes	No	3001
10	Master control by PLC	Yes	No	-
12	Speed controller enable	Yes	No	-
14	Command close brake	Yes	No	-

Note

OC: Operating condition

r0898.0...10	CO/BO: Control word sequence control infeed / STW seq_ctrl INF		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: 8820, 8920
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the control word of the sequence control for the infeed.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	03	Operation enable	Yes	No	-
	05	Inhibit motoring operation	Yes	No	-
	06	Inhibit regenerative	Yes	No	-
	10	Master control by PLC	Yes	No	-

Note

OC: Operating condition

r0898.0...10	CO/BO: Control word sequence control infeed / STW seq_ctrl INF		
B_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: 8720
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the control word of the sequence control for the infeed.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	10	Master control by PLC	Yes	No	-

Note

OC: Operating condition

r0899.0...15	CO/BO: Status word drive object 1 / ZSW DO1		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and BICO output for the status word of the sequence control of the infeed unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Reserved	Yes	No	-
	03	Fault present	Yes	No	-
	07	Alarm present	Yes	No	-
	08	System time synchronized	Yes	No	-
	12	Slave sign-of-life bit 0	Yes	No	-
	13	Slave sign-of-life bit 1	Yes	No	-

14	Slave sign-of-life bit 2	Yes	No	-
15	Slave sign-of-life bit 3	Yes	No	-

r0899.0...13

CO/BO: Status word sequence control / ZSW seq_ctrl

HLA_828

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and BICO output for the status word of the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
03	Jog active	Yes	No	-
04	No coasting active	OFF2 inactive	OFF2 active	-
05	No Quick Stop active	OFF3 inactive	OFF3 active	-
06	Switching on inhibited active	Yes	No	-
07	Drive ready	Yes	No	-
08	Controller enable	Yes	No	-
09	Control request	Yes	No	-
11	Enable power	Yes	No	-
12	Shutoff valve enabled	Yes	No	-
13	Command lock shutoff valve	Yes	No	-

Note

For bits 00, 01, 02, 04, 05, 06, 09:

For PROFIdrive, these signals are used for status word 1.

r0899.0...15

CO/BO: Status word sequence control / ZSW seq_ctrl

SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 2503
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and BICO output for the status word of the sequence control.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
03	Jog active	Yes	No	-
04	No coasting active	OFF2 inactive	OFF2 active	-
05	No Quick Stop active	OFF3 inactive	OFF3 active	-
06	Switching on inhibited active	Yes	No	-
07	Drive ready	Yes	No	-
08	Controller enable	Yes	No	-
09	Control request	Yes	No	-
11	Pulses enabled	Yes	No	-

12	Open holding brake	Yes	No	-
13	Command close holding brake	Yes	No	-
14	Pulse enable from the brake control	Yes	No	-
15	Setpoint enable from the brake control	Yes	No	-

Note

For bits 00, 01, 02, 04, 05, 06, 09:

For PROFIdrive, these signals are used for status word 1.

For bit 13:

When the "Safe Brake Control" (SBC) is activated and selected, the brake is no longer controlled using this signal.

For bit 14, 15:

These signals are only of significance when the "extended brake control" function module is activated (r0108.14 = 1).

r0899.0...12

A_INF_828,
S_INF_828,
S_INF_COMBI

CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF

Changeable: -

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Function plan: 8826, 8926

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for the status word of the sequence control of the infeed unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
04	No OFF2 active	OFF2 inactive	OFF2 active	-
06	Switching on inhibited	Yes	No	-
08	Power-up active	Yes	No	-
09	Control request	Yes	No	-
11	Pre-charging compl	Yes	No	-
12	Line contactor closed	Yes	No	8934

Note

For bit 12:

The feedback signal of a line contactor (auxiliary contact) can be interconnected via BI: p0860.

r0899.0...12

B_INF_828

CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF

Changeable: -

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Function plan: 8726

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for the status word of the sequence control of the infeed unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
04	No OFF2 active	OFF2 inactive	OFF2 active	-
06	Switching on inhibited	Yes	No	-
09	Control request	Yes	No	-

11	Pre-charging compl	Yes	No	-
12	Line contactor closed	Yes	No	-

Note

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

p0918

PROFIBUS address / PB address

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 2401, 2410
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1	Max: 126	Default: 126

Description:

Displays or sets the PROFIBUS address for PROFIBUS interface on the Control Unit.
The address can be set as follows:
1) Using the address 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 the address 00 hex, 7F hex, 80 hex, or FF hex 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.

Note

Permissible PROFIBUS addresses: 1 ... 126 (01 hex ... 7E hex)
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.

p0922

IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

CU_I_828,
CU_I_COMBI

Changeable: C2(1), T	Calculation: -	Access level: 1
Data type: Unsigned16	Dynamic index: -	Function plan: 2401, 2420, 2423, 2481, 2483
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 390	Max: 999	Default: 391

Description:

Sets the send and receive telegram.

Value:

390: SIEMENS telegram 390, PZD-2/2
391: SIEMENS telegram 391, PZD-3/7
395: SIEMENS telegram 395, PZD-4/25
999: Free telegram configuration with BICO

p0922

IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

CU_NX_828

Changeable: C2(1), T	Calculation: -	Access level: 1
Data type: Unsigned16	Dynamic index: -	Function plan: 2401, 2420, 2423, 2481, 2483
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 390	Max: 999	Default: 390

Description: Sets the send and receive telegram.
Value: 390: SIEMENS telegram 390, PZD-2/2
 999: Free telegram configuration with BICO

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

HLA_828	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Function plan: 2401, 2415, 2416, 2419, 2420, 2421, 2422, 2423
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 166	Max: 999	Default: 999

Description: Sets the send and receive telegram.
Value: 166: SIEMENS telegram 166, PZD-14/20
 999: Free telegram configuration with BICO

Dependency: See also: p2038
 See also: F01505, F01506

Note

For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

SERVO_828, SERVO_COMBI	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Function plan: 2401, 2415, 2416, 2419, 2420, 2421, 2422, 2423
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 999	Default: 136

Description: Sets the send and receive telegram.

Value: 1: Standard telegram 1, PZD-2/2
 2: Standard telegram 2, PZD-4/4
 3: Standard telegram 3, PZD-5/9
 4: Standard telegram 4, PZD-6/14
 5: Standard telegram 5, PZD-9/9
 6: Standard telegram 6, PZD-10/14
 102: SIEMENS telegram 102, PZD-6/10
 103: SIEMENS telegram 103, PZD-7/15
 105: SIEMENS telegram 105, PZD-10/10
 106: SIEMENS telegram 106, PZD-11/15
 116: SIEMENS telegram 116, PZD-11/19
 118: SIEMENS telegram 118, PZD-11/19
 125: SIEMENS telegram 125, PZD-14/10
 126: SIEMENS telegram 126, PZD-15/15
 136: SIEMENS telegram 136, PZD-15/19
 138: SIEMENS telegram 138, PZD-15/19
 220: SIEMENS telegram 220, PZD-10/10
 999: Free telegram configuration with BICO

Dependency: See also: p2038
See also: F01505, F01506

Note

For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.
If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

p0922

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

Changeable: C2(1), T
Data type: Unsigned16

Calculation: -
Dynamic index: -

Access level: 1
Function plan: 2401, 2415, 2416,
2419, 2420, 2421, 2422, 2423

P group: Communications
Not for motor type: -

Unit group: -
Scaling: -

Unit selection: -
Expert list: 1

Min:
1

Max:
999

Default:
999

Description: Sets the send and receive telegram.

Value:

- 1: Standard telegram 1, PZD-2/2
- 2: Standard telegram 2, PZD-4/4
- 3: Standard telegram 3, PZD-5/9
- 4: Standard telegram 4, PZD-6/14
- 5: Standard telegram 5, PZD-9/9
- 6: Standard telegram 6, PZD-10/14
- 102: SIEMENS telegram 102, PZD-6/10
- 103: SIEMENS telegram 103, PZD-7/15
- 105: SIEMENS telegram 105, PZD-10/10
- 106: SIEMENS telegram 106, PZD-11/15
- 116: SIEMENS telegram 116, PZD-11/19
- 118: SIEMENS telegram 118, PZD-11/19
- 125: SIEMENS telegram 125, PZD-14/10
- 126: SIEMENS telegram 126, PZD-15/15
- 136: SIEMENS telegram 136, PZD-15/19
- 138: SIEMENS telegram 138, PZD-15/19
- 139: SIEMENS telegram 139, PZD-15/19
- 220: SIEMENS telegram 220, PZD-10/10
- 999: Free telegram configuration with BICO

Dependency: See also: p2038
See also: F01505, F01506

Note

For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.
If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

p0922	IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: C2(1), T Data type: Unsigned16 P group: Communications Not for motor type: - Min: 999	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 999	Access level: 1 Function plan: 2401, 2420, 2423, 2447, 2457, 2481, 2483 Unit selection: - Expert list: 1 Default: 999
Description:	Sets the send and receive telegram.		
Value:	999: Free telegram configuration with BICO		
Dependency:	See also: F01505, F01506		

Note

If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.

r0924[0...1]	ZSW bit pulses enabled / ZSW pulse enab		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2454, 2456 Unit selection: - Expert list: 1 Default: -
Description:	Displays the position of the "Pulses enabled" status signal in the PROFIdrive telegram.		
Index:	[0] = Signal number [1] = Bit position		

p0925	PROFIdrive clock synchronous sign-of-life tolerance / PD SoL_tol		
CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned16 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 65535	Access level: 3 Function plan: 2410 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the number of tolerated consecutive sign-of-life errors of the clock-cycle synchronous master. The sign-of-life signal is normally received in PZD4 (control word 2) from the master.		
Dependency:	See also: p2045, r2065 See also: F01912		

Note

The sign-of-life monitoring is disabled for p0925 = 65535.

r0930	PROFIdrive operating mode / PD operating mode		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Setpoints Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -

Description: Displays the operating mode.
 1: Closed-loop speed controlled operation with ramp-function generator
 2: Closed-loop position controlled operation
 3: Closed-loop speed controlled operation without ramp-function generator

r0944 **CO: Counter for fault buffer changes / Fault buff change**
 All objects **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned16 **Dynamic index:** - **Function plan:** 8060
P group: Messages **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Displays fault buffer changes. This counter is incremented every time the fault buffer changes.
Recommendation: Used to check whether the fault buffer has been read out consistently.
Dependency: See also: r0945, r0947, r0948, r0949, r2109

r0945[0...63] **Fault code / Fault code**
 All objects **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned16 **Dynamic index:** - **Function plan:** 8050, 8060
P group: Messages **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Displays the numbers of faults that have occurred.
Dependency: See also: r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

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

Note
 The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
 Fault buffer structure (general principle):
 r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> actual fault case, fault 1
 ...
 r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> actual fault case, fault 8
 r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1
 ...
 r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8
 ...
 r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1
 ...
 r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8

r0946[0...65534] **Fault code list / Fault code list**
 All objects **Changeable:** - **Calculation:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Function plan:** 8060
P group: Messages **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 0
Min: **Max:** **Default:**
 - - -

Description: Lists the fault codes stored in the drive unit.
 The indices can only be accessed with a valid fault code.

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

r0947[0...63]	Fault number / Fault number		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8050, 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: This parameter is identical to r0945.

r0948[0...63]	Fault time received in milliseconds / t_fault recv ms		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 8050, 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]

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

Dependency: See also: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115, r3120, r3122

NOTICE

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

Note

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

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

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

r0949[0...63]	Fault value / Fault value		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: 8050, 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays additional information about the fault that occurred (as integer number).

Dependency: See also: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122

Note

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

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

p0952	Fault cases counter / Fault cases qty		
All objects	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 6700, 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0

Description: Number of fault situations that have occurred since the last reset.

Dependency: The fault buffer is deleted (cleared) by setting p0952 to 0.
See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

r0964[0...6]

CU_I_828,
CU_I_COMBI

Device identification / Device ident

Changeable: -

Data type: Unsigned16

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description: Displays the device identification.

Index: [0] = Company (Siemens = 42)
[1] = Device type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = Number of drive objects
[6] = Firmware patch/hot fix

Note

Example:

r0964[0] = 42 --> SIEMENS

r0964[1] = device type, see below

r0964[2] = 403 --> first part of the firmware version V04.03 (for second part, refer to index 6)

r0964[3] = 2010 --> year 2010

r0964[4] = 1705 --> 17th of May

r0964[5] = 2 --> 2 drive objects

r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00)

Device type:

r0964[1] = 5800 --> SINAMICS S120 in SIMOTION D435-2

r0964[1] = 5801 --> SINAMICS S120 in SIMOTION D445-2

r0964[1] = 5802 --> SINAMICS S120 in SIMOTION D425-2

r0964[1] = 5803 --> SINAMICS S120 in SIMOTION D455-2

r0964[1] = 5820 --> SINAMICS S120 in SIMOTION D410-2 DP

r0964[1] = 5821 --> SINAMICS S120 in SIMOTION D410-2 PN

r0964[1] = 5850 --> SINAMICS S120 in SINUMERIK NCU710

r0964[1] = 5851 --> SINAMICS S120 in SINUMERIK NCU720

r0964[1] = 5852 --> SINAMICS S120 in SINUMERIK NCU730

r0964[1] = 5853 --> SINAMICS S120 in SINUMERIK NCU730.2

r0964[1] = 5861 --> SINAMICS S120 in SINUMERIK 828D

r0964[0...6]

CU_NX_828

Device identification / Device ident

Changeable: -

Data type: Unsigned16

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description: Displays the device identification.

Index:

- [0] = Company (Siemens = 42)
- [1] = Device type
- [2] = Firmware version
- [3] = Firmware date (year)
- [4] = Firmware date (day/month)
- [5] = Number of drive objects
- [6] = Firmware patch/hot fix

Note

Example:

r0964[0] = 42 --> SIEMENS

r0964[1] = device type, see below

r0964[2] = 403 --> first part of the firmware version V04.03 (for second part, refer to index 6)

r0964[3] = 2010 --> year 2010

r0964[4] = 1705 --> 17th of May

r0964[5] = 2 --> 2 drive objects

r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00)

Device type:

r0964[1] = 5100 --> SIMOTION CX32-2

r0964[1] = 5120 --> SINUMERIK NX10

r0964[1] = 5121 --> SINUMERIK NX15

r0965**PROFIdrive profile number / PD profile number**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Displays the PROFIdrive profile number and profile version.

Constant value = 0329 hex.

Byte 1: Profile number = 03 hex = PROFIdrive profile

Byte 2: Profile version = 29 hex = Version 4.1

Note

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

p0969**System runtime relative / t_System relative**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: 8050, 8060

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0 [ms]

4294967295 [ms]

0 [ms]

Description:

Displays the system runtime in ms since the last POWER ON.

Note

The value in p0969 can only be reset to 0.

The value overflows after approx. 49 days.

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

p0970 Reset drive parameters / Drive par reset

HLA_828

Changeable: C2(30)	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Factory settings	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	100	0

Description: The parameter is used to initiate the reset of the parameters of an individual drive unit. Parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).

Value:

- 0: Inactive
- 1: Start a parameter reset
- 100: Start a BICO interconnection reset

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

Note
A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.
Parameter reset has been completed if p0970 and p0010 have been set to 0.

p0970 Reset drive parameters / Drive par reset

SERVO_828,
SERVO_COMBI

Changeable: C2(30)	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Factory settings	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	100	0

Description: The parameter is used to initiate the reset of the parameters of an individual drive unit. Parameters p0100, p0205 (only for VECTOR) and the parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).

Value:

- 0: Inactive
- 1: Start a parameter reset
- 5: Starts a safety parameter reset
- 6: Start reset non-safety/safety parameters
- 100: Start a BICO interconnection reset

Dependency: See also: F01659

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

Note

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

For p0970 = 5 the following applies:

The password for Safety Integrated must be set.

When Safety Integrated is enabled, this can result in error messages, which then require an acceptance test to be performed.

Then save the parameters and carry out a POWER ON.

For p0970 = 1 the following applies:

If a Safety Integrated function is parameterized (p9601), then the safety parameters are not reset. In this case, a fault F01659 is output with fault value 2.

p0970

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Reset infeed parameter / INF par reset

Changeable: C2(30)

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Factory settings

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

100

0

Description:

The parameter is used to initiate a reset of the parameters of an individual infeed unit.

The parameters of the basic commissioning (refer to p0009) are in this case not reset (p0107, p0108, p0121, p0170). These can only be reset using the factory setting of the complete drive unit (p0976).

The sampling times (p0111, p0112, p0115) are only not reset if this results in a conflict with the basic clock cycle (p0110).

Value:

0: Inactive

1: Start a parameter reset

100: Start a BICO interconnection reset

NOTICE

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

Note

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

p0970

TM120

TM120 reset parameters / TM120 par reset

Changeable: C2(30)

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Factory settings

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

100

0

Description:

The parameter is used to initiate a reset of the parameters on Terminal Module 120 (TM120).

Value:

0: Inactive

1: Start a parameter reset

100: Start a BICO interconnection reset

Dependency:

See also: p0010

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

Note

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
 At the end of the calculations, p0970 is automatically set to 0.

p0970

TM150 reset parameters / TM150 par reset

TM150

Changeable: C2(30)	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Factory settings	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 100	Default: 0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 150 (TM150).

Value:
 0: Inactive
 1: Start a parameter reset
 100: Start a BICO interconnection reset

Dependency: See also: p0010

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

Note

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
 At the end of the calculations, p0970 is automatically set to 0.

p0970

TM54F reset parameters / TM54F par reset

TM54F_MA

Changeable: C2(30)	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Factory settings	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 100	Default: 0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 54F (TM54F).
 Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
 0: Inactive
 1: Start a parameter reset
 5: Starts a safety parameter reset
 6: Start reset non-safety/safety parameters
 100: Start a BICO interconnection reset

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

Note

A factory setting run can only be started if p0010 was first set to 30 (parameter reset).

At the end of the calculations, p0970 is automatically set to 0.

Parameter reset has been completed if p0970 and p0010 have been set to 0.

For p0970 = 5 the following applies:

The password for Safety Integrated must be set.

When Safety Integrated is enabled, this can result in error messages, which then require an acceptance test to be performed.

Then save the parameters and carry out a POWER ON.

p0971**Save drive object parameters / Drv_obj par save**

All objects

Changeable: T, U**Calculation:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** Factory settings**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

1

0

Description:

Setting to save the parameter of the particular drive object in the non-volatile memory.

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

Value:

0: Inactive

1: Save drive object

Dependency:

See also: p0977, p1960, p3845, r3996

NOTICE

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

Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note

Starting from the particular drive object, the following parameters are saved:

CU3xx: Device-specific parameters and PROFIBUS device parameters.

Other objects: Parameters of the actual object and PROFIBUS device parameters.

Prerequisite:

In order that the parameter of a drive object, saved with p0971 = 1, is read the next time that the Control Unit is booted, then all parameters must, as a minimum, have first been saved once with p0977 = 1.

p0972**Drive unit reset / Drv_unit reset**CU_I_828,
CU_I_COMBI**Changeable:** T, U**Calculation:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** All groups**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

3

0

Description:

Sets the required procedure to execute a hardware reset for the drive unit.

Value:

0: Inactive

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.

NOTICE
 For SINUMERIK with integrated SINAMICS, the hardware reset acts on the complete system and depends on the state of the control.

Note

For a value = 3:

The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by the control for several drive units.

p0972

CU_NX_828

Drive unit reset / Drv_unit reset

Changeable: T, U

Data type: Unsigned16

P group: All groups

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

3

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0


Description:

Sets the required procedure to execute a hardware reset for the drive unit.

Value:

0: Inactive

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

For a value = 3:

The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by the control for several drive units.

r0975[0...10]

All objects

Drive object identification / DO identification

Changeable: -

Data type: Unsigned16

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the identification of the drive object.

Index:

- [0] = Company (Siemens = 42)
- [1] = Drive object type
- [2] = Firmware version
- [3] = Firmware date (year)
- [4] = Firmware date (day/month)
- [5] = PROFIdrive drive object type class
- [6] = PROFIdrive drive object sub-type Class 1
- [7] = Drive object number
- [8] = Reserved
- [9] = Reserved
- [10] = Firmware patch/hot fix

Note

Example:

r0975[0] = 42 --> SIEMENS

r0975[1] = 11 --> SERVO drive object type

r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)

r0975[3] = 2003 --> year 2003

r0975[4] = 1401 --> 14th of January

r0975[5] = 1 --> PROFIdrive drive object, type class

r0975[6] = 9 --> PROFIdrive drive object sub-type class 1

r0975[7] = 2 --> drive object number = 2

r0975[8] = 0 (reserved)

r0975[9] = 0 (reserved)

r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976CU_I_828,
CU_I_COMBI,
CU_NX_828**Reset and load all parameters / Reset load all par****Changeable:** C1(30)**Calculation:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** Factory settings**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

1013

0

Description:

Resets or downloads all parameters of the drive system.

Value:

0: Inactive

1: Start reset of all parameters to factory setting

2: Start dnlod of param. saved in non-volatile mem w/ p0977=1

3: Start download of volatile parameters from RAM

10: Start dnlod of param. saved in non-volatile mem w/ p0977=10

11: Start dnlod of param. saved in non-volatile mem w/ p0977=11

12: Start dnlod of param. saved in non-volatile mem w/ p0977=12

20: Start download Siemens internal setting 20

21: Start download Siemens internal setting 21

22: Start download Siemens internal setting 22

23: Start download Siemens internal setting 23

24: Start download Siemens internal setting 24

25: Start download Siemens internal setting 25

26: Start download Siemens internal setting 26

100: Start resetting of all BICO interconnections

1011: Start dnlod of param. saved in volatile mem w/ p0977=1011

1012: Start dnlod of param. saved in volatile mem w/ p0977=1012

1013: Start dnlod of param. saved in volatile mem w/ p0977=1013

NOTICE

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

Note

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

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

Procedure:

1. Set p0009 = 30 (parameter reset).

2. Set p0976 to "required value". The system is rebooted.

p0976 is automatically set to 0 and p0009 is automatically set to 1 after this has been carried out.

p0977 Save all parameters / Save all par

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: Unsigned16

P group: Factory settings

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1013

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

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

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

Value:

- 0: Inactive
- 1: Save in non-volatile memory - downloaded at POWER ON
- 10: Save as opt. in non-vol. memory - downloaded w/ p0976=10
- 11: Save as opt. in non-vol. memory - downloaded w/ p0976=11
- 12: Save as opt. in non-vol. memory - downloaded w/ p0976=12
- 20: Save in non-volatile memory as setting 20 (reserved)
- 21: Save in non-volatile memory as setting 21 (reserved)
- 22: Save in non-volatile memory as setting 22 (reserved)
- 23: Save in non-volatile memory as setting 23 (reserved)
- 24: Save in non-volatile memory as setting 24 (reserved)
- 25: Save in non-volatile memory as setting 25 (reserved)
- 26: Save in non-volatile memory as setting 26 (reserved)
- 80: Save in non-volatile memory time-optimized (reserved)
- 1011: Save in volatile memory, downloaded with p0976=1011
- 1012: Save in volatile memory, downloaded with p0976=1012
- 1013: Save in volatile memory, downloaded with p0976=1013

Dependency:

See also: p0976, p1960, p3845, r3996

NOTICE

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

Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note

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

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

p0978[0...n]

CU_I_828,
CU_I_COMBI,
CU_NX_828

List of drive objects / List of the DO

Changeable: C1(1)

Data type: Unsigned8

P group: Topology

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: r0579

Unit group: -

Scaling: -

Max:

255

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

[0] 1

[1...24] 0

Description:	<p>This parameter is an image of p0101 in conformance with PROFIdrive. Parameters p0101 and p0978 contain the following information:</p> <ol style="list-style-type: none"> 1) The same number of drive objects 2) The same drive objects <p>In this sense, they are consistent. Difference between p0101 and p0978: p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange. For p0978, in addition, the value 255 can be inserted a multiple number of times. p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.</p>
Dependency:	See also: p0101, p0971, p0977
<hr/>	
Note	
p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).	
<hr/>	

r0979[0...30]	PROFIdrive encoder format / PD encoder format		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index:

- [0] = Header
- [1] = Type encoder 1
- [2] = Resolution enc 1
- [3] = Shift factor G1_XIST1
- [4] = Shift factor G1_XIST2
- [5] = Distinguishable revolutions encoder 1
- [6...10] = Reserved
- [11] = Type encoder 2
- [12] = Resolution enc 2
- [13] = Shift factor G2_XIST1
- [14] = Shift factor G2_XIST2
- [15] = Distinguishable revolutions encoder 2
- [16...20] = Reserved
- [21] = Type encoder 3
- [22] = Resolution enc 3
- [23] = Shift factor G3_XIST1
- [24] = Shift factor G3_XIST2
- [25] = Distinguishable revolutions encoder 3
- [26...30] = Reserved

Note

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

r0980[0...299]

List of existing parameters 1 / List avail par 1

All objects

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: See also: r0981, r0989

Note

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

This list consists solely of the following parameters:

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

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

r0981[0...299]

List of existing parameters 2 / List avail par 2

All objects

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: See also: r0980, r0989

Note

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

This list consists solely of the following parameters:

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

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

r0989[0...299]

List of existing parameters 10 / List avail par 10

All objects

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: See also: r0980, r0981

Note

The existing parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here.

This list consists solely of the following parameters:

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

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

r0990[0...99]	List of modified parameters 1 / List chang par 1		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-
Description:	Displays those parameters with a value other than the factory setting for this drive.		
Dependency:	See also: r0991, r0999		
	Note		
	Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.		
	This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99]		
	The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).		
r0991[0...99]	List of modified parameters 2 / List chang par 2		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-
Description:	Displays those parameters with a value other than the factory setting for this drive.		
Dependency:	See also: r0990, r0999		
	Note		
	Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.		
	This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99]		
	The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).		
r0999[0...99]	List of modified parameters 10 / List chang par 10		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-
Description:	Displays those parameters with a value other than the factory setting for this drive.		
Dependency:	See also: r0990, r0991		
	Note		
	Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.		
	This list consists solely of the following parameters: r0990[0...99], r0991[0...99] ... r0999[0...99]		
	The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).		

p1000[0...n]	Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS, p0170	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	999999	0

Description: Runs the corresponding macro files.
 The Connector Inputs (CI) for the speed setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.
 The selected macro file must be available on the memory card/device memory.
 Example:
 p1000 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0015, p0700, p1500, r8572

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

Note
 The macros in the specified directory are displayed in r8572. r8572 is not in the expert list of the commissioning software.
 Macros available as standard are described in the technical documentation of the particular product.
 CI: Connector Input

p1051[0...n]	CI: Speed limit RFG positive direction of rotation / n_limit RFG pos		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3050
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	-	-	1083[0]

Description: Sets the signal source for the speed limit of the positive direction on the ramp-function generator input.

Note
 The OFF3 ramp-down time (p1135) is effective when the limit is reduced.

p1052[0...n]	CI: Speed limit RFG negative direction of rotation / n_limit RFG neg		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3050
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	-	-	1086[0]

Description: Sets the signal source for the speed limit of the negative direction on the ramp-function generator input.

Note
 The OFF3 ramp-down time (p1135) is effective when the limit is reduced.

p1081	Maximum speed scaling / n_max scal		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3050, 3095
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: 100.00 [%]	Max: 105.00 [%]	Default: 100.00 [%]
Description:	Sets the scaling for the maximum speed (p1082). For a higher-level speed control, this scaling allows the maximum speed to be briefly exceeded.		
Dependency:	See also: p1082, r1082		

NOTICE

Continuous operation above a scaling of 100 % is not permitted.

p1081	Maximum velocity scaling / v_max scal		
HLA_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3050, 3095
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: 100.00 [%]	Max: 105.00 [%]	Default: 100.00 [%]
Description:	Sets the scaling for the maximum velocity (p1082). For a higher-level velocity control, this scaling allows the maximum velocity to be briefly exceeded.		
Dependency:	See also: p1082, r1082		

NOTICE

Continuous operation above a scaling of 100 % is not permitted.

p1082[0...n]	Maximum velocity / v_max		
HLA_828	Changeable: C2(1), T	Calculation: CALC_MOD_LIM_REF	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [m/min]	Max: 1000.000 [m/min]	Default: 1000.000 [m/min]
Description:	Sets the highest possible velocity.		
Dependency:	See also: p0115, p0230, r0313, p0313, p0322, p0324, r0336, p0532		

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).

Since the parameter is part of quick commissioning (p0010 = 1), it is defined appropriately when p0310, p0311, p0322, p0324, p0530, p0531, and p0532 are changed.

The following limits are always effective for p1082:

p1082[0...n]	Maximum speed / n_max		
SERVO_828, SERVO_COMBI	Changeable: C2(1), T	Calculation: CALC_MOD_ALL	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 2820, 3020, 3050, 3060, 3070, 3095
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [rpm]	Max: 210000.000 [rpm]	Default: 1500.000 [rpm]
Description:	Sets the highest possible speed.		
Dependency:	See also: p0115, p0322, p0324, p0532		

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).
Since the parameter is part of quick commissioning (p0010 = 1), it is defined appropriately when p0310, p0311, p0322, p0324, p0530, p0531, and p0532 are changed.
The following limits are always effective for p1082:
 $p1082 \leq \min(p0324, p0532)$ if $p0324 > 0$ and $p0532 > 0$
 $p1082 \leq p0322$ if $p0324 = 0$ or $p0532 = 0$ and $p0322 > 0$
 $p1082 \leq 60 / (10.0 * p0115[0] * r0313)$
 $p1082 \leq 60 * \text{Maximum power unit pulse frequency} / (5.0 * r0313)$
 For the automatic calculation (p0340 = 1) the value of the parameter is pre-assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors that are not catalog motors (p0301 = 0), the synchronous no-load speed is used as default (pre-assignment) value ($p0310 * 60 / r0313$).
 For synchronous motors, the following additionally applies:
 In the automatic calculation (p0340 = 1), p1082 is, on one hand, limited to speeds for which the rated power unit current (S1 continuous duty r0207[3]) is not sufficient as field current:
 $p1082 < p0348 / (1 - r0207 / r0331)$, applicable for $r0207[3] < r0331$
 On the other hand, an additional limit is effective, which prevents the EMF from exceeding the maximum DC link voltage (see p0643 and p1231).
 The effective assignment of the motor data set parameter (e.g. p0311) to the drive data set parameter p1082 when pre-assigning should be taken from p0186.
 p1082 is also available in the quick commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.

p1083[0...n]	CO: Velocity limit positive direction / v_limit pos		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: 0.000 [m/min]	Max: 1000.000 [m/min]	Default: 1000.000 [m/min]
Description:	Sets the maximum velocity for the positive direction.		

NOTICE
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3050, 3095
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: 0.000 [rpm]	Max: 210000.000 [rpm]	Default: 210000.000 [rpm]
Description:	Sets the maximum speed for the positive direction.		

NOTICE

A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

r1084	CO: Velocity limit positive effective / v_limit pos eff		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [m/min]	Max: - [m/min]	Default: - [m/min]
Description:	Display and connector output for the active positive velocity limit.		
Dependency:	See also: p1082, r1082, p1083		

r1084	CO: Speed limit positive effective / n_limit pos eff		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3050, 3095
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Display and connector output for the active positive speed limit.		
Dependency:	See also: p1082, r1082, p1083		

p1086[0...n]	CO: Velocity limit negative direction / v_limit neg		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: -1000.000 [m/min]	Max: 0.000 [m/min]	Default: -1000.000 [m/min]
Description:	Sets the velocity limit for the negative direction.		

NOTICE

A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1086[0...n] SERVO_828, SERVO_COMBI	CO: Speed limit in negative direction of rotation / n_limit neg Changeable: T, U Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: -210000.000 [rpm]	Calculation: - Dynamic index: DDS, p0180 Unit group: 3_1 Scaling: p2000 Max: 0.000 [rpm]	Access level: 2 Function plan: 3050, 3095 Unit selection: p0505 Expert list: 1 Default: -210000.000 [rpm]
--	---	--	---

Description: Sets the speed limit for the negative direction.

NOTICE
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

r1087 HLA_828	CO: Velocity limit negative effective / v_limit neg eff Changeable: - Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: - [m/min]	Calculation: - Dynamic index: - Unit group: 4_1 Scaling: p2000 Max: - [m/min]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [m/min]
-------------------------	--	---	--

Description: Display and connector output for the active negative velocity limit.

Dependency: See also: p1082, r1082, p1086

r1087 SERVO_828, SERVO_COMBI	CO: Speed limit negative effective / n_limit neg eff Changeable: - Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: - [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 3 Function plan: 3050, 3095 Unit selection: p0505 Expert list: 1 Default: - [rpm]
---	---	---	---

Description: Display and connector output for the active negative speed limit.

Dependency: See also: p1082, r1082, p1086

p1115 HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Ramp-function generator selection / RFG selection Changeable: T Data type: Integer16 P group: Setpoints Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 3 Function plan: 3001, 3080 Unit selection: - Expert list: 1 Default: 0
---	--	---	---

Description: Sets the ramp-function generator type.

Value:
0: Basic ramp-function generator
1: Extended ramp-function generator

Note
Another ramp-function generator type can only be selected when the motor is at a standstill.

r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp		
HLA_828 (ESR)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]
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.		
r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp		
SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3001, 3050, 3060, 3070, 6300
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
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		
HLA_828 (ESR)	Changeable: C2(1), T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3060, 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.000 [s]	999999.000 [s]	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:	See also: p1082, r1082, p1138		
	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.		

p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time		
SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: C2(1), T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3060, 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [s]	Max: 999999.000 [s]	Default: 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:	See also: p1082, r1082, p1138		

p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time		
SERVO_828, SERVO_COMBI	Changeable: C2(1), T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3060, 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [s]	Max: 999999.000 [s]	Default: 0.000 [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:	See also: p1082, r1082, p1139		

Note

The ramp-down time can be scaled via connector input p1139.
The following applies for SERVO:
The ramp-function generator is only available when the function module "extended setpoint channel" is active (r0108.8 = 1).

p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time		
HLA_828	Changeable: C2(1), T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3060, 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [s]	Max: 999999.000 [s]	Default: 0.000 [s]
Description:	The drive is decelerated from the maximum velocity (p1082) down to standstill (setpoint = 0) in this time. Further, the ramp-down time is always effective for OFF1.		
Dependency:	See also: p1082, r1082, p1139		

Note

The ramp-down time can be scaled via connector input p1139.
The following applies for SERVO:
The ramp-function generator is only available when the function module "extended setpoint channel" is active (r0108.8 = 1).

p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2505
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).

NOTICE

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

Note

For VECTOR in encoderless operation, it is not permissible that the ramp-function generator is bypassed.

p1130[0...n]	Ramp-function generator initial rounding-off time / RFG t_start_round		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.000 [s]	30.000 [s]	0.000 [s]

Description: Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.

Note

Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.

p1131[0...n]	Ramp-function generator final rounding-off time / RFG t_final_round		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.000 [s]	30.000 [s]	0.000 [s]

Description: Sets the final rounding-off time for the extended ramp generator.
The value applies to ramp-up and ramp-down.

Note

Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.

p1134[0...n]	Ramp-function generator rounding-off type / RFG round-off type		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0

Description: Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.

Value: 0: Cont smoothing
1: Discont smoothing

Dependency: No effect up to initial rounding-off time (p1130) > 0 s.

Note

p1134 = 0 (continuous smoothing)

If the setpoint is reduced while ramping-up, initially a final rounding-off is carried out and then the ramp-up completed. During the final rounding-off, the output of the ramp-function generator continues to go in the direction of the previous setpoint (overshoot). After the final rounding-off has been completed, the output goes toward the new setpoint.

p1134 = 1 (discontinuous smoothing)

If the setpoint is reduced while ramping-up, then the output goes immediately in the direction of the new setpoint. For the setpoint change there is no rounding-off.

p1135[0...n]

OFF3 ramp-down time / OFF3 t_RD

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(1), T, U

Data type: FloatingPoint32

P group: Setpoints

Not for motor type: -

Min:

0.000 [s]

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

600.000 [s]

Access level: 2

Function plan: 3060, 3070

Unit selection: -

Expert list: 1

Default:

0.000 [s]

Description:

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.

p1136[0...n]

OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd

HLA_828 (ESR),
SERVO_828 (ESR),
SERVO_COMBI (ESR)

Changeable: T, U

Data type: FloatingPoint32

P group: Setpoints

Not for motor type: -

Min:

0.000 [s]

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

30.000 [s]

Access level: 2

Function plan: 3070

Unit selection: -

Expert list: 1

Default:

0.000 [s]

Description:

Sets the initial rounding-off time for OFF3 for the extended ramp generator.

p1137[0...n]

OFF3 final rounding-off time / RFG OFF3 t_end_del

HLA_828 (ESR),
SERVO_828 (ESR),
SERVO_COMBI (ESR)

Changeable: T, U

Data type: FloatingPoint32

P group: Setpoints

Not for motor type: -

Min:

0.000 [s]

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

30.000 [s]

Access level: 2

Function plan: 3070

Unit selection: -

Expert list: 1

Default:

0.000 [s]

Description:

Sets the final rounding-off time for OFF3 for the extended ramp generator.

p1138[0...n]

CI: Ramp-function generator ramp-up time scaling / RFG t_RU scal

HLA_828 (ESR),
SERVO_828 (ESR),
SERVO_COMBI (ESR)

Changeable: T

Data type: Unsigned32 / FloatingPoint32

P group: Setpoints

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: CDS, p0170

Unit group: -

Scaling: PERCENT

Max:

-

Access level: 3

Function plan: 3060, 3070

Unit selection: -

Expert list: 1

Default:

1

Description:

Sets the signal source for scaling the ramp-up time of the ramp-function generator.

Dependency:

See also: p1120

Note

The ramp-up time is set in p1120.

p1139[0...n]	Cl: Ramp-function generator ramp-down time scaling / RFG t_RD scal		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3060, 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	1
Description:	Sets the signal source for scaling the ramp-down time of the ramp-function generator.		
Dependency:	See also: p1121		
	Note		
	The ramp-down time is set in p1121.		

p1140[0...n]	BI: Enable ramp-function generator/inhibit ramp-function generator / RFG enable		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	1
Description:	Sets the signal source for the command "enable ramp-function generator/inhibit ramp-function generator". For the PROFIdrive profile, this command corresponds to control word 1 bit 4 (STW1.4). BI: p1140 = 0 signal: Inhibits the ramp-function generator (the ramp-function generator output is set to zero). BI: p1140 = 1 signal: Ramp-function generator enable.		
Dependency:	See also: p1141, p1142		

⚠ CAUTION

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

NOTICE

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

p1141[0...n]	BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	1
Description:	Sets the signal source for the command "continue ramp-function generator/freeze ramp-function generator". For the PROFIdrive profile, this command corresponds to control word 1 bit 5 (STW1.5). BI: p1141 = 0 signal: Freezes the ramp-function generator. BI: p1141 = 1 signal: Continue ramp-function generator.		
Dependency:	See also: 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]

HLA_828,
SERVO_828,
SERVO_COMBI

BI: Enable setpoint/inhibit setpoint / Setpoint enable

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2501
P group: Setpoints	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	1

Description:

Sets the signal source for the command "enable setpoint/inhibit setpoint".
For the PROFIdrive profile, this command corresponds to control word 1 bit 6 (STW1.6).
BI: p1142 = 0 signal
Inhibits the setpoint (the ramp-function generator input is set to zero).
BI: p1142 = 1 signal
Setpoint enable.

Dependency:

See also: 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

p1143[0...n]

HLA_828 (ESR),
SERVO_828 (ESR),
SERVO_COMBI (ESR)

BI: Ramp-function generator, accept setting value / RFG accept set v

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 3060, 3070
P group: Setpoints	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for accepting the setting value of the ramp-function generator.

Dependency:

The signal source for the ramp-function generator setting value is set using parameters.
See also: p1144

Note

0/1 signal:
The ramp-function generator output is immediately (without delay) set to the setting value of the ramp-function generator.
1 signal:
The setting value of the ramp-function generator is effective.
1/0 signal:
The input value of the ramp-function generator is effective. The ramp-function generator output is adapted to the input value using the ramp-up time or the ramp-down time.
0 signal:
The input value of the ramp-function generator is effective.

p1144[0...n]	Cl: Ramp-function generator setting value / RFG setting value		
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3060, 3070
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for the ramp-function generator setting value.		
Dependency:	The signal source for accepting the setting value is set using parameters. See also: p1143		

p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens		
SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3080
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0	50.0	1.3
Description:	Sets the ramp-function generator tracking. The output value of the ramp-function generator is tracked (corrected) corresponding to the maximum possible drive acceleration. The reference value is the deviation at the speed/velocity controller input that is necessary to ensure that the motor accelerates at the torque/force limit.		
Recommendation:	If at least one speed setpoint filter/velocity setpoint filter is activated (p1414), then the ramp-function generator tracking should be deactivated (p1145 = 0.0). When the speed setpoint filter is activated, the output value of the ramp-function generator can no longer be tracked (corrected) corresponding to the maximum possible drive acceleration. For p1145 = 0.0: This value de-activates the ramp-function generator tracking. For p1145 = 0.0 ... 1.0: Generally, these values are not practical. They cause the motor to accelerate below its torque limit. The lower the selected value, the greater the margin between the controller and torque limit when accelerating. For p1145 > 1.0: The greater the value, the higher the permissible deviation between the speed setpoint and speed actual value.		

NOTICE

If ramp-function generator tracking is activated and the ramp time is set too short, this can cause unsteady acceleration.

Remedy:

- switch off ramp-function generator tracking (p1145 = 0).
- increase the ramp-up/ramp-down time (p1120, p1121).

Note

In the U/f mode, ramp-function generator tracking is not active.

For SERVO with U/f operation, the following applies:

The complete ramp-function generator is not active, i.e. ramp-up and ramp-down time = 0.

p1148[0...n]	Ramp-function gen. tolerance for ramp-up and ramp-down active / RFG tol HL/RL act		
HLA_828 (ESR)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3060, 3070
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.000 [m/min]	10.000 [m/min]	0.200 [m/min]

Description: Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active).
If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.

Dependency: See also: r1199

p1148[0...n] Ramp-function gen. tolerance for ramp-up and ramp-down active / RFG tol HL/RL act

HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3060, 3070
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [rpm]	Max: 1000.000 [rpm]	Default: 19.800 [rpm]

Description: Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active).
If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.

Dependency: See also: r1199

r1149 CO: Ramp-function generator acceleration / RFG acceleration

HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3060, 3070
	P group: Setpoints	Unit group: 39_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2007	Expert list: 1
	Min: - [rev/s ²]	Max: - [rev/s ²]	Default: - [rev/s ²]

Description: Displays the acceleration of the ramp-function generator.

Dependency: See also: p1145

r1150 CO: Ramp-function generator velocity setpoint at the output / RFG v_set at outp

HLA_828 (ESR)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3001, 3080
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [m/min]	Max: - [m/min]	Default: - [m/min]

Description: Displays the setpoint at the output of the ramp-function generator.

r1150 CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp

SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3001, 3080
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]

Description: Displays the setpoint at the output of the ramp-function generator.

p1151[0...n]	Ramp-function generator configuration / RFG config			
SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: T, U	Calculation: -	Access level: 2	
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: -	
	P group: Setpoints	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0000 bin	
Description:	Sets the configuration for the extended ramp-function generator.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Disable rounding-off at the zero cross-over	Yes	No
	01	RFG tracking without polarity change	Yes	No
	02	RFG tracking with polarity change	Yes	No
Dependency:	For bit 01, 02 = 1: These bits are only effective when ramp-function generator tracking is activated (p1145 > 0). When both bits are activated, RFG tracking with polarity change is active. For bit 01 = 0, bit 02 = 0: When ramp-function generator tracking is active, the setpoint can only change in the direction of the target setpoint – or be frozen.			
	NOTICE			
	For bit 00 = 1: If the ramp-up time is longer than the ramp-down time (p1120 > p1121), then there is an acceleration step at the zero crossover. This can have a negative impact on the mechanical system.			
	Note			
	For bit 00 = 1: When the direction change is changed there is no rounding-off before and after the zero crossover. For bit 01 = 1: For load surges, the ramp-function generator output tracks the actual value. The tracking (correction) ends at a setpoint of zero. For bit 02 = 1: For load surges, the ramp-function generator output tracks the actual value. For a polarity change, the tracking (correction) is continued.			
p1152	BI: Setpoint 2 enable / Setp 2 enab			
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T	Calculation: -	Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2711, 4015	
	P group: Commands	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	899.15	
Description:	Sets the signal source for "setpoint 2 enable".			
p1155[0...n]	CI: Speed controller speed setpoint 1 / n_ctrl n_set 1			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3	
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3001, 3080, 5030, 6031	
	P group: Setpoints	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: p2000	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0	
Description:	Sets the signal source for speed setpoint 1 of the speed controller.			

Dependency: The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6.
See also: r0002, p0840, p0844, p0848, p0852, p0854, r0898, p1140, p1142, p1160, r1170, p1189, p1414, p1417, p1418

NOTICE

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

p1160[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

CI: Speed controller speed setpoint 2 / n_ctrl n_set 2

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3001, 3080
P group: Setpoints	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2000	Expert list: 1
Min: -	Max: -	Default: 0

Description: Sets the signal source for speed setpoint 2 of the speed controller.

Dependency: See also: p1155, r1170

Note

For OFF1/OFF3, the ramp-function generator ramp is effective.
The ramp-function generator is set (SERVO: to the actual value, VECTOR: To the setpoint (r1170)) and stops the drive corresponding to the ramp-downtime (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).
When the function module "position control" (r0108.3 = 1) is activated, this connector input is interconnected as follows as standard:
CI: p1160 = r2562

r1169

HLA_828

CO: Velocity controller velocity setpoints 1 and 2 / v_ctrl v_set 1/2

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Setpoints	Unit group: 4_1	Unit selection: p0505
Not for motor type: -	Scaling: p2000	Expert list: 1
Min: - [m/min]	Max: - [m/min]	Default: - [m/min]

Description: Displays the velocity setpoint after the addition of the velocity setpoint 1 (p1155) and velocity setpoint 2 (p1160).

Dependency: See also: p1155, p1160

Note

The value is only correctly displayed at r0899.2 = 1 (operation enabled).

r1169

SERVO_828,
SERVO_COMBI

CO: Speed controller speed setpoints 1 and 2 / n_ctrl n_set 1/2

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 3080
P group: Setpoints	Unit group: 3_1	Unit selection: p0505
Not for motor type: -	Scaling: p2000	Expert list: 1
Min: - [rpm]	Max: - [rpm]	Default: - [rpm]

Description: Displays the speed setpoint after the addition of the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).

Dependency: See also: p1155, p1160

Note

The value is only correctly displayed at r0899.2 = 1 (operation enabled).

r1170	CO: Velocity controller setpoint sum / v_ctrl setp sum		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Setpoints	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]
Description:	Display and connector output for the velocity setpoint after selecting the ramp-function generator. The value is the sum of velocity setpoint 1 (p1155) and velocity setpoint 2 (p1160).		
Dependency:	See also: r1150, p1155, p1160		

r1170	CO: Speed controller setpoint sum / n_ctrl setp sum		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3001, 3050, 3080, 5019, 5020
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	Display and connector output for the speed setpoint after selecting the ramp-function generator. The value is the sum of speed setpoint 1 (p1155) and speed setpoint 2 (p1160).		
Dependency:	See also: r1150, p1155, p1160		

p1189[0...n]	Speed setpoint configuration / n_ctrl config				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 3080		
	P group: Setpoints	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0011 bin		
Description:	Sets the configuration for the speed setpoint.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Interpolation ramp-fct gen/speed controller active	Yes	No	3080
	01	Interpol. op-loop ctrl /speed controller active	Yes	No	3080
	Note				
	For bit 01:				
	The interpolator is only effective in following cases:				
	- isochronous PROFIBUS operation with a sign-of-life received from the master (STW2.12 ... STW2.15).				

p1190	CI: DSC position deviation XERR / DSC XERR		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 3001, 3090
	P group: Setpoints	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for the position deviation XERR for DSC (position controller output of the higher-level control).		

Dependency: Clock cycle synchronous operation must be activated for DSC.
 The position controller gain factor (KPC), the position deviation (XERR) and the speed setpoint (N_SOLL_B) must be included in the setpoint telegram.
 At least the encoder interface (Gx_XIST1) must be included in the actual value telegram.
 The position actual value used for the internal position controller can be selected using p1192.
 See also: p1191, p1192

NOTICE
 The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
 The parameter can only be interconnected to a signal source with Integer32 data type.

Note
 DSC: Dynamic Servo Control

p1191

HLA_828,
 SERVO_828,
 SERVO_COMBI

CI: DSC position controller gain KPC / DSC KPC

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 3001, 3090
P group: Setpoints	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0

Description: Sets the signal source for the position controller gain KPC for DSC.
Dependency: Clock cycle synchronous operation must be activated for DSC.
 See also: p1190

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

Note
 DSC: Dynamic Servo Control

p1192[0...n]

HLA_828,
 SERVO_828,
 SERVO_COMBI

DSC enc selection / DSC enc selection

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 3090
P group: Setpoints	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1	Max: 3	Default: 1

Description: Sets the number of the encoder used for DSC.
Value:
 1: Encoder 1 (motor encoder)
 2: Encoder 2
 3: Encoder 3

Note
 DSC: Dynamic Servo Control
 Value 1 corresponds to encoder 1 (motor encoder); the encoder data set is assigned via p0187.
 Value 2 corresponds to encoder 2; the encoder data set is assigned via p0188.
 Value 3 corresponds to encoder 3; the encoder data set is assigned via p0189.

p1193[0...n]	DSC encoder adaptation factor / DSC encodAdaptFact				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 3090		
	P group: Setpoints	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0.000	Max: 1000000.000	Default: 1.000		
Description:	Sets the factor to adapt the encoder when using either encoder 2 or 3 for DSC. The factor sets the ratio of the pulse difference between the motor encoder (encoder 1) and the selected encoder for the same distance moved through. This factor takes into account e.g. gear ratios, differences in the number of encoder pulses.				
Dependency:	See also: p1192				
	Note DSC: Dynamic Servo Control Example: Encoder 1: Motor encoder with 2048 pulses/revolution, ballscrew with 10 mm/revolution pitch Encoder 2: Linear scale with 20 µm grid division as direct measuring system p1193 = number of pulses, encoder 1 per motor revolution / number of pulses, encoder 2 per motor revolution p1193 = 2048 / (10 mm / 20 µm) = 4.096				
r1196	CO: DSC position setpoint / DSC x_set				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 4		
	Data type: Integer32	Dynamic index: -	Function plan: -		
	P group: Encoder	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Display and connector output of the position setpoint of DSC in fine pulses.				
	Note DSC: Dynamic Servo Control				
r1199.0...8	CO/BO: Ramp-function generator status word / RFG ZSW				
HLA_828 (ESR), SERVO_828 (ESR), SERVO_COMBI (ESR)	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: 3001, 3080		
	P group: Setpoints	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Displays the status word for the ramp-function generator (RFG).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ramp-up active	Yes	No	-
	01	Ramp-down active	Yes	No	-
	02	RFG active	Yes	No	-
	03	Ramp-function generator set	Yes	No	-
	04	Ramp-function generator held	Yes	No	-
	05	Ramp-function generator tracking active	Yes	No	-
	06	Maximum limit active	Yes	No	-
	07	Ramp-function generator acceleration positive	Yes	No	-
	08	Ramp-function generator acceleration negative	Yes	No	-

Note

For bit 02:
The bit is the result of the OR logic operation - bit 00 and bit 01.

p1200

HLA_828

CI: Position offset incremental/absolute / x_off inc/abs

Changeable: T, U	Calculation: -	Access level: 2
Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: -
P group: Setpoints	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source for the position offset between incremental and absolute position.
Dependency: See also: p1201

Note

When using an incremental measuring system, which is referenced (homed) via the control system, then the control must provide an offset for the incremental position. This value is added to the incremental value, therefore generating an absolute position. The absolute position is used in the drive to determine the piston position, if the measuring system does not have any absolute information.

p1201[0...n]

HLA_828

CI: Position offset incremental/absolute valid / x_off valid

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Integer16	Dynamic index: CDS, p0170	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source for the message "Position offset incremental/absolute valid".
BI: p1201 = 1 signal:
The value for the position offset incremental/absolute (p1200) is valid.
Dependency: See also: p1200

p1206[0...9]

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Faults without automatic restart / F w/out auto AR

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	65535	0

Description: Sets faults for which automatic restart should not be effective.
Dependency: The setting is only effective for p1210 = 6, 16.
See also: p1210

p1207

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

BI: AR connection following drive object / AR connection DO

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:	Modifies the pre-charging monitoring of the infeed. The active automatic restart (AR) of the following drive object can be interconnected using this binector input (BI: p1207 = r1214.2). This means that when the automatic restart is operational, the pre-charging monitoring of the infeed is de-activated and is only re-activated under the following conditions: - the absolute current in the DC link is greater than 2 % of the maximum current (r0209) of the infeed to provide protection against short-circuit in the DC link. - if a Voltage Sensing Module (VSM) is being used, the line supply voltage amplitude is greater than 3 % of the parameterized unit supply voltage (p0210) to protect the pre-charging resistors against continuous filter current when the line supply partially returns.
Dependency:	See also: r0209, p0209, p0210, r1214

p1208[0...1]	BI: AR modification infeed / AR modification		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source to modify the automatic restart (AR). Interconnections between the automatic restart and infeed: With the following interconnection in the mode p1210 = 6, the automatic restart can respond to infeed faults: BI: p1208[0] = r2139.3 With the following interconnection, in the mode p1210 = 4, the automatic restart can respond to line supply failure of the infeed: BI: p1208[1] = r0863.2		
Index:	[0] = Infeed fault [1] = Infeed line supply failure		
Dependency:	See also: r0863, r2139		

p1210	Automatic restart mode / AR mode		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	16	0
Description:	Sets the automatic restart mode (AR).		
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		
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 acknowledgment is required for an automatic restart. See also: p0840, p0857 See also: 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 again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

NOTICE
 A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1). When faults are present, therefore, the parameter cannot be changed.
 For p1210 > 1, the motor is automatically started.

Note

When automatic restart mode is activated, the supply voltage must remain connected (e.g. backed up by UPS).
 For 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.
 For p1210 = 4:
 An automatic restart is only carried out if fault F30003 occurred at the Motor Module or a 1 signal is present at binector input p1208[1]. 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.
 For p1210 = 6:
 An automatic restart is carried out if any fault has occurred or there is a 1 signal at binector input p1208[0].
 For p1210 = 14:
 As for p1210 = 4. However, faults that are present must be manually acknowledged.
 For p1210 = 16:
 As for p1210 = 6. However, faults that are present must be manually acknowledged.

p1210

A_INF_828

Automatic restart mode / AR mode

Changeable: T, U

Data type: Integer16

P group: Functions

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

6

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the automatic restart mode (AR).

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

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 Advanced Operator Panel (AOP) in the LOCAL Mode, then there is no automatic restart.
 See also: p0840, p0857
 See also: 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 again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

NOTICE

A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
For p1210 > 1, the infeed is automatically started.

Note

When automatic restart mode is activated, the supply voltage must remain connected (e.g. backed up by UPS).

For 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. A minimum time of p1212 + 1 s must expire between a successful fault acknowledgment and a fault re-occurring if the signal ON/OFF1 (STW1.0) is at a HIGH signal level. If the signal ON/OFF1 is at a LOW signal level, then the time between a successful fault acknowledgment and a new fault must be at least 1 s. p1211 has no influence on the number of acknowledgment attempts.

For p1210 = 4:

An automatic restart is only executed if fault F06200 or F06851 has occurred. 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.

For p1210 = 6:

An automatic restart is carried out if any fault has occurred.

p1210

B_INF_828

Automatic restart mode / AR mode**Changeable:** T, U**Data type:** Integer16**P group:** Functions**Not for motor type:** -**Min:**

0

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

6

Access level: 2**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the automatic restart mode (AR).

Value:

0: Inhibit automatic restart

1: Acknowledge all faults without restarting

6: Restart after fault with additional start attempts

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 Advanced Operator Panel (AOP) in the LOCAL Mode, then there is no automatic restart.

See also: p0840, p0857

See also: 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 again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

NOTICE

A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
For p1210 > 1, the infeed is automatically started.

Note

When automatic restart mode is activated, the supply voltage must remain connected (e.g. backed up by UPS).

For 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. A minimum time of p1212 + 1 s must expire between a successful fault acknowledgment and a fault re-occurring if the signal ON/OFF1 (STW1.0) is at a HIGH signal level. If the signal ON/OFF1 is at a LOW signal level, then the time between a successful fault acknowledgment and a new fault must be at least 1 s. p1211 has no influence on the number of acknowledgment attempts.

For p1210 = 6:

An automatic restart is carried out if any fault has occurred.

p1210

S_INF_828,
S_INF_COMBI

Automatic restart mode / AR mode

Changeable: T, U

Calculation: -

Access level: 2

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Functions

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

6

0

Description:

Sets the automatic restart mode (AR).

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

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 Advanced Operator Panel (AOP) in the LOCAL Mode, then there is no automatic restart.

See also: p0840, p0857

See also: 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 again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

NOTICE

A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
For p1210 > 1, the infeed is automatically started.

Note

When automatic restart mode is activated, the supply voltage must remain connected (e.g. backed up by UPS).

For 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. A minimum time of p1212 + 1 s must expire between a successful fault acknowledgment and a fault re-occurring if the signal ON/OFF1 (STW1.0) is at a HIGH signal level. If the signal ON/OFF1 is at a LOW signal level, then the time between a successful fault acknowledgment and a new fault must be at least 1 s.

p1211 has no influence on the number of acknowledgment attempts.

For p1210 = 4:

An automatic restart is only executed if fault F06200 has occurred. 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.

For p1210 = 6:

An automatic restart is carried out if any fault has occurred.

p1211	Automatic restart start attempts / AR start attempts		
	SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned16 P group: Functions Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10

Description: Sets the start attempts of the automatic restart function for p1210 = 4, 6.

Dependency: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
See also: p1210, r1214
See also: F07320

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 be 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 acknowledgment 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, acknowledgment 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 acknowledgment also causes the start counter to be decremented.

p1211	Automatic restart start attempts / AR start attempts		
	A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U Data type: Unsigned16 P group: Functions Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10

Description: Sets the start attempts of the automatic restart function for p1210 = 4, 6.

Dependency: This parameter setting is active for p1210 = 6.
For p1210 = 4, the parameter only has an influence if, when attempting to start, an additional line phase failure (F06200) occurs.
A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
See also: p1210, r1214
See also: F07320

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 restart attempt is considered to have been completed if the infeed is powered up 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 acknowledgment 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 power-up operation) the start counter is again reset to the parameter value after 1 s. If faults re-occur, the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgment 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 acknowledgment also causes the start counter to be decremented.

p1212

SERVO_828,
SERVO_COMBI

Automatic restart delay time start attempts / AR t_wait start

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.1 [s]	Max: 1000.0 [s]	Default: 1.0 [s]

Description:

Sets the delay time up to restart.

Dependency:

This parameter setting is active for $p1210 = 4, 6$.
For $p1210 = 1$, the following applies:
Faults are only automatically acknowledged in half of the waiting time, no restart.
See also: $p1210, r1214$

NOTICE

A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

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.

p1212

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Automatic restart delay time start attempts / AR t_wait start

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.1 [s]	Max: 1000.0 [s]	Default: 1.0 [s]

Description:

Sets the delay time up to restart.

Dependency: This parameter setting is active for p1210 = 4, 6.
 For p1210 = 1, the following applies:
 Only automatic acknowledgment of the faults, no restart.
 See also: p1210, r1214

NOTICE
A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Note

The faults are automatically acknowledged and the system is powered up again after half of the delay time has expired and after the full delay time has expired.

p1213[0...1]

SERVO_828,
SERVO_COMBI

Automatic restart monitoring time / AR t_monit

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Functions

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0 [s]

10000.0 [s]

0.0 [s]

Description: Sets the monitoring time of the automatic restart (AR).

Index: [0] = Restart

[1] = Reset start counter

Dependency: See also: p1210, r1214

NOTICE
A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1). 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

For index 0:

The monitoring time starts when the faults are detected. If the automatic acknowledgments 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.

For index 1:

The start counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213[1] has expired. The delay time is not effective for fault acknowledgment without automatic restart (p1210 = 1). After a power failure (blackout) 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.

p1213[0...1]

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Automatic restart monitoring time / AR t_monit

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Functions

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0 [s]

10000.0 [s]

0.0 [s]

Description: Sets the monitoring time of the automatic restart (AR).

Index: [0] = Restart
[1] = Reset start counter

Dependency: See also: p1210, r1214

NOTICE
A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1). 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

For index 0:

The monitoring time starts when the faults are detected. If the automatic acknowledgments are not successful, the monitoring time runs again. If the drive has not restarted at the end of the monitoring time, fault F07320 is signaled. The monitoring is de-activated with p1213 = 0. If p1213 is set to a value which is lower than in p1212, 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).

For index 1:

The start counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213[1] has expired. The delay time is not effective for fault acknowledgment without automatic restart (p1210 = 1). After a power failure (blackout) 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.

r1214.0...15

SERVO_828,
SERVO_COMBI

CO/BO: Automatic restart status / AR status

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the status of the automatic restart (AR).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Initialization	Yes	No	-
	01	Wait for alarm	Yes	No	-
	02	Auto restart act	Yes	No	-
	03	Setting the acknowledgment command	Yes	No	-
	04	Acknowledge alarms	Yes	No	-
	05	Restart	Yes	No	-
	06	Delay time running after automatic power-up	Yes	No	-
	07	Fault	Yes	No	-
	10	Effective fault	Yes	No	-
	12	Start count. bit 0	ON	OFF	-
	13	Start count. bit 1	ON	OFF	-
	14	Start count. bit 2	ON	OFF	-
	15	Start count. bit 3	ON	OFF	-

Note

For bit 00:

State to display the single initialization after POWER ON.

For bit 01:

State in which the automatic restart function waits for faults (initial state).

For bit 02:

General display that a fault has been identified and that the restart or acknowledgment has been initiated.

For bit 03:

Displays the acknowledge command within the "acknowledge alarms" state (bit 4 = 1). For bit 5 = 1 or bit 6 = 1, the acknowledge command is continually displayed.

For bit 04:

State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgment. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgment command (bit 3 = 1).

For bit 05:

State in which the drive is automatically powered up (only for p1210 = 4, 6).

For bit 06:

State in which the system waits after having been powered up, to the end of the start attempt (to the end of the magnetizing process).

For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

For bit 07:

State which is assumed after a fault occurs within the automatic restart function. This is only reset after acknowledging the fault and withdrawing the power-on command.

For bit 10:

When the automatic restart function is active, r1214.7 is displayed, otherwise the active fault r2139.3.

For bits 12 ... 15:

Actual state of the start counter (binary coded).

r1214.0...15**CO/BO: Automatic restart status / AR status**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -

Data type: Unsigned16

P group: Functions

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the status of the automatic restart (AR).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Initialization	Yes	No	-
01	Wait for alarm	Yes	No	-
02	Auto restart act	Yes	No	-
03	Setting the acknowledgment command	Yes	No	-
04	Acknowledge alarms	Yes	No	-
05	Restart	Yes	No	-
06	Delay time running after automatic power-up	Yes	No	-
07	Fault	Yes	No	-
10	Effective fault	Yes	No	-
12	Start count. bit 0	ON	OFF	-
13	Start count. bit 1	ON	OFF	-
14	Start count. bit 2	ON	OFF	-
15	Start count. bit 3	ON	OFF	-

Note

For bit 00:

State to display the single initialization after POWER ON.

For bit 01:

State in which the automatic restart function waits for faults (initial state).

For bit 02:

General display that a fault has been identified and that the restart or acknowledgment has been initiated.

For bit 03:

Displays the acknowledge command within the "acknowledge alarms" state (bit 4 = 1). For bit 5 = 1 or bit 6 = 1, the acknowledge command is continually displayed.

For bit 04:

State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgment. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgment command (bit 3 = 1).

For bit 05:

State in which the drive is automatically powered up (only for p1210 = 4, 6).

For bit 06:

State in which the system waits after having been powered up, to the end of the start attempt.

For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

For bit 07:

State which is assumed after a fault occurs within the automatic restart function.

For bits 12 ... 15:

Actual state of the start counter (binary coded).

p1215

SERVO_828,
SERVO_COMBI

Motor holding brake configuration / Brake config

Changeable: T

Calculation: -

Access level: 2

Data type: Integer16

Dynamic index: -

Function plan: 2701, 2707, 2711

P group: Functions

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

3

0

Description:


Sets the holding brake configuration.

Value:

- 0: No motor holding brake available
- 1: Motor holding brake acc. to sequence control
- 2: Motor holding brake always open
- 3: Motor holding brake like sequence control connection via BICO

Dependency:

See also: p1216, p1217, p1226, p1227, p1228, p1278

 **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 the configuration is set to "no holding brake present" when booting, then the motor holding brake will be automatically identified. If a motor holding brake is detected, the configuration is set to "motor holding brake as for sequence control". If a motor holding brake is used via the brake connection of the Motor Module integrated in the drive, 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.

When the function module "extended brake control" is activated (r0108.14 = 1), r1229.1 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = 1, p9802 = 1) is not practical if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

p1216

SERVO_828,
SERVO_COMBI

Motor holding brake opening time / Brake t_{open}

Changeable: T, U

Data type: FloatingPoint32

P group: Functions

Not for motor type: -

Min:

0 [ms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

10000 [ms]

Access level: 2

Function plan: 2701, 2711

Unit selection: -

Expert list: 1

Default:

100 [ms]

Description:

Sets the time to open the motor holding brake.

After controlling the holding brake (opens), the speed/velocity setpoint remains at zero for this time. After this, the speed/velocity setpoint is enabled.

Recommendation:

This time should be set longer than the actual opening time of the brake. This ensures that the drive cannot accelerate when the brake is applied.

Dependency:

See also: 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.

For p1216 = 0 ms, the monitoring and the message A07931 "Brake does not open" are deactivated.

p1217

SERVO_828,
SERVO_COMBI

Motor holding brake closing time / Brake t_{close}

Changeable: T, U

Data type: FloatingPoint32

P group: Functions

Not for motor type: -

Min:

0 [ms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

10000 [ms]

Access level: 2

Function plan: 2701, 2711

Unit selection: -

Expert list: 1

Default:

100 [ms]

Description:

Sets the time to apply the motor holding brake.

After OFF1 or OFF3 and the holding brake is controlled (the brake closes), then the drive remains closed-loop controlled for this time stationary with a speed setpoint/velocity setpoint of zero. The pulses are suppressed when the time expires.

Recommendation:

This time should be set longer than the actual closing time of the brake. This ensures that the pulses are only suppressed after the brake has closed.

Dependency:

See also: 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.

For p1217 = 0 ms, the monitoring and the message A07932 "Brake does not close" are deactivated.

p1218[0...1]

SERVO_828 (Ext brake),
SERVO_COMBI (Ext brake)

BI: Open motor holding brake / Open brake

Changeable: T	Calculation: -	Access level: 2
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2707
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	1

Description: Sets the signal source for a conditional opening of the motor holding brake.

Dependency: See also: p1215

Note

[0]: Signal, open brake, AND logic operation, input 1

[1]: Signal, open brake, AND logic operation, input 2

p1219[0...3]

SERVO_828 (Ext brake),
SERVO_COMBI (Ext brake)

BI: Immediately close motor holding brake / Close brake

Changeable: T	Calculation: -	Access level: 2
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2707
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	[0] 0
		[1] 0
		[2] 0
		[3] 1229.9

Description: Sets the signal source for an unconditional (immediate) closing of the motor holding brake.

Dependency: See also: p1215, p1275

Note

[0]: Signal, immediately close brake, inversion via p1275.0

[1]: Signal, immediately close brake, inversion via p1275.1

[2]: Signal, immediately close brake

[3]: Signal, immediately close brake - refer to the factory setting

These four signals form an OR logic operation.

p1220

SERVO_828 (Ext brake),
SERVO_COMBI (Ext brake)

CI: Open motor holding brake signal source threshold / Open brake thresh

Changeable: T	Calculation: -	Access level: 2
Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 2707
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: PERCENT	Expert list: 1
Min:	Max:	Default:
-	-	1

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

Dependency: See also: p1215, p1221, r1229, p1277

p1221	Open motor holding brake threshold / Open brake thresh		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T, U Data type: FloatingPoint32 P group: Functions Not for motor type: - Min: 0.00 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 200.00 [%]	Access level: 2 Function plan: 2707 Unit selection: - Expert list: 1 Default: 0.00 [%]
Description:	Sets the threshold value for the command "open brake".		
Dependency:	See also: p1220, r1229, p1277		
p1222	BI: Motor holding brake feedback signal brake closed / Brake feedb closed		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T Data type: Unsigned32 / Binary P group: Functions Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 2711 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for the feedback signal "brake closed". For motor holding brakes with feedback signal, the signal "brake closed" can be activated using p1275.5 = 1.		
Dependency:	See also: p1223, p1275		
	Note 1 signal: Brake closed. When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1223). For r1229.5 = 1, OFF1/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.		
p1223	BI: Motor holding brake feedback signal brake open / Brake feedb open		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T Data type: Unsigned32 / Binary P group: Functions Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 2711 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source for the feedback signal "brake open". For motor holding brakes with feedback signal, the signal "brake open" can be activated using p1275.5 = 1.		
Dependency:	See also: p1222, p1275		
	Note 1 signal: Brake open. When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1222).		
p1224[0...3]	BI: Close motor holding brake at standstill / Brk close standst		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T Data type: Unsigned32 / Binary P group: Functions Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 2704 Unit selection: - Expert list: 1 Default: 0

Description: Sets the signal source for close brake at standstill.

Dependency: See also: p1275

Note

[0]: Signal, close brake at standstill, inversion via p1275.2
 [1]: Signal, close brake at standstill, inversion via p1275.3
 [2]: Signal, close brake at standstill
 [3]: Signal, close brake at standstill
 These four signals form an OR logic operation.

p1225

SERVO_828 (Ext
brake),
SERVO_COMBI (Ext
brake)

CI: Standstill detection threshold value / Standstill thresh

Changeable: T	Calculation: -	Access level: 2
Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 2704
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2000	Expert list: 1
Min:	Max:	Default:
-	-	63[0]

Description: Sets the signal source "threshold value" for the standstill identification.

Dependency: See also: p1226, p1228, r1229

p1226[0...n]

HLA_828

Standstill detection velocity threshold / v_standst v_thresh

Changeable: T, U	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
P group: Functions	Unit group: 4_1	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0.00 [m/min]	1000.00 [m/min]	0.20 [m/min]

Description: Sets the velocity threshold for the standstill identification.

Acts on the actual value and setpoint monitoring.

When braking with OFF1 or OFF3, when the threshold is undershot, standstill is identified.

Dependency: See also: p1227

Note

Standstill is identified in the following cases:
 - the velocity actual value falls below the velocity threshold in p1226 and the time started after this in p1228 has expired.
 - the velocity setpoint falls below the velocity threshold in p1226 and the time started after this in p1227 has expired.
 The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the velocity threshold is too low.

p1226[0...n]

SERVO_828,
SERVO_COMBI

Threshold for zero speed detection / n_standst n_thresh

Changeable: T, U	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 2701, 2704
P group: Functions	Unit group: 3_1	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0.00 [rpm]	210000.00 [rpm]	20.00 [rpm]

Description: Sets the speed threshold for the standstill identification.
 Acts on the actual value and setpoint monitoring.
 When braking with OFF1 or OFF3, when the threshold is undershot, standstill is identified.
 The following applies when the brake control is activated:
 When the threshold is undershot, the brake control is started and the system waits for the brake closing time in p1217.
 The pulses are then suppressed.
 if the brake control is not activated, the following applies:
 When the threshold is undershot, the pulses are suppressed and the drive coasts down.

Dependency: See also: p1215, p1216, p1217, p1227

NOTICE

For reasons relating to the compatibility to earlier firmware versions, a parameter value of zero in indices 1 to 31 is overwritten with the parameter value in index 0 when the Control Unit boots.

Note

Standstill is identified in the following cases:
 - the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired.
 - the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 has expired.
 The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the speed threshold is too low.

p1227**Zero speed detection monitoring time / Standst_id t_monit**

HLA_828

Changeable: T, U**Calculation:** -**Access level:** 2**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** -**P group:** Functions**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.000 [s]

300.000 [s]

4.000 [s]

Description:

Sets the monitoring time for the standstill identification.
 When braking with OFF1 or OFF3, standstill is identified after this time has expired, after the setpoint speed has fallen below p1226 (also refer to p1145).
 After this, the brake control is started, the system waits for the closing time in p1217 and then the pulses are suppressed.

NOTICE

For p1145 > 0.0 (RFG tracking) the setpoint is not equal to zero dependent on the selected value. This can therefore cause the monitoring time in p1227 to be exceeded. In this case, for a driven motor, the pulses are not suppressed.

Note

Standstill is identified in the following cases:
 - the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired.
 - the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 has expired.
 For p1227 = 300.000 s, the following applies:
 Monitoring is de-activated.
 For p1227 = 0.000 s, the following applies:
 With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately suppressed and the motor "coasts" down.

p1227**Zero speed detection monitoring time / n_standst t_monit**SERVO_828,
SERVO_COMBI**Changeable:** T, U**Calculation:** -**Access level:** 2**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 2701, 2704**P group:** Functions**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.000 [s]

300.000 [s]

4.000 [s]

Description: Sets the monitoring time for the standstill identification.
 When braking with OFF1 or OFF3, standstill is identified after this time has expired, after the setpoint speed has fallen below p1226 (also refer to p1145).
 After this, the brake control is started, the system waits for the closing time in p1217 and then the pulses are suppressed.

Dependency: See also: p1215, p1216, p1217, p1226

NOTICE
 For p1145 > 0.0 (RFG tracking) the setpoint is not equal to zero dependent on the selected value. This can therefore cause the monitoring time in p1227 to be exceeded. In this case, for a driven motor, the pulses are not suppressed.

Note
 Standstill is identified in the following cases:
 - the speed actual value falls below the speed threshold in p1226 and the time started after this in p1228 has expired.
 - the speed setpoint falls below the speed threshold in p1226 and the time started after this in p1227 has expired.
 For p1227 = 300.000 s, the following applies:
 Monitoring is de-activated.
 For p1227 = 0.000 s, the following applies:
 With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately suppressed and the motor "coasts" down.

p1228
 HLA_828,
 SERVO_828,
 SERVO_COMBI

Pulse suppression delay time / Pulse suppr t_del

Changeable: T, U	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2701, 2704
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.000 [s]	Max: 299.000 [s]	Default: 0.000 [s]

Description: Sets the delay time for pulse suppression.
 After OFF1 or OFF3, the pulses are canceled, if at least one of the following conditions is fulfilled:
 - the speed actual value falls below the threshold in p1226 and the time started after this in p1228 has expired.
 - the speed setpoint falls below the threshold in p1226 and the time started after this in p1227 has expired.

Dependency: See also: p1226, p1227

NOTICE
 When the motor holding brake is activated, pulse cancellation is additionally delayed by the brake closing time (p1217).

r1229.1...11
 SERVO_828 (Ext
 brake),
 SERVO_COMBI (Ext
 brake)

CO/BO: Motor holding brake status word / Brake ZSW

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -


Description: Displays the status word for the motor holding brake.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Command open brake (continuous signal)	Yes	No	2711
	03	Pulse enable extended brake control	Yes	No	2711
	04	Brake does not open	Yes	No	2711
	05	Brake does not close	Yes	No	2711
	06	Brake threshold exceeded	Yes	No	2707
	07	Brake threshold undershot	Yes	No	2704
	08	Brake monitoring time expired	Yes	No	2704
	09	Pulse enable request missing/n_ctrl inhibited	Yes	No	2707

10	Brake OR logic operation result	Yes	No	2707
11	Brake AND logic operation result	Yes	No	2707

p1230[0...n]	BI: Armature short-circuit / DC braking activation / ASC/DCBRK act		
SERVO_828	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 7014, 7016, 7017
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source to activate the armature short-circuit or DC braking.		
Dependency:	See also: p1231, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239, p1345, p1346		
	Note		
	1 signal: Armature short-circuit/DC braking activated.		
	0 signal: Armature short-circuit/DC braking de-activated.		

p1231[0...n]	Armature short-circuit / DC braking configuration / ASC/DCBRK config		
SERVO_828	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 7014, 7016, 7017
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	14	0
Description:	Setting to activate the various types for armature short-circuit / DC braking.		
Value:	0: No function		
	1: External armature short-circuit with contactor feedback signal		
	2: Ext. armature short circuit without contactor feedback signal		
	3: Internal voltage protection		
	4: Internal armature short-circuit / DC braking		
	5: DC braking for OFF1/OFF3		
	14: DC braking below starting speed		
Dependency:	See also: p0300, p1230, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239, p1345, p1346		

<p> DANGER</p> <p>For p1231 = 1, 2:</p> <ul style="list-style-type: none"> - only short-circuit-proof motors may be used, or suitable resistors must be used to short-circuit the motor <p>For p1231 = 3:</p> <ul style="list-style-type: none"> - when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)! - it is only permissible to use motors that are short-circuit proof (p0320 < p0323). - The Motor Module must be able to conduct 180% short-circuit current (r0320) of the motor (r0209). - the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor. - if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components. - if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module. - if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor). <p>For p1231 = 4 and synchronous motor:</p> <ul style="list-style-type: none"> - when armature short-circuit is active, all of the motor terminals are at half of the DC link potential. - it is only permissible to use motors that are short-circuit proof (p0320 < p0323). - The Motor Module must be able to conduct 180% short-circuit current (r0320) of the motor (r0209).
--

Note

For p1231 = 1, 2:

The external armature short circuit can only be selected for synchronous motors (p0300). In this case, control bit BO: r1239.0 must be interconnected (e.g. to a digital input) to control the external contactor.

The external armature short circuit cannot be set as a fault response. It can be triggered via binector input p1230. It is also always activated in the case of pulse suppression.

For p1231 = 3:

Internal voltage protection (using an internal armature short circuit) can only be selected for synchronous motors (p0300) and Motor Modules in booksize or chassis format. Further, it is not permissible for Safety Integrated to be active on blocksize Motor Modules (i.e. p9501 = 0 and p9601 = 0). The internal voltage protection prevents the DC link capacitance from being charged if there is no possibility of regenerating the EMF of a motor operated in the field-weakening mode. The Motor Module must support this function (r0192.9 = 1).

a) If the Motor Module does not support the autonomous, internal armature short-circuit (r0192.10 = 0), the armature short-circuit is activated as soon as the activation criterion is fulfilled (refer below):

b) If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module itself decides - using the DC link voltage - as to whether the short-circuit should be activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn. This therefore ensures that the required input voltage for the Control Supply Module is maintained.

For chassis units, the following applies:

The value for the voltage limits is calculated, depending on the voltage class, from EEPROM data of the particular power unit and a factor.

For p1231 = 4:

The function is activated as soon as the activation criterion is fulfilled.

- the function can be superseded by OFF2

a) For synchronous motors (p0300 = 2xx, 4xx), the internal armature short-circuit is initiated.

- the Motor Module must support this function (r0192.9 = 1).

b) For induction motors (p0300 = 1xx), the DC braking is initiated.

Activation criterion (one of the following criteria is fulfilled):

- binector input p1230 = 1 signal (DC braking activation).

- the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).

- the internal pulse enable is missing (r0046.19 = 0).

For p1231 = 5:

DC braking can only be set for induction motors.

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/OFF3, 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.

DC braking by means of fault response continues to be possible.

For p1231 = 14:

DC braking can only be set for induction motors.

DC braking is initiated if binector input p1230 = 1 during operation and the actual speed is below the starting speed p1234 (before this, the drive must have operated above p1234 plus the hysteresis). Then, following upstream demagnetization (see p0347), the braking current p1232 is injected for the time set in p1233. The drive then changes into normal operation. During braking the command for DC braking can be withdrawn. If the time p1233 is exceeded, then DC braking is inhibited and the drive changes into normal operation.

For OFF1 and OFF3, DC braking is only executed, if binector input p1230 = 1 signal.

DC braking by means of fault response continues to be possible.

For operation with an encoder, the encoder signal may not exceed a ripple of 15 rpm in the range of p1234.

For p1231 = 3, 4, 5, 14:

The value can only be changed to values not equal to 3, 4, 5 or 14 if p0491 is not equal to 4 and p2101 is not equal to 6 (armature short-circuit/DC braking not set).

Note:

ASC: Armature Short Circuit

CSM: Control Supply Module

DCBRK: DC Braking

IVP: Internal Voltage Protection

UPS: Uninterruptible Power Supply

p1232[0...n]	DC braking braking current / DCBRK I_brake		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 7017
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]
Description:	Sets the braking current for DC braking.		
Dependency:	See also: p1230, p1231, p1233, p1234, r1239, p1345, p1346		
	Note A change to the braking current becomes effective the next time that DC braking is switched on. 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.		

p1233[0...n]	DC braking time / DCBRK time		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 7017
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.0 [s]	Max: 3600.0 [s]	Default: 1.0 [s]
Description:	Sets the DC braking time (as fault response).		
Dependency:	See also: p1230, p1231, p1232, p1234, r1239		
	Note The time set is also effective when parameterizing DC braking as fault response. If a speed encoder is being used, DC braking is ended as soon as the drive falls below the standstill threshold (p1226).		

p1234[0...n]	Speed at the start of DC braking / DCBRK n_start		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 7017
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 210000.00 [rpm]
Description:	Sets the starting speed for DC braking. If the actual speed falls below this threshold, then DC braking is activated.		
Dependency:	See also: p1230, p1231, p1232, p1233, r1239		

NOTICE

If an encoder fault occurs during closed-loop operation with an encoder, controlled deceleration of the drive down to the start speed p1234 is no longer possible. In this case, DC braking is activated immediately and injects the braking current p1232 for the braking time p1233 after de-magnetizing. The braking current and braking duration must, therefore, be dimensioned accordingly for this situation so that the drive can be decelerated to standstill.
In the case of operation with an encoder, this speed may not be set too low so as ensure that the oscillation movement induced by the residual flux/remanence of the motor does not cause DC braking to be de-activated again.

Note
Function p1231 = 14 is activated at 15 1/min higher than the value set in p1234. This hysteresis is required to prevent DC braking from being deactivated for speed encoder signals with ripple.

p1235[0...n] BI: External armature short-circuit contactor feedback signal / ASC ext feedback

SERVO_828

Changeable: T	Calculation: -	Access level: 1
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source for the contactor feedback signal for external armature short-circuit.

Dependency: See also: p1230, p1231, p1236, p1237, r1239

NOTICE

In order that the pulses are not enabled when the contactor is closed, the contactor feedback signal must lag by a sufficiently long time when opening the contactor.

Note

1 signal: The contactor is closed.

0 signal: The contactor is open.

p1236[0...n] Ext. armature short-cct. contactor feedback signal monit. time / ASC ext t_monit

SERVO_828

Changeable: T, U	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0 [ms]	1000 [ms]	200 [ms]

Description: Sets the monitoring time of the contactor feedback signal for the external armature short-circuit configuration.

If the contactor feedback signal (p1235) is parameterized, then the appropriate feedback signal (r1239.1) is expected within this monitoring time after either opening or closing the contactor.

Dependency: See also: p1230, p1231, p1235, p1237, r1239

See also: F07904, F07905

p1237[0...n] External armature short-circuit delay time when opening / ASC ext t_wait

SERVO_828

Changeable: T, U	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0 [ms]	1000 [ms]	200 [ms]

Description: Sets the delay time when opening the contactor of the external armature short-circuit.

If no contactor feedback signal has been selected (p1235), then the system waits for this time before the pulses are switched in.

Dependency: See also: p1230, p1231, p1235, p1236, r1239

NOTICE

This delay time must be at least long enough so that the contactor contacts reliably open before the pulses are switched in. The delay time must be greater than the contactor response time. The Motor Module can be damaged if the delay time is too short.

r1238	CO: Armature short-circuit external state / EASC state		
SERVO_828	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 2610
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: ASM	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	6	-

Description: Displays the state for the external armature short-circuit.

- Value:**
- 0: Switched off
 - 1: Ready
 - 2: Active
 - 3: Active - feedback signal "Closed" OK
 - 4: Active - feedback signal "Closed" missing
 - 5: Prompt to remove the armature short-circuit
 - 6: Active - feedback signal "Open" missing

Dependency: See also: p1230, p1231, p1235, p1236, p1237, r1239
See also: F07904, F07905

Note

- Activation criterion (one of the following criteria is fulfilled):
- the signal at BI: p1230 (armature short-circuit activation) is 0.
 - the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).
 - the internal pulse enable is missing (r0046.19 = 0).
- For state "switched out" (r1238 = 0):
- the external armature short-circuit can be selected with p1231 = 1.
- For state "ready" (r1238 = 1):
- as soon as the activation criterion is fulfilled, then a transition is made into the state "active" (r1238 = 2).
- Regarding the state "active" (r1238 = 2), "active - feedback signal "Closed" OK" (r1238 = 3)", "active - feedback signal "Closed" missing" (r1238 = 4)":
- the control signal to close contactor r1239.0 is set to "1" (closed) and the pulses are suppressed.
 - if a contactor feedback signal is not connected (BI: p1235 = 0 signal), then a transition is immediately made into state 3.
 - if a contactor feedback signal is connected, then a transition is made into state 3 if the feedback signal at BI: p1235 goes to "1" (closed) within the monitoring time (p1236).
 - otherwise, a transition is made into state 4.
- For state "prompt to remove the armature short-circuit" (r1238 = 5):
- the activation criterion is no longer fulfilled. An attempt is made to again remove the armature short circuit.
 - the control signal to close the contactor r1239.0 is set to "0" (open) and the pulses remain suppressed.
 - if a contactor feedback signal is not connected (BI: p1235 = 0 signal), the system waits for the delay time (p1237) to expire until a transition is made into state 1.
 - if a contactor feedback signal is connected, the system waits until the feedback signal at BI:p1235 goes to "0" (open) until a transition is made into state 1. If this does not occur within the monitoring time (p1236), then a transition is made into state 6.
- For state "active - feedback signal "Open" missing" (r1238 = 6):
- this error state can be exited by de-selecting the external armature short-circuit (p1231 = 0).

r1239.0...13	CO/BO: Armature short-circuit / DC braking status word / ASC/DCBRK ZSW		
SERVO_828	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status word for armature short-circuit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	External armature short-circuit	Active	Inactive	-
	01	External armature short-circuit contactor feedback signal	Closed	Open	-
	02	External armature short-circuit ready	Yes	No	-
	03	External armature short-circuit with contactor feedback signal	Yes	No	-
	04	Internal armature short-circuit	Active	Inactive	-
	05	Internal armature short circuit feedback signal from power unit	Active	Inactive	-
	06	Internal armature short-circuit ready	Yes	No	-
	08	DC braking active	Yes	No	7017
	09	DC current injection active	Yes	No	-
	10	DC braking ready	Yes	No	7017
	11	Armature short circuit/DC braking selected	Yes	No	-
	12	DC braking selection internally inhibited	Yes	No	-
	13	DC braking for OFF1/OFF3	Yes	No	-
Dependency:	See also: p1230, p1231, p1232, p1233, p1234, p1235, p1236, p1237				

Note

External armature short-circuit (bits 0 ... 3):

For bit 00:

Using this signal, the motor is short-circuited through an external contactor circuit. This means that this BO: p1239.0 must be interconnected e.g. to a digital output.

For bit 01:

This signal indicates the state of the contactor to establish the armature short-circuit. To do this, BI: p1235 must be interconnected to a digital input.

For bit 02:

The external armature short-circuit configuration is ready and is activated as soon as the activation criterion is fulfilled.

For bit 03:

1: A feedback signal from an external contactor was parameterized in BI: p1235.

Internal voltage protection / internal armature short-circuit (bits 4 ... 6):

For bit 04:

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).

The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).

The Motor Module decides autonomously whether the armature short-circuit is activated. In this case, the following applies: r1239.4 = r1239.5.

c) Internal armature short-circuit (p1231 = 4) was selected.

The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.

For bit 05:

The Motor Module signals that the motor is short-circuited in the Motor Module through the power semiconductors.

For bit 06:

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).

The internal voltage protection is ready and is activated as soon as the activation criterion is fulfilled.

a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).

The internal voltage protection is ready and the Motor Module decides autonomously - using the DC link voltage - whether the short-circuit is activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short-circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn.

c) Internal armature short-circuit (p1231 = 4) was selected.

The internal armature short-circuit is ready and is activated as soon as the activation criterion is fulfilled.

Activation criterion (one of the following criteria is fulfilled):

- the signal at BI: p1230 (armature short-circuit activation) is 1.
- the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).
- the internal pulse enable is missing (r0046.19 = 0).

For bit 12, 13:

Only effective for p1231 = 14.

p1240[0...n]

SERVO_828,
SERVO_COMBI

Vdc controller or Vdc monitoring configuration / Vdc ctrl config

Changeable: T, U

Data type: Integer16

P group: Functions

Not for motor type: REL

Min:

0

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

9

Access level: 3

Function plan: 3082, 5650

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the configuration of the controller or monitoring for the DC link voltage (Vdc).

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
 4: Activate Vdc_max monitoring
 5: Activate Vdc_min monitoring
 6: Activate Vdc_min monitoring and Vdc_max monitoring
 7: Enable Vdc_max controller without accelerating
 8: Enable Vdc_min controller without braking
 9: Enable Vdc_min and Vdc_max controller w/o braking/accelerating

Dependency:

See also: p1244, p1248, p1250, p1532

NOTICE

During a few steps of the rotating measurement (p1960 = 1) the Vdc_min controller and/or Vdc_max controller is disabled.

Note

p1240 = 1, 3:

When the upper DC link voltage threshold is reached (p1244), then 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.
- when other drives regenerate into the DC link, then the Vdc_max controller causes the motor to accelerate.

p1240 = 2, 3:

When the lower DC link voltage threshold is reached (p1248), 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.

p1240 = 4, 5, 6:

When the threshold in p1244 or p1248 is reached, the DC link voltage monitoring initiates a fault with a response and therefore reduces additional negative effects on the DC link voltage.

p1240 = 7, 9:

As for p1240 = 1, 3. However, the motor is prevented from accelerating due to the fact that other drives are regenerating. The effective lower torque limit cannot exceed the offset of the torque limit (p1532).

p1240 = 8, 9:

As for p1240 = 2, 3. However, the motor is prevented from braking due to the fact that the DC link voltage has been lowered. The effective upper torque limit cannot be less than the offset of the torque limit (p1532).

p1244[0...n]

SERVO_828,
SERVO_COMBI

DC link voltage threshold upper / Vdc upper thresh

Changeable: T, U

Calculation: CALC_MOD_CON **Access level:** 3

Data type: FloatingPoint32

Dynamic index: DDS, p0180 **Function plan:** 5650

P group: Functions

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

165 [V]

1200 [V]

750 [V]

Description:

Sets the upper threshold for the DC link voltage.

For p1240 = 1, 3, 7, 9, this threshold is used as limit setpoint for the Vdc_max controller.

For p1240 = 4, 6, for DC link voltages above this threshold, an appropriate fault is output.

Dependency:

See also: p1240, p1248, p1250

Note

For $p1244 < 1.07 * \text{"parameterized DC link voltage"}$ input of values is rejected.

For p0204.0 = 1, the following applies:

"Parameterized DC link voltage" = p0210

For p0204.0 = 0, the following applies:

"Parameterized DC link voltage" = p0210 * 1.4142

p1248[0...n] SERVO_828, SERVO_COMBI	DC link voltage threshold lower / Vdc lower thresh		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5650
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 50 [V]	Max: 1000 [V]	Default: 285 [V]

Description: Sets the lower threshold for the DC link voltage.
For p1240 = 2, 3, 8, 9, this threshold is used as limit setpoint for the Vdc_min controller.
For p1240 = 5, 6, for DC link voltages below this threshold, an appropriate fault is output.

Dependency: See also: p1240, p1244, p1250

Note

For p1248 > 0.93 * "parameterized DC link voltage" input of values is rejected.
For p0204.0 = 1, the following applies:
"Parameterized DC link voltage" = p0210
For p0204.0 = 0, the following applies:
"Parameterized DC link voltage" = p0210 * 1.4142

p1250[0...n] SERVO_828, SERVO_COMBI	Vdc controller proportional gain / Vdc_ctrl Kp		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5650
	P group: Functions	Unit group: 19_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [A/V]	Max: 100.00 [A/V]	Default: 1.00 [A/V]

Description: Sets the proportional gain for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).

Dependency: See also: p1240, p1244, p1248

p1275 SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Motor holding brake control word / Brake STW		
	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0000 0000 bin

Description: Sets the control word for the motor holding brake.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Inverting BI: 1219[0]	Yes	No	2707
	01	Inverting BI: 1219[1]	Yes	No	2707
	02	Inverting BI: 1224[0]	Yes	No	2704
	03	Inverting BI: 1224[1]	Yes	No	2704
	05	Brake with feedback	Yes	No	2711
	06	Enable with feedback signal	Yes	No	2711

Note

For p1275.6 = 1 and p1275.5 = 1, the following applies:
The pulse enable (BO: r1229.3) and the setpoint enable (BO: r0899.15) are independent of the timer that has been set (p1217, p1216). The particular enable is only defined by the feedback signal (BI: p1222, BI: p1223). The timers (p1216, p1217) only influence the alarm A07931 "Brake does not open" and A07932 "Brake does not close".

p1276	Motor holding brake standstill detection bypass / Brk standst bypass		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T, U Data type: FloatingPoint32 P group: Functions Not for motor type: - Min: 0.000 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 300.000 [s]	Access level: 2 Function plan: 2704 Unit selection: - Expert list: 1 Default: 300.000 [s]
Description:	Sets the delay time for closing the brake at standstill. After this time has expired, if the "close brake at standstill" or OFF1/OFF3 is present, the brake is closed and the pulses are suppressed. For p1276 = 300.000 s, the timer is de-activated - this means that the timer output is always zero.		
p1277	Motor holding brake braking threshold delay exceeded / Del thresh exceed		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T, U Data type: FloatingPoint32 P group: Functions Not for motor type: - Min: 0.000 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 300.000 [s]	Access level: 2 Function plan: 2707 Unit selection: - Expert list: 1 Default: 0.000 [s]
Description:	Sets the delay time for the signal "braking threshold exceeded" (BO: r1229.6).		
Dependency:	See also: p1220, p1221, r1229		
p1278	Brake control diagnostics evaluation / Brake diagnostics		
SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Integer16 P group: Functions Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the brake control type (with or without diagnostics evaluation). Example for brake control with diagnostics evaluation. - brake control in the Motor Modules in booksize format - Safe Brake Relay for AC Drive Example for brake control without diagnostics evaluation. - Brake Relay for AC Drive		
Value:	0: Brake control with diagnostics evaluation 1: Brake control without diagnostics evaluation		
	Note If the configuration of the motor holding brake (p1215) is set to "no holding brake present" when booting, then an automatic identification of the motor holding brake will be carried out. If a brake control is detected without diagnostics evaluation (e.g. Brake Relay for AC Drive), then the parameter is set to "brake control without diagnostics evaluation". It is not permissible to parameterize "brake control without diagnostics evaluation" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).		

p1279[0...3]	BI: Motor holding brake OR/AND logic operation / Brake OR AND		
SERVO_828 (Ext brake), SERVO_COMBI (Ext brake)	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2707
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for the OR/AND logic operation.		
Dependency:	See also: r1229		

Note

- [0]: OR logic operation, input 1 --> the result is displayed in r1229.10.
- [1]: OR logic operation, input 2 --> the result is displayed in r1229.10.
- [2]: AND logic operation, input 1 --> the result is displayed in r1229.11.
- [3]: AND logic operation, input 2 --> the result is displayed in r1229.11.

p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-IP ctrl_mode		
SERVO_828, SERVO_COMBI	Changeable: C2(1), T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5060, 8012
	P group: V/f open-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	20	23	21
Description:	Sets the open and closed-loop control mode of a drive.		
Value:	20: Speed control (encoderless)		
	21: Speed control (with encoder)		
	23: Torque control (with encoder)		
Dependency:	Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400). See also: p0108, r0108, p0300, p0311, p0400, p1501		

NOTICE

General conditions for encoderless operation can be found in the following literature:
SINAMICS S120 Function Manual Drive Functions

Note

- The closed-loop torque control can only be changed over in operation (p1300 = 20, 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the actual state is displayed in r1407, bit 2 and bit 3.
- For encoderless operation (p1404 = 0 or p1300 = 20), the following applies:
- The following condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$
 - For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

p1317[0...n]	U/f control activation / Uf act		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5019, 5730
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Setting to activate the U/f control with linear characteristic.		
Value:	0: De-activated (p1300 effective)		
	1: Activated		

Dependency: See also: p1318, p1319, p1326, p1327

Note

The following applies for firmware version 4.3 and higher:

When U/f control is activated, resonance damping is automatically activated. The resonance damping must be deactivated (p1338 = 0) in order to obtain pure diagnostics operation without the influence of actual values.

Further, when U/f control is activated, the following functions are active:

- Vdc controller (p1240, p1244, p1248, p1250).
- the up ramp is limited by the set M, P and I limits (p0326, p0341, p0342, p0640, p1520, p1521, p1530, p1531, p1498).
- the ramp-function generator is held if the current actual value exceeds the current limit set in p0640.

p1318[0...n]	U/f control ramp-up/ramp-down time / Uf t_rmp-up_rmp-dn		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5300
	P group: V/f open-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [s]	Max: 999999.000 [s]	Default: 10.000 [s]

Description: Sets the ramp-up and ramp-down time for the U/f control.

The ramp-function generator requires this time to reach the maximum speed (p1082) from zero.

Dependency: See also: p1317, p1319, p1326, p1327

Note

This ramp is used for stall protection and operates independently of any ramp-function generator that might have been configured.

p1319[0...n]	U/f control voltage at zero frequency / Uf U at f=0 Hz		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5300
	P group: V/f open-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [Vrms]	Max: 50.0 [Vrms]	Default: 0.0 [Vrms]

Description: The linear characteristic for the U/f control is defined by 0 Hz / p1319 and p1326 / p1327.

This parameter specifies the voltage for a frequency of 0 Hz.

Dependency: The U/f control is activated via p1317 = 1.

See also: p1317, p1326, p1327

Note

Linear interpolation is carried out between the points 0 Hz/p1319 and p1326/p1327.

p1326[0...n]	U/f control characteristic frequency / Uf char f		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5300
	P group: V/f open-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [Hz]	Max: 10000.00 [Hz]	Default: 0.00 [Hz]

Description: The linear characteristic for the U/f control is defined by 0 Hz / p1319 and p1326 / p1327.

This parameter specifies the voltage of the upper point along the characteristic.

Dependency: The U/f control is activated via p1317 = 1.

See also: p1317, p1319, p1327

Note

Linear interpolation is carried out between the points 0 Hz/p1319 and p1326/p1327.

p1327[0...n]

U/f control characteristic voltage / Uf char U

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5300
P group: V/f open-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0 [Vrms]	Max: 10000.0 [Vrms]	Default: 0.0 [Vrms]

Description: The linear characteristic for the U/f control is defined by 0 Hz / p1319 and p1326 / p1327. This parameter specifies the voltage of the upper point along the characteristic.

Dependency: The U/f control is activated via p1317 = 1.
See also: p1317, p1319, p1326

Note

Linear interpolation is carried out between the points 0 Hz/p1319 and p1326/p1327.

p1338[0...n]

U/f mode resonance damping gain / Uf Res_damp gain

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5300
P group: V/f open-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00	Max: 100.00	Default: 1.00

Description: Sets the gain for resonance damping for U/f control. In U/f mode, the resonance damping function dampens oscillations that are frequently experienced by induction motors in certain speed ranges and by synchronous motors above even low speeds.

Dependency: See also: p1317, p1339, p1349

Note

Resonance damping is active in the following ranges:

- Active: 3.1 Hz ... p1349
- Build-up (linear): 3.1 ... 4.77 Hz
- Reduction (linear): 0.95 * p1349 ... p1349

Where the value = 1 and at the oscillation amplitude of the rated current, the rated slip frequency is switched in for induction motors, while a frequency of 10 Hz is switched in for synchronous motors.

p1339[0...n]

U/f mode resonance damping filter time constant / Uf Res_damp T

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5300
P group: V/f open-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1.00 [ms]	Max: 1000.00 [ms]	Default: 20.00 [ms]

Description: Sets the filter time constant for resonance damping for U/f control.

Dependency: See also: p1317, p1338, p1349

Note

The filter time constant must be greater than the oscillation period of the oscillation to be dampened.

p1345[0...n] SERVO_828, SERVO_COMBI	DC braking proportional gain / DCBRK Kp Changeable: T, U Data type: FloatingPoint32 P group: V/f open-loop control Not for motor type: - Min: 0.000	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 100000.000	Access level: 3 Function plan: 6300, 7017 Unit selection: - Expert list: 1 Default: 0.000
Description:	Sets the proportional gain for DC braking (p1230, p1231).		
Dependency:	See also: p1346		
	Note Current controller adaptation is not effective for DC braking.		
p1346[0...n] SERVO_828, SERVO_COMBI	DC braking integral time / DCBRK Tn Changeable: T, U Data type: FloatingPoint32 P group: V/f open-loop control Not for motor type: - Min: 0.000 [ms]	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 50.000 [ms]	Access level: 3 Function plan: 6300, 7017 Unit selection: - Expert list: 1 Default: 0.030 [ms]
Description:	Sets the integral time for DC braking (p1230, p1231).		
Dependency:	See also: p1345		
	Note For p1346 = 0, the following applies: The integral time of DC braking is de-activated.		
p1349[0...n] SERVO_828, SERVO_COMBI	U/f mode resonance damping maximum frequency / Uf res_damp f_max Changeable: T, U Data type: FloatingPoint32 P group: V/f open-loop control Not for motor type: - Min: 0.00 [Hz]	Calculation: CALC_MOD_ALL Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 3000.00 [Hz]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 3000.00 [Hz]
Description:	Sets the maximum output frequency for resonance damping for U/f control. Resonance damping is inactive above this output frequency.		
Dependency:	See also: p1338, p1339		
	Note Resonance damping is active in the following ranges: - Active: 3.1 Hz ... p1349 - Build-up (linear): 3.1 ... 4.77 Hz - Reduction (linear): 0.95 * p1349 ... p1349		
p1400[0...n] HLA_828	Closed-loop control configuration / Ctrl config Changeable: T, U Data type: Unsigned32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 4965 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the configuration for the closed-loop control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Force limiting mode 1	ON	OFF	-
	01	Force limiting mode 2	ON	OFF	-
	02	Stiction compensation with force controller	ON	OFF	-
	03	Reference model velocity setpoint I component	ON	OFF	-
	05	Kp/Tv adaptation	ON	OFF	-
	07	Interpolation velocity controller pre-control active	Yes	No	-
	09	Stiction compensation voltage pulse	ON	OFF	-
	10	Speed precontrol	For balancing	To setp_filter	-
	11	Stiction compensation voltage ramp	ON	OFF	-
	14	Activate force controller with setpoint p1511	Yes	No	-
	16	I component for limiting	Enable	Hold	-

Note

For bit 00:

Force limiting when the force limit is exceeded as replacing mode. This function is only recommended for low velocities, and requires a precise compensation of the characteristic.

For bit 01:

The closed-loop force control is active if "Travel to end stop" (BI: p1545) is selected and the force limit has been exceeded. The force controller remains active until "Travel to end stop" is deselected.

For bit 02:

The force for both velocity signs must be constant, and parameterized in p1555 and p1556. Further, all of the preconditions for operation of the force controller must be fulfilled.

For bit 05:

P gain and derivative-action time of the velocity controller are adapted via the position. The position adaptation only becomes effective if a piston calibration has been performed, and the piston position is known (r1407.3 = 1).

For bit 09:

The stiction is essentially compensated without force controller and pressure sensors with a voltage pulse for reversal of the traversing direction. The duration and magnitude of the voltage pulse must be set in p1570, p1571 and p1572. Further, the standstill threshold in p1552 is effective. The piston must be calibrated. It is not necessary to know the adhesive forces.

For bit 11:

The stiction is essentially compensated without force controller and pressure sensors with a voltage ramp for reversal of the traversing direction. The duration and magnitude of the voltage ramp must be set in p1570, p1571 and p1572. Further, the standstill threshold in p1552 is effective. The piston must be calibrated. It is not necessary to know the adhesive forces. For elastic motion during the force change, a ramp-shaped velocity can be advantageous.

For bit 14:

The force controller is continuously activated, and the force setpoint entered via the sources of p1511 and p1512 (scaling). The force setpoint is limited to r1538 and r1539. All of the preconditions for operation of the force controller must be fulfilled.

p1400[0...n]

SERVO_828,
SERVO_COMBI

Speed control configuration / n_ctrl config

Changeable: T, U

Data type: Unsigned32

P group: Closed-loop control

Not for motor type: REL

Min:

-

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 5019, 5490

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 0000 0011
1010 0000 bin

Description: Sets the configuration for the closed-loop speed control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	03	Reference model speed setpoint I component	ON	OFF	5030
	04	Torque limiting active in motoring/regenerative mode	Yes	No	-

05	Kp/Tn adaptation active	Yes	No	-
07	Interpolation speed pre-control active	Yes	No	-
08	Interpolation torque setpoint active	Yes	No	-
09	Damping for encoderless open-loop controlled oper.	Yes	No	-
10	Speed precontrol	For balancing	For setp_filter 2	-
11	Encoderless oper. speed actual value starting value	setpoint	0.0	-
12	Encoderless operation changeover	Steady-state	When accelerating	-
13	Motoring/regenerative depending on	Speed setpoint	Speed actual value	-
16	I component for limiting	Enable	Hold	-
17	DSC position controller limit active	Yes	No	3090
18	Moment of inertia estimator active	Yes	No	-
22	Obtain moment of inertia estimator value for pulse inhibit	Yes	No	-

Note

For bit 07:

The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign-of-life (STW 2.12 ... STW 2.15). Further, for active Dynamic Servo Control (DSC) an additional dead time of one speed controller clock cycle is obtained.

For bit 10:

The pre-control signal via connector input p1430 only becomes effective at p1402.4 = 1 (torque-speed pre-control with encoder) at p1400.10 = 0 (for setp_filter 2).

For bit 11:

If the motor rotates when the pulses are enabled, then we recommend p1400.11 = 1 (starting value = setpoint) with the matching sign.

If the motor remains stationary (zero speed) when the pulses are enabled, then we recommend p1400.11 = 0 (starting value = 0.0).

For bit 12:

If a changeover is made from operation with encoder to encoderless operation while accelerating (with the threshold from p1404), then we recommend p1400.12 = 0.

If the changeover is made from operation with encoder to encoderless at constant speed/velocity (e.g. with a DDS changeover or if there is an encoder fault via p0491) then we recommend p1400.12 = 1.

For bit 17:

In order to avoid limit cycles (e.g. as a result of disturbing torques) for DSC with a high Kv factor, the position controller output can be limited using a root function corresponding to the currently available deceleration capability of the drive. In this case, the total moment of inertia (J_{tot}) must be parameterized precisely (if necessary, determine the moment of inertia p0341, p0342 and p1498 using the motor data identification). If the limiting function responds, then this is indicated in r1407.19.

As a result of the absolute value limitation, the dynamic performance of the position controller is above $n[rpm] = 0.91 \times M_{max}[Nm] / (Kv[1000/min] \times J_{tot}[kgm^2])$, no longer linear (M_{max} , see r1538, r1539). This is the reason that speed precontrol is recommended.

For bit 18:

Only active when the "moment of inertia estimator" function module is active (r0108.10 = 1).

The result of the moment of inertia estimator is displayed in r1493 when the function is activated.

The function assumes that speed changes are made without load change. If a speed change must be realized with associated load change, then during this time, the estimated moment of inertia should be frozen using binector input p1502.

For bit 22:

Only active when the "moment of inertia estimator" function module is active (r0108.10 = 1) and when the moment of inertia estimator is active (p1400.18 = 1).

For bit = 0, the following applies:

The starting value after withdrawing the pulse inhibit is the parameterized moment of inertia ($p0341 \times p0342 + p1498$).

For bit = 1, the following applies:

The starting value after withdrawing the pulse inhibit is the last estimated value for the moment of inertia.

p1402[0...n] **Closed-loop current control and motor model configuration / I_ctrl config**
 SERVO_828, **Changeable:** T **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** Unsigned16 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - 0000 0100 bin

Description: Sets the configuration for the closed-loop control and the motor model.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Park encoder for n_act > p1404	Yes	No	-
02	Current controller adaptation active	Yes	No	-
03	Stall power limiting motoring	Yes	No	-
04	Torque-speed pre-control with encoder	Yes	No	-
05	Precontrol voltage drop across the resistance	Yes	No	-

Note

For bit 01:
 When the bit is set, the encoder is parked as soon as the actual speed is greater than the changeover speed (p1404). The encoder state is indicated in r0481.14.
 For bit 02:
 The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.
 For bit 04:
 Only effective for operation with encoder.
 When the bit is set, the highest dynamic performance is achieved with p1517 = 0 ms.

p1404[0...n] **Encoderless operation changeover speed / Encoderl op n_chg**
 SERVO_828, **Changeable:** T **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5019, 5060
P group: Closed-loop control **Unit group:** 3_1 **Unit selection:** p0505
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00 [rpm] 210000.00 [rpm] 210000.00 [rpm]

Description: Sets the speed to change over between operation with and without an encoder.
 Above this speed, the drive system is automatically operated in encoderless mode.

NOTICE

General conditions for encoderless operation can be found in the following literature:
 SINAMICS S120 Function Manual Drive Functions

Note

The changeover speed applies when changing over between operation with and without encoder.
 With p1404 > 0, the effective changeover speed is limited to values greater than or equal to p1755 in order to avoid controlled operation.
 Separate speed controllers should be set when operating with and without encoder.
 - Operation with encoder: p1460 (Kp), p1462 (Tn), p1461, p1463, p1457, p1458 (speed controller adaptation)
 - Operation without encoder: p1470 (Kp), p1472 (Tn)
 For encoderless operation (p1404 = 0 or p1300 = 20), the following applies:
 - The condition must be fulfilled: p1800 >= n / (2 * p0115[0]), n = 1, 2, ...
 - For motors with a small power rating (< 300 W) we recommend to set n >= 2.

r1406.8...12	CO/BO: Control word speed controller / STW n_ctrl				
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: 2520		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Display and BICO output for the control word of the speed controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Travel to fixed stop active	Yes	No	-
	12	Torque control active	Yes	No	-
r1406.8...12	CO/BO: Control word velocity controller / STW v_ctrl				
HLA_828	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: 2520		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Display and BICO output for the control word of the velocity controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Travel to fixed stop active	Yes	No	-
	12	Force control active	Yes	No	-
r1407.0...19	CO/BO: Status word controller / ZSW ctrl				
HLA_828	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Display and BICO output for the status word of the controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Force limiting mode 1 parameterized	Yes	No	-
	01	Force limiting mode 1 active	Yes	No	-
	02	Force control active	Yes	No	-
	03	Piston position known	Yes	No	-
	04	Velocity setpoint from DSC	Yes	No	-
	05	Velocity controller I component frozen	Yes	No	-
	06	Velocity controller I component set	Yes	No	-
	07	Force limiting active	Yes	No	-
	08	Upper force limit active	Yes	No	-
	09	Lower force limit active	Yes	No	-
	10	Travel to fixed stop active	Yes	No	-
	11	Velocity setpoint limited	Yes	No	-
	12	Stiction compensation parameterized	Yes	No	-
	13	Stiction compensation active	Yes	No	-
	14	Force limiting mode 2 parameterized	Yes	No	-
	15	Force limiting mode 2 active	Yes	No	-

16	Closed-loop force control permanently active	Yes	No	-
17	Valve setpoint limited	Yes	No	-
18	Valve deviation	Yes	No	-
19	Adaptation velocity controller	Yes	No	-

r1407.0...26

CO/BO: Status word speed controller / ZSW n_ctrl

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: 2522

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

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

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	U/f control active	Yes	No	-
01	Encoderless operation active	Yes	No	-
02	Torque control active	Yes	No	8010
04	Speed setpoint from DSC	Yes	No	2522
05	Speed controller I component frozen	Yes	No	-
06	Speed controller I component set	Yes	No	-
07	Torque limit reached	Yes	No	5610
08	Upper torque limit active	Yes	No	5610
09	Lower torque limit active	Yes	No	5610
11	Speed setpoint limited	Yes	No	-
13	Encoderless operation due to a fault	Yes	No	-
19	DSC position controller limited	Yes	No	3090
20	DSC with spline on	Yes	No	-
21	Speed pre-control for DSC with spline on	Yes	No	-
22	Torque pre-control for DSC with spline on	Yes	No	-
23	Torque-speed pre-control with encoder on	Yes	No	-
24	Moment of inertia estimator active	Yes	no	-
25	Load estimate active	Yes	no	-
26	Moment of inertia estimator stabilized	Yes	No	-

Note

For bit 04:

The following conditions must be fulfilled to set to 1:

- connector input p1190 and p1191 must be interconnected with a signal source that is not equal to zero.
- it is not permissible that OFF1, OFF3 or STOP2 is active.
- it is not permissible that the motor data identification is active.
- Master control must not be active.

The following conditions can mean that the DSC function is not active in spite of the fact that the bit is set:

- clock-cycle synchronous operation is not selected (r2054 not equal to 4).
- the PROFIBUS is not clock-cycle synchronous (r2064[0] not equal to 1).
- DSC is not switched on at the control side; this means that KPC = 0 is transferred as the value at CI: p1191.

r1408.0...9	CO/BO: Status word current controller / ZSW I_ctrl				
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: 2530, 5040		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Display and BICO output for the status word of the current controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Cl-loop I_ctrl	Active	Not active	-
	04	Limit Ud	Active	Not active	-
	05	Limit Uq	Active	Not active	-
	06	Positive limiting Iq	Active	Not active	-
	07	Negative limiting Iq	Active	Not active	-
	08	Limit iq_set	Active	Not active	-
	09	Limit id_set	Active	Not active	-
	Note				
	The set current limit is taken into account in upstream torque limiting. Bits 6, 7, and 8 are, therefore, only set in the event of overshoots on account of the current setpoint filter.				
p1409[0...n]	Speed control extended configuration / n_ctrl ext config				
SERVO_828, SERVO_COMBI	Changeable: C1(3)	Calculation: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Sets the extended configuration for the closed-loop speed control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Interpolation supplementary torque active	Yes	No	-
p1413[0...n]	Velocity actual value filter activation / v_act_filt act				
HLA_828	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 4965		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Setting for activating/de-activating the velocity actual value filter.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	General filter activation	Yes	No	-
Dependency:	The velocity actual value filter is parameterized from p1446. See also: p1699				

p1413[0...n]	Speed actual value filter activation / n_act_filt act				
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 5040, 5042, 5210		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Setting for activating/deactivating the speed actual value filter.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	General filter activation	Yes	No	-
Dependency:	The speed actual value filter is parameterized from p1446.				

p1414[0...n]	Velocity setpoint filter activation / v_set_filt act				
HLA_828	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 4965		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Setting for activating/de-activating the velocity setpoint filter.				
Recommendation:	If only one filter is required, filter 1 should be activated and filter 2 de-activated, to avoid excessive processing time.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	-
	01	Activate filter 2	Yes	No	-
Dependency:	The individual velocity setpoint filters are parameterized as of p1415. See also: p1699				

p1414[0...n]	Speed setpoint filter activation / n_set_filt act				
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 5020		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Setting for activating/de-activating the speed setpoint filter.				
Recommendation:	If only one filter is required, filter 1 should be activated and filter 2 de-activated, to avoid excessive processing time.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	-
	01	Activate filter 2	Yes	No	-
Dependency:	The individual speed setpoint filters are parameterized as of p1415.				

p1415[0...n]	Velocity setpoint filter 1 type / v_setp_filt 1 type			
HLA_828	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 4965	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: REL	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0	2	0	
Description:	Sets the type for speed setpoint filter 1.			

Value: 0: Low pass: PT1
1: Low pass: PT2
2: General 2nd order filter

Dependency: PT1 low pass: p1416
PT2 low pass: p1417, p1418
General filter: p1417 ... p1420

p1415[0...n] Speed setpoint filter 1 type / n_set_filt 1 type

SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 2	Default: 0

Description: Sets the type for speed setpoint filter 1.

Value: 0: Low pass: PT1
1: Low pass: PT2
2: General 2nd order filter

Dependency: PT1 low pass: p1416
PT2 low pass: p1417, p1418
General filter: p1417 ... p1420

p1416[0...n] Velocity setpoint filter 1 time constant / v_set_filt 1 T

HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 5000.00 [ms]	Default: 0.00 [ms]

Description: Sets the time constant for the velocity setpoint filter 1 (PT1).

Dependency: See also: p1414, p1415

Note

This parameter is only effective if the filter is set as a PT1 low pass.

p1416[0...n] Speed setpoint filter 1 time constant / n_set_filt 1 T

SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 5000.00 [ms]	Default: 0.00 [ms]

Description: Sets the time constant for the speed setpoint filter 1 (PT1).

Dependency: See also: p1414, p1415

Note

This parameter is only effective if the filter is set as a PT1 low pass.

p1417[0...n]
HLA_828

Velocity setpoint filter 1 denominator natural frequency / v_set_filt 1 fn_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the denominator natural frequency for velocity setpoint filter 1 (PT2, general filter).
Dependency: See also: p1414, p1415

Note

This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1417[0...n]
SERVO_828,
SERVO_COMBI

Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the denominator natural frequency for speed setpoint filter 1 (PT2, general filter).
Dependency: See also: p1414, p1415

Note

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1418[0...n]
HLA_828

Velocity setpoint filter 1 denominator damping / v_set_filt 1 D_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for velocity setpoint filter 1 (PT2, general filter).
Dependency: See also: p1414, p1415

Note

This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter.

p1418[0...n]
SERVO_828,
SERVO_COMBI

Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for speed setpoint filter 1 (PT2, general filter).
Dependency: See also: p1414, p1415

Note

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

p1419[0...n]	Velocity setpoint filter 1 numerator natural frequency / v_set_filt 1 fn_n		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for velocity setpoint filter 1 (general filter).		
Dependency:	See also: p1414, p1415		

Note

This parameter is only effective if the velocity filter is set as a general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1419[0...n]	Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for speed setpoint filter 1 (general filter).		
Dependency:	See also: p1414, p1415		

Note

This parameter is only effective if the speed filter is set as a general filter.

The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1420[0...n]	Velocity setpoint filter 1 numerator damping / v_set_filt 1 D_n		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for velocity setpoint filter 1 (general filter).		
Dependency:	See also: p1414, p1415		

Note

This parameter is only effective if the velocity filter is set as a general filter.

p1420[0...n]	Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700

Description: Sets the numerator damping for speed setpoint filter 1 (general filter).

Dependency: See also: p1414, p1415

Note

This parameter is only effective if the speed filter is set as a general filter.

p1421[0...n]

Velocity setpoint filter 2 type / v_setp_filt 2 type

HLA_828

Changeable: T, U

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: DDS, p0180

Function plan: 4965

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

2

0

Description: Sets the type for velocity setpoint filter 2.

Value: 0: Low pass: PT1

1: Low pass: PT2

2: General 2nd order filter

Dependency: PT1 low pass: p1422

PT2 low pass: p1423, p1424

General filter: p1423 ... p1426

p1421[0...n]

Speed setpoint filter 2 type / n_set_filt 2 type

SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: DDS, p0180

Function plan: 5020

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

2

0

Description: Sets the type for speed setpoint filter 2.

Value: 0: Low pass: PT1

1: Low pass: PT2

2: General 2nd order filter

Dependency: PT1 low pass: p1422

PT2 low pass: p1423, p1424

General filter: p1423 ... p1426

p1422[0...n]

Velocity setpoint filter 2 time constant / v_set_filt 2 T

HLA_828

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: 4965

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [ms]

5000.00 [ms]

0.00 [ms]

Description: Sets the time constant for the velocity setpoint filter 2 (PT1).

Dependency: See also: p1414, p1421

Note

This parameter is only effective if the velocity filter is set as a PT1 low pass.

p1422[0...n]	Speed setpoint filter 2 time constant / n_set_filt 2 T		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 5000.00 [ms]	Default: 0.00 [ms]
Description:	Sets the time constant for the speed setpoint filter 2 (PT1).		
Dependency:	See also: p1414, p1421		
	Note This parameter is only effective if the speed filter is set as a PT1 low pass.		

p1423[0...n]	Velocity setpoint filter 2 denominator natural frequency / v_set_filt 2 fn_d		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the denominator natural frequency for velocity setpoint filter 2 (PT2, general filter).		
Dependency:	See also: p1414, p1421		
	Note This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		

p1423[0...n]	Speed setpoint filter 2 denominator natural frequency / n_set_filt 2 fn_d		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the denominator natural frequency for speed setpoint filter 2 (PT2, general filter).		
Dependency:	See also: p1414, p1421		
	Note This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		

p1424[0...n]	Velocity setpoint filter 2 denominator damping / v_set_filt 2 D_d		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for velocity setpoint filter 2 (PT2, general filter).		
Dependency:	See also: p1414, p1421		

Note

This parameter is only effective if the velocity filter is parameterized as a PT2 low pass or as general filter.

p1424[0...n]	Speed setpoint filter 2 denominator damping / n_set_filt 2 D_d		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for speed setpoint filter 2 (PT2, general filter).		
Dependency:	See also: p1414, p1421		

Note

This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.

p1425[0...n]	Velocity setpoint filter 2 numerator natural frequency / v_set_filt 2 fn_n		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for velocity setpoint filter 2 (general filter).		
Dependency:	See also: p1414, p1421		

Note

This parameter is only effective if the velocity filter is set as a general filter.
The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1425[0...n]	Speed setpoint filter 2 numerator natural frequency / n_set_filt 2 fn_n		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for speed setpoint filter 2 (general filter).		
Dependency:	See also: p1414, p1421		

Note

This parameter is only effective if the speed filter is set as a general filter.
The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1426[0...n]	Velocity setpoint filter 2 numerator damping / v_set_filt 2 D_n		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700

Description: Sets the numerator damping for velocity setpoint filter 2 (general filter).

Dependency: See also: p1414, p1421

Note

This parameter is only effective if the velocity filter is set as a general filter.

p1426[0...n] Speed setpoint filter 2 numerator damping / n_set_filt 2 D_n

SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: 5020

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.000

10.000

0.700

Description: Sets the numerator damping for speed setpoint filter 2 (general filter).

Dependency: See also: p1414, p1421

Note

This parameter is only effective if the speed filter is set as a general filter.

p1428[0...n] Speed pre-control balancing dead time / n_prectrBal t_dead

HLA_828

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: 5030, 5042, 5210

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0

3.0

0.0

Description: Sets the dead time to symmetrize the speed setpoint for active torque pre-control.

The selected multiplier refers to the speed controller clock cycle (dead time= p1428 * p0115[1]).

Dependency: In conjunction with p1429, this parameter can emulate the characteristics of how the torque is established (dynamic response of closed current control loop).

See also: p1429, p1511

p1428[0...n] Speed pre-control balancing dead time / n_prectrBal t_dead

SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: 5030, 5042, 5210

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0

2.0

0.0

Description: Sets the dead time to symmetrize the speed setpoint for active torque pre-control.

The selected multiplier refers to the speed controller clock cycle (dead time= p1428 * p0115[1]).

Dependency: In conjunction with p1429, this parameter can emulate the characteristics of how the torque is established (dynamic response of closed current control loop).

See also: p1429, p1511

p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5030, 5042, 5210, 6031
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 10000.00 [ms]	Default: 0.00 [ms]
Description:	Sets the time constant (PT1) for symmetrizing the speed setpoint for active torque pre-control.		
Dependency:	In conjunction with p1428, this parameter can emulate the characteristics of how torque is established (dynamic response of the closed current control loop). For VECTOR (r0107) the following applies: The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, time constant p1442 (or p1452 for sensorless vector control) is used. See also: p1428, p1511		

p1430[0...n]	CI: Speed precontrol / n_prectrl		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3001, 5019, 5020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: -	Max: -	Default: 0
Description:	Sets the signal source for speed pre-control channel (speed pre-control or torque pre-control).		
	NOTICE The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
	Note The pre-control signal via connector input p1430 only becomes effective at p1402.4 = 1 (torque-speed pre-control with encoder) at p1400.10 = 0 (for setp_filter 2).		

r1432	CO: Speed pre-control after symmetrizing / n_prectr after sym		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5030
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Displays the speed pre-control value after symmetrizing for the torque build-up (emulates the closed current control loop).		
Dependency:	Symmetrizing can be parameterized with p1428 and/or p1429.		

p1433[0...n]	Velocity controller reference model natural frequency / v_ctrl RefMod fn		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.0 [Hz]	Max: 8000.0 [Hz]	Default: 0.0 [Hz]
Description:	Sets the natural frequency of a PT2 element for the reference model of the velocity controller.		

Recommendation: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (velocity actual value) are virtually identical when the I component of the velocity controller is disabled.

Dependency: In conjunction with p1434, the time response of the P-controlled velocity control loop can be emulated.
See also: p1434, p1435

p1433[0...n] **Speed controller reference model natural frequency / n_ctrl RefMod fn**
SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5030, 6031
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.0 [Hz] 8000.0 [Hz] 0.0 [Hz]

Description: Sets the natural frequency of a PT2 element for the reference model of the speed controller.

Recommendation: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I component of the speed controller is disabled.

Dependency: Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop speed control (P) can be emulated.
See also: p1434, p1435

p1434[0...n] **Velocity controller reference model damping / v_ctrl RefMod D**
HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4965
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.000 5.000 1.000

Description: Sets the damping of a PT2 element for the reference model of the velocity controller.

Recommendation: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (velocity actual value) are virtually identical when the I component of the velocity controller is disabled.

Dependency: In conjunction with p1433, the time response of the P-controlled velocity control loop can be emulated.
See also: p1433, p1435

p1434[0...n] **Speed controller reference model damping / n_ctrl RefMod D**
SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5030, 6031
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.000 5.000 1.000

Description: Sets the damping of a PT2 element for the reference model of the speed controller.

Recommendation: The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I component of the speed controller is disabled.

Dependency: In conjunction with p1433 and p1435, the characteristics (in time) of the P-controlled speed control loop can be emulated.
See also: p1433, p1435

p1435[0...n] SERVO_828, SERVO_COMBI	Speed controller reference model dead time / n_ctrRefMod t_dead		
	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5030, 6031
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00	Max: 2.00	Default: 0.00
Description:	Sets the "fractional" dead time for the reference model of the speed controller. This parameter emulates the computing dead time of the proportionally controlled speed control loop. The selected multiplier refers to the speed controller clock cycle (dead time= p1435 * p0115[1]).		
Recommendation:	The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I component of the speed controller is disabled.		
Dependency:	In conjunction with p1433 and p1434, the characteristics (in time) of the P-controlled speed control loop can be emulated. See also: p0115, p1433, p1434		

r1436 HLA_828	CO: Velocity controller reference model velocity_setpoint output / RefMod v_set outp		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
	P group: Closed-loop control	Unit group: 4_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: - [m/min]	Max: - [m/min]	Default: - [m/min]
Description:	Display and connector output of the velocity setpoint at the output of the reference model.		

r1436 SERVO_828, SERVO_COMBI	CO: Speed controller reference model speed setpoint output / RefMod n_set outp		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5030, 6031
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Display and connector output for the speed setpoint at the output of the reference model.		

r1438 HLA_828	CO: Velocity controller velocity setpoint / v_ctrl v_set		
	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
	P group: Closed-loop control	Unit group: 4_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: - [m/min]	Max: - [m/min]	Default: - [m/min]
Description:	Display and connector output of the velocity setpoint after setpoint limiting for the P component of the velocity controller.		
Dependency:	See also: r1439		

Note

In the standard state (the reference model is de-activated), r1438 = r1439.

r1438	CO: Speed controller speed setpoint / n_ctrl n_set		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 3001, 5019, 5030, 5042, 5210
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
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.		
Dependency:	See also: r1439		
	Note In the standard state (the reference model is de-activated), r1438 = r1439.		

r1439	Speed setpoint I component / n_set I_comp		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5030, 5040, 6031
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Displays the speed setpoint for the I component of the speed controller (output of the reference model after the setpoint limiting).		
Dependency:	See also: r1438		
	Note In the standard state (the reference model is de-activated), r1438 = r1439.		

p1441[0...n]	Actual velocity smoothing time / v_act t_smooth		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 50.00 [ms]	Default: 0.00 [ms]
Description:	Sets the smoothing time constant (PT1) for the velocity actual value.		
Dependency:	See also: r0063, p1451		
	Note The speed actual value should be smoothed for encoders with a low pulse number or for resolvers. After this parameter has been changed, we recommend that the velocity controller is adjusted and/or the velocity controller settings Kp, Tn and Tv checked.		

p1441[0...n]	Actual speed smoothing time / n_act T_smooth		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4710, 4715
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 50.00 [ms]	Default: 0.00 [ms]
Description:	Sets the smoothing time constant (PT1) for the speed actual value.		

Dependency: See also: r0063, p1451

Note

The speed actual value should be smoothed for encoders with a low pulse number or for resolvers. After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).

r1444 Velocity controller velocity setpoint static / v_ctrl v_set stat

HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: 4_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]

Description: Displays the sum of all velocity setpoints that are present. The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- velocity setpoint 1 (p1155).
- velocity setpoint 2 (p1160).
- velocity setpoint for the velocity pre-control (p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active).

Dependency: See also: r1119, p1155, p1160, p1430

r1444 Speed controller speed setpoint steady-state (static) / n_ctrl n_set stat

SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5030
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the sum of all speed setpoints that are present. The following sources are available for the displayed setpoint:

- setpoint at the ramp-function generator input (r1119).
- speed setpoint 1 (p1155).
- speed setpoint 2 (p1160).
- speed setpoint for the speed pre-control (p1430).
- setpoint from DSC (for DSC active).
- setpoint via PC (for master control active).

Dependency: See also: r1119, p1155, p1160, p1430

r1445 CO: Actual velocity smoothed / v_act smooth

HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
	P group: Closed-loop control	Unit group: 4_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]

Description: Display and connector output for the actual smoothed velocity actual value of the velocity control.

r1445	CO: Actual speed smoothed / n_act smooth		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040, 5210
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	Display and connector output for the actual smoothed speed actual value of the speed control.		

p1446[0...n]	Velocity actual value filter type / v_act_filt type		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2	2
Description:	Sets the type for the general velocity actual value filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	PT2 low pass: p1447, p1448 General filter: p1447 ... p1450		

p1446[0...n]	Speed actual value filter type / n_act_filt type		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5040, 5210
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2	2
Description:	Sets the type for the general speed actual value filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	PT2 low pass: p1447, p1448 General filter: p1447 ... p1450		

p1447[0...n]	Velocity actual value filter denominator natural frequency / v_act_filt fn_d		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]
Description:	Sets the denominator natural frequency for the velocity actual value filter (PT2, general filter).		
Dependency:	See also: p1413, p1446		

Note

The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1447[0...n]
 SERVO_828,
 SERVO_COMBI

Speed actual value filter denominator natural frequency / n_act_filt fn_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5040, 5210
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the denominator natural frequency for the speed actual value filter (PT2, general filter).
Dependency: See also: p1413, p1446

Note

The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1448[0...n]
 HLA_828

Velocity actual value filter denominator damping / v_act_filt D_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for the velocity actual value filter (PT2, general filter).
Dependency: See also: p1413, p1446

p1448[0...n]
 SERVO_828,
 SERVO_COMBI

Speed actual value filter denominator damping / n_act_filt D_d

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5040, 5210
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for the speed actual value filter (PT2, general filter).
Dependency: See also: p1413, p1446

p1449[0...n]
 HLA_828

Velocity actual value filter numerator natural frequency / v_act_filt fn_n

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the numerator natural frequency for the velocity actual value filter (general filter).
Dependency: See also: p1413, p1446

Note

This parameter is only effective if the velocity filter is set as a general filter.
 The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1449[0...n]	Speed actual value filter numerator natural frequency / n_act_filt fn_n		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5040, 5210
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for the speed actual value filter (general filter).		
Dependency:	See also: p1413, p1446		

Note

The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1450[0...n]	Velocity actual value filter numerator damping / v_act_filt D_n		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for the velocity actual value filter (general filter).		
Dependency:	See also: p1413, p1446		

Note

This parameter is only effective if the velocity actual value filter is set as a general filter.

p1450[0...n]	Speed actual value filter numerator damping / n_act_filt D_n		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5040, 5210
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for the speed actual value filter (general filter).		
Dependency:	See also: p1413, p1446		

Note

This parameter is only effective if the speed filter is set as a general filter.

p1451[0...n]	Speed actual value smoothing time sensorless / n_act t_sm SL		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 1000 [ms]	Default: 0 [ms]
Description:	Sets the smoothing time for the calculated speed actual value in sensorless operation.		
Dependency:	See also: p1441		

r1454	CO: Velocity controller system deviation I component / v_ctrl sys dev Tn		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: 4_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]

Description: Display and connector output for the system deviation of the I component of the velocity controller.
When the reference model is inactive (p1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).

r1454	CO: Speed controller system deviation I component / n_ctrl sys dev Tn		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the system deviation of the I component of the speed controller.
When the reference model is inactive (p1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).

p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctr adapt_sig Kp		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 5050
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the source for the adaptation signal to additionally adapt the P gain of the speed controller.

Dependency: See also: p1456, p1457, p1458, p1459

p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5050
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [%]	400.00 [%]	0.00 [%]

Description: Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed controller.
The values are in % and refer to the set source of the adaptation signal.

Dependency: See also: p1455, p1457, p1458, p1459

p1457[0...n] SERVO_828, SERVO_COMBI	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.00 [%] Description: Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal. Dependency: See also: p1455, p1456, p1458, p1459	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 400.00 [%]	Access level: 3 Function plan: 5050 Unit selection: - Expert list: 1 Default: 0.00 [%]
p1458[0...n] SERVO_828, SERVO_COMBI	Adaptation factor lower / Adapt_factor lower Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.0 [%] Description: Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller. Dependency: See also: p1455, p1456, p1457, p1459	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 200000.0 [%]	Access level: 3 Function plan: 5050 Unit selection: - Expert list: 1 Default: 100.0 [%]
p1459[0...n] SERVO_828, SERVO_COMBI	Adaptation factor upper / Adapt_factor upper Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.0 [%] Description: Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller. Dependency: See also: p1455, p1456, p1457, p1458	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 200000.0 [%]	Access level: 3 Function plan: 5050 Unit selection: - Expert list: 1 Default: 100.0 [%]
p1460[0...n] HLA_828	Velocity controller P gain A / v_ctrl Kp A Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -100.000 [%] Description: Sets the proportional gain (Kp) for the velocity controller at the A side	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 1000.000 [%]	Access level: 2 Function plan: 4965 Unit selection: - Expert list: 1 Default: 0.000 [%]
p1460[0...n] SERVO_828, SERVO_COMBI	Speed controller P gain adaptation speed lower / n_ctrl Kp n lower Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000 [Nms/rad]	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: 17_1 Scaling: - Max: 99999999.000 [Nms/rad]	Access level: 2 Function plan: 5040, 5042 Unit selection: p0505 Expert list: 1 Default: 0.300 [Nms/rad]

Description: Sets the P gain of the speed controller before the adaptation speed range (0 ... p1464).
This value corresponds to the basic setting of the P gain of the speed controller without adaptation (p1461 = 100 %).

Dependency: See also: p1461, p1464, p1465

Note

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341).
For higher load moments of inertia (p0342 > 1 or p1498 > 0), you are advised to check the speed controller gain.

p1461[0...n] **Velocity controller P gain / v_ctr Kp**
HLA_828

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -100.0 [%]	Max: 1000.0 [%]	Default: 0.0 [%]

Description: Sets the proportional gain (Kp) for the velocity controller at the position of the minimum natural frequency.

p1461[0...n] **Speed controller Kp adaptation speed upper scaling / n_ctr Kp n up scal**
SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5050
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.0 [%]	Max: 200000.0 [%]	Default: 100.0 [%]

Description: Sets the P gain of the speed controller for the upper adaptation speed range (> p1465).
The entry is made referred to the P gain for the lower adaptation speed range of the speed controller (% referred to p1460).

Dependency: See also: p1460, p1464, p1465

Note

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341).
For higher load moments of inertia (p0342 > 1 or p1498 > 0), you are advised to check the speed controller gain.

p1462[0...n] **Velocity controller P gain B / v_ctrl Kp B**
HLA_828

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -100.00 [%]	Max: 1000.00 [%]	Default: 0.00 [%]

Description: Sets the proportional gain (Kp) for the velocity controller at the B side

p1462[0...n] **Speed controller integral time adaptation speed lower / n_ctrl Tn n lower**
SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5040, 5042, 6020, 6040
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 100000.00 [ms]	Default: 20.00 [ms]

Description: Sets the integration time of the speed controller before the adaptation speed range (0 ... p1464). This value corresponds to the basic setting of the integral time of the speed controller without adaptation (p1461 = 100 %).

Dependency: See also: p1463, p1464, p1465

p1463[0...n] **Velocity controller integral time / v_ctr Tn**
 HLA_828 **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 2
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4965
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.0 [ms] 2000.0 [ms] 0.0 [ms]

Description: Sets the integral time (Tn) for the velocity controller.

p1463[0...n] **Speed controller Tn adaptation speed upper scaling / n_ctr Tn n up scal**
 SERVO_828, **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 3
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5050
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.0 [%] 200000.0 [%] 100.0 [%]

Description: Sets the integral time of the speed controller after the adaptation speed range (> p1465). The entry is made referred to the integral time for the lower adaptation speed range of the speed controller (% referred to p1462).

Dependency: See also: p1462, p1464, p1465

p1464[0...n] **Velocity controller D component smoothing time constant / v_ctr D comp T**
 HLA_828 **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4965
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.25 [ms] 100.00 [ms] 0.25 [ms]

Description: Sets the smoothing time constant for the D component of the velocity controller.

p1464[0...n] **Speed controller adaptation speed lower / n_ctrl n lower**
 SERVO_828, **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 3
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5050
P group: Closed-loop control **Unit group:** 3_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00 [rpm] 210000.00 [rpm] 0.00 [rpm]

Description: Sets the lower adaptation speed of the speed controller.

No adaptation is effective below this speed.

Dependency: See also: p1460, p1461, p1462, p1463, p1465

p1465[0...n]
HLA_828

Velocity controller derivative-action time A / v_ctrl Tv A

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -1000.00 [ms]	Max: 1000.00 [ms]	Default: 0.00 [ms]

Description: Sets the derivative-action time (Tv, D component) for the velocity controller at the A side.

p1465[0...n]
SERVO_828,
SERVO_COMBI

Speed controller adaptation speed upper / n_ctrl n upper

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5050
P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 210000.00 [rpm]

Description: Sets the upper adaptation speed of the speed controller.
No adaptation is effective above this speed.
For the proportional gain, p1460 x p1461 is effective.
For the integral time, p1462 x p1463 is effective.

Dependency: See also: p1460, p1461, p1462, p1463, p1464

p1466[0...n]
HLA_828

Velocity controller derivative-action time / v_ctrl Tv

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -1000.00 [ms]	Max: 1000.00 [ms]	Default: 0.00 [ms]

Description: Sets the derivative-action time (Tv, D component) for the velocity controller at the position of the minimum natural frequency.

p1466[0...n]
SERVO_828

CI: Speed controller P-gain scaling / n_ctrl Kp scal

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 5050
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: PERCENT	Expert list: 1
Min: -	Max: -	Default: 1

Description: Sets the signal source for the scaling of the P gain of the speed controller.
This also makes the effective P gain (including adaptations) scalable.

p1467[0...n]
HLA_828

Velocity controller derivative-action time B / v_ctrl Tv B

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -1000.00 [ms]	Max: 1000.00 [ms]	Default: 0.00 [ms]

Description: Sets the derivative-action time (Tv, D component) for the velocity controller at the B side.

r1468	Velocity controller P gain effective / v_ctrl Kp eff		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Displays the effective P gain of the velocity controller.

r1468	Speed controller P-gain effective / n_ctr Kp eff		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040, 5042, 5210
	P group: Closed-loop control	Unit group: 17_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Nms/rad]	- [Nms/rad]	- [Nms/rad]

Description: Displays the effective P gain of the speed controller.

Note

For encoderless operation and speeds less than p1755 (open-loop controlled mode) the speed controller is not active and r1468 = 0 is displayed.

r1469	Velocity controller derivative-action time active / v_ctrl Tv act		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]

Description: Displays the effective derivative time of the velocity controller.

r1469	Speed controller integral time effective / n_ctr Tn eff		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040, 5042, 6040
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]

Description: Displays the effective integral time of the speed controller.

p1470[0...n]	Speed controller encoderless operation P-gain / n_ctrl SL Kp		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5210
	P group: Closed-loop control	Unit group: 17_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.000 [Nms/rad]	999999.000 [Nms/rad]	0.300 [Nms/rad]

Description: Sets the P gain for encoderless operation for the speed controller.

Note

When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0), you are advised to check the speed controller gain.

p1472[0...n] SERVO_828, SERVO_COMBI	Speed controller encoderless operation integral time / n_ctrl SL Tn		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5210
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 100000.0 [ms]	Default: 20.0 [ms]
Description:	Set the integral time for encoderless operation for the speed controller.		

p1475[0...n] HLA_828	Velocity controller loop gain / v_ctrl loop_gain		
	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [mm/Vmin]	Max: 20000.0 [mm/Vmin]	Default: 0.0 [mm/Vmin]
Description:	Sets the loop gain of the velocity controller.		

p1476[0...n] HLA_828	BI: Velocity controller hold integrator / v_ctrl integ stop		
	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0
Description:	Sets the signal source to hold the integrator for the velocity controller.		

p1476[0...n] SERVO_828, SERVO_COMBI	BI: Speed controller hold integrator / n_ctrl integ stop		
	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2520, 5040, 5042, 5210, 6040
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0
Description:	Sets the signal source to hold the integrator for the speed controller.		

p1477[0...n] HLA_828	BI: Velocity controller set integrator value / v_ctrl integ set		
	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0
Description:	Sets the signal source to set the integrator setting value (p1478).		

Dependency: See also: p1478

NOTICE

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

Note

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

p1477[0...n]

SERVO_828,
SERVO_COMBI

BI: Speed controller set integrator value / n_ctrl integ set

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / Binary

Dynamic index: CDS, p0170

Function plan: 2520, 5040, 5042,
5210, 6040

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0

Description: Sets the signal source to set the integrator setting value (p1478).

Dependency: See also: p1478

NOTICE

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

Note

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

p1478[0...n]

HLA_828

CI: Velocity controller integrator value / v_ctr integ_setVal

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: CDS, p0170

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: p2003

Expert list: 1

Min:

Max:

Default:

-

-

0

Description: Sets the signal source for the integrator setting value for the velocity controller.
The signal to set this integrator setting value is interconnected via p1477.

Dependency: See also: p1477

NOTICE

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

Note

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

p1478[0...n]

SERVO_828,
SERVO_COMBI

CI: Speed controller integrator setting value / n_ctrl integ_setVal

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: CDS, p0170

Function plan: 5040, 5042, 5210

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: p2003

Expert list: 1

Min:

Max:

Default:

-

-

0

Description: Sets the signal source for the integrator setting value for the velocity controller.
The signal to set this integrator setting value is interconnected via p1477.

Dependency: See also: p1477

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

Note

For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).

r1480 **CO: Velocity controller PID output / v_ctrl PID outp**
 HLA_828 **Changeable:** - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2001 **Expert list:** 1
Min: **Max:** **Default:**
 - [V] - [V] - [V]

Description: Display and connector output for the voltage setpoint at the output of the PID velocity controller.

r1480 **CO: Speed controller PI torque output / n_ctrl PI-M_outp**
 SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** 5019, 5040, 5042, 5060, 5210, 6060
P group: Closed-loop control **Unit group:** 7_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** p2003 **Expert list:** 1
Min: **Max:** **Default:**
 - [Nm] - [Nm] - [Nm]

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

r1481 **CO: Velocity controller P component output / v_ctrl P outp**
 HLA_828 **Changeable:** - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2001 **Expert list:** 1
Min: **Max:** **Default:**
 - [V] - [V] - [V]

Description: Display and connector output for the voltage setpoint of the P component for the velocity controller.

r1481 **CO: Speed controller P torque output / n_ctrl P-M_outp**
 SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** 5040, 5042, 5210, 6040
P group: Closed-loop control **Unit group:** 7_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** p2003 **Expert list:** 1
Min: **Max:** **Default:**
 - [Nm] - [Nm] - [Nm]

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

r1482	CO: Velocity controller I component output / v_ctrl I outp		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Display and connector output for the voltage setpoint of the I component for the velocity controller.		
r1482	CO: Speed controller I torque output / n_ctrl I-M_outp		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040, 5042, 5210, 6030, 6040
	P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Display and connector output for the torque setpoint at the output of the I speed controller.		
r1483	CO: Velocity controller D component output / v_ctrl D outp		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Display and connector output for the voltage setpoint of the D component for the velocity controller.		
r1484	CO: Speed controller Kp adaptation as percentage / n_ctrl Kp adap %		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040, 5042, 5210
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Display and connector output for the percentage Kp adaptation of the speed controller.		
Dependency:	See also: p1460, p1461, p1464, p1465		
	Note		
	The value is referred to the set proportional gain (p1460).		
r1493	CO: Moment of inertia total / M_inertia total		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5042, 5210
	P group: Closed-loop control	Unit group: 25_1	Unit selection: p0100
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [kgm ²]	- [kgm ²]	- [kgm ²]

Description: Display and connector output for the parameterized total moment of inertia.
The value is calculated with $((p0341 * p0342) + p1498)$.
The scaling is not take into account using p1497.

Dependency: See also: p1300, p1402, p1404, p1497

Note

The parameterized total moment of inertia, taking into account p1497, influences the torque pre-control. In encoderless operation or when the torque-speed pre-control with encoder ($p1402.4 = 1$) is activated, then torque-speed pre-control is activated.

p1494[0...n]

Velocity controller integrator feedback time constant / v_ctr integ_fdbk T

HLA_828

Changeable: T, U	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 1000.00 [ms]	Default: 0.00 [ms]

Description: Sets the time constant of the PT1 filter for integrator feedback.
The integrator of the velocity controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics).
The following applies:
p1494 < 0.25 (2 x p0115[1]) --> the PT1 filter is not active - the pure integrator is effective.
p1494 >= 0.25 (2 x p0115[1]) --> the PT1 filter is active and has replaced the pure integrator.

Dependency: See also: p1495

Note

Applications:
Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.

p1494[0...n]

Speed controller integrator feedback time constant / n_ctr integ_fdbk T

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5040, 5042, 5210
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 1000.00 [ms]	Default: 0.00 [ms]

Description: Sets the time constant of the PT1 filter for integrator feedback.
The integrator of the speed controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics).
The following applies:
p1494 < 2 x p0115[1] --> the PT1 filter is not active - the pure integrator is effective.
p1494 >= 2 x p0115[1] --> the PT1 filter is active and has replaced the pure integrator.

Note

Applications:
Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.
Also prevents tension/stressing for axes that are mechanically and rigidly coupled with one another (e.g. for synchronous spindles, master - slave axes).

p1495[0...n] HLA_828	Integrator feedback velocity threshold / Integ_fdbk v_thr Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.000 [m/min]	Calculation: - Dynamic index: DDS, p0180 Unit group: 4_1 Scaling: - Max: 120000.000 [m/min]	Access level: 3 Function plan: 4965 Unit selection: p0505 Expert list: 1 Default: 0.010 [m/min]
Description:	Sets the velocity threshold for the integrator feedback.		
Dependency:	See also: p1494		
p1497[0...n] SERVO_828, SERVO_COMBI	CI: Moment of inertia scaling signal source / M_inert scal s_src Changeable: T, U Data type: Unsigned32 / FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: PERCENT Max: -	Access level: 3 Function plan: 5042, 5210, 6030, 6031 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source for scaling the motor moment of inertia.		
	NOTICE This parameter has no effect when the "moment of inertia estimator" function is active (r0108.10 = 1, p1400.18 = 1).		
p1498[0...n] HLA_828	Load mass / Load mass Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00000 [kg]	Calculation: - Dynamic index: DDS, p0180 Unit group: 27_1 Scaling: - Max: 100000.00000 [kg]	Access level: 3 Function plan: - Unit selection: p0100 Expert list: 1 Default: 0.00000 [kg]
Description:	Sets the load mass.		
	Note p0341 + p1498 influence the calculation of the natural frequencies (p0352 ... p0354), of the force offset (p1532) and of the velocity controller (p1460 ... p1467) for p0340.1 = 1 or p3900 = 3.		
p1498[0...n] SERVO_828, SERVO_COMBI	Load moment of inertia / Load M_inertia Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00000 [kgm ²]	Calculation: - Dynamic index: DDS, p0180 Unit group: 25_1 Scaling: - Max: 100000.00000 [kgm ²]	Access level: 3 Function plan: 5042, 5210 Unit selection: p0100 Expert list: 1 Default: 0.00000 [kgm ²]
Description:	Sets the load moment of inertia.		
	Note (p0341 * p0342) + p1498 influence the speed/torque pre-control in encoderless operation.		

p1500[0...n] SERVO_828, SERVO_COMBI	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS, p0170	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 999999	Default: 0

Description: Runs the corresponding macro files.
 The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.
 The selected macro file must be available on the memory card/device memory.
 Example:
 p1500 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0015, p0700, p1000, r8573

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

Note
 The macros in the specified directory are displayed in r8573. r8573 is not in the expert list of the commissioning software.
 Macros available as standard are described in the technical documentation of the particular product.
 CI: Connector Input

p1500[0...n] HLA_828	Macro Connector Inputs (CI) for force setpoints / Macro CI F_set		
	Changeable: C2(1), T	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS, p0170	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 999999	Default: 0

Description: Runs the corresponding macro files.
 The connector inputs (CI) for the force setpoints of the appropriate command data set (CDS) are appropriately interconnected.
 The selected macro file must be available on the memory card/device memory.
 Example:
 p1500 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0015, p0700, p1000, r8573

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

Note
 The macros in the specified directory are displayed in r8573. r8573 is not in the expert list of the commissioning software.
 Macros available as standard are described in the technical documentation of the particular product.
 CI: Connector Input

p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2520, 6020
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for toggling between speed and torque control. 0 signal: Closed-loop speed control 1 signal: Closed-loop torque control		
Dependency:	The input connectors to enter the torque are provided using p1511, p1512 and p1513. See also: p1300		
NOTICE			
If the closed-loop torque control is not activated (p1300) and a change is made to closed-loop torque control (p1501), OFF1 (p0840) does not have its own braking response but pulse suppression when standstill is detected (p1226, p1227).			
Note			
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
p1502[0...n]	BI: Freeze moment of inertia estimator / J_estim freeze		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source to freeze the estimated moment of inertia. 0 signal: Moment of inertia estimator active 1 signal: Determined moment of inertia frozen.		
Dependency:	See also: p1300		
Note			
Only active when the "moment of inertia estimator" function module is active (r0108.10 = 1) and p1400.18 = 1. For operation with encoder, in addition, p1402.4 must be set to 1.			
r1509	CO: Torque setpoint before torque limiting / M_set before M_lim		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5019, 5060, 5610
	P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Display and connector output for the total torque setpoint before torque limiting. The value is the sum of the controller output, supplementary torque and where relevant precontrol torque, operation without encoder.		

p1511[0...n] HLA_828	CI: Force setpoint / F_set Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: p2003 Max: -	Access level: 3 Function plan: 4970 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for the force setpoint. The force setpoint can be scaled using p1512 and is only effective for p1400.14 = 1.		
Dependency:	See also: p1400, p1512		

p1511[0...n] SERVO_828, SERVO_COMBI	CI: Supplementary torque 1 / M_suppl 1 Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: p2003 Max: -	Access level: 3 Function plan: 5060 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for supplementary torque 1.		

p1512[0...n] HLA_828	CI: Force setpoint scaling / F_set scal Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: PERCENT Max: -	Access level: 3 Function plan: 4970 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for scaling the force setpoint via p1511.		
Dependency:	See also: p1400, p1511		

p1512[0...n] SERVO_828, SERVO_COMBI	CI: Supplementary torque 1 scaling / M_suppl 1 scal Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: PERCENT Max: -	Access level: 3 Function plan: 5060, 6060 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for scaling the supplementary torque 1.		

p1513[0...n] SERVO_828, SERVO_COMBI	CI: Supplementary torque 2 / M_suppl 2 Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: p2003 Max: -	Access level: 3 Function plan: 5060 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for supplementary torque 2.		

Note

Supplementary torque 2 can be used for weight equalization, and for example, is included in the manufacturer-specific telegram 136.

r1515	Supplementary torque total / M_suppl total		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5060
	P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Displays the total supplementary torque. The displayed value is the total of supplementary torque values 1 and 2 (p1511, p1512, p1513, p1514).		

p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5042, 5210, 6060
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	100.00 [ms]	4.00 [ms]
Description:	Sets the smoothing time constant of the accelerating torque.		

Note

For servo drives, the following applies:

- For p1402.4 = 1, the highest dynamic performance is achieved with p1517 = 0 ms.

- In encoderless operation, p1517 should be set ≥ 0.5 ms; for an induction motor with current displacement rotor p1517 ≥ 20 ms is recommended.

For vector drives, the following applies:

- The acceleration pre-control is inhibited if the smoothing is set to the maximum value.

r1518[0...1]	CO: Accelerating torque / M_accel		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5042, 5210
	P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]
Description:	Displays the accelerating torque to pre-control the speed controller for torque-speed pre-control (p1402.4 = 1) or in encoderless operation.		
Index:	[0] = Unsmoothed [1] = Smoothed		
Dependency:	See also: p0341, p0342, p1300, p1402, r1493, p1497, p1498		

p1520[0...n]
 SERVO_828,
 SERVO_COMBI

CO: Torque limit upper/motoring / M_max upper/mot

Changeable: T, U **Calculation:** CALC_MOD_LIM_REF **Access level:** 2

Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5620, 5630

P group: Closed-loop control **Unit group:** 7_1 **Unit selection:** p0505

Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

Min: 0.00 [Nm] **Max:** 10000000.00 [Nm] **Default:** 0.00 [Nm]

Description: Sets the fixed upper torque limit or the torque limit when motoring.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating
 See also: p0500, p1521, p1522, p1523, p1532, r1538, r1539

⚠ DANGER
 For p1400.4 = 0 (torque limiting, upper/lower) the following applies:
 Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.

NOTICE
 A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1520[0...n]
 HLA_828

CO: Force limit upper/motoring / F_max upper/mot

Changeable: T, U **Calculation:** CALC_MOD_LIM_REF **Access level:** 2

Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5620, 5630

P group: Closed-loop control **Unit group:** 8_1 **Unit selection:** p0505

Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

Min: 0.00 [N] **Max:** 10000000.00 [N] **Default:** 0.00 [N]

Description: Sets the fixed upper or force limit when motoring.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating
 See also: p0500, p1521, p1522, p1523, p1532, r1538, r1539

⚠ DANGER
 For p1400.4 = 0 (torque limiting, upper/lower) the following applies:
 Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.

NOTICE
 A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1521[0...n]
 SERVO_828,
 SERVO_COMBI

CO: Torque limit lower/regenerative / M_max lower/regen

Changeable: T, U **Calculation:** CALC_MOD_LIM_REF **Access level:** 2

Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5620, 5630


P group: Closed-loop control **Unit group:** 7_1 **Unit selection:** p0505

Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

Min: -1000000.00 [Nm] **Max:** 0.00 [Nm] **Default:** 0.00 [Nm]

Description: Sets the fixed lower torque limit or the torque limit when regenerating.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating
 See also: p0500, p1520, p1522, p1523, p1532

 DANGER
For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values when setting the lower torque limit (p1521 > 0) can result in the motor accelerating in an uncontrollable fashion.
NOTICE
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1521[0...n]

HLA_828

CO: Force limit lower/regenerative / F_max lower/regen**Changeable:** T, U**Calculation:**

CALC_MOD_LIM_REF

Access level: 2**Data type:** FloatingPoint32**Dynamic index:** DDS, p0180**Function plan:** 5620, 5630**P group:** Closed-loop control**Unit group:** 8_1**Unit selection:** p0505**Not for motor type:** REL**Scaling:** p2003**Expert list:** 1**Min:**

-1000000.00 [N]

Max:


0.00 [N]

Default:

0.00 [N]

Description: Sets the fixed lower or force limit when regenerating.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating
 See also: p0500, p1520, p1522, p1523, p1532

 DANGER
For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values when setting the lower torque limit (p1521 > 0) can result in the motor accelerating in an uncontrollable fashion.
NOTICE
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

p1522[0...n]SERVO_828,
SERVO_COMBI**CI: Torque limit upper/motoring / M_max upper/mot****Changeable:** T**Calculation:** -**Access level:** 3**Data type:** Unsigned32 / FloatingPoint32**Dynamic index:** CDS, p0170**Function plan:** 5609, 5620, 5630,
6630**P group:** Closed-loop control**Unit group:** -**Unit selection:** -**Not for motor type:** REL**Scaling:** p2003**Expert list:** 1**Min:**

-

Max:


-

Default:

2902[5]

Description: Sets the signal source for the upper or torque/force limit when motoring.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating
 See also: p1520, p1521, p1523, p1532

 DANGER
For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

p1522[0...n]

HLA_828

CI: Force limit upper/motoring / F_max upper/mot

Changeable: T

Data type: Unsigned32 / FloatingPoint32

P group: Closed-loop control

Not for motor type: REL

Min:

-

Calculation: -

Dynamic index: CDS, p0170

Unit group: -

Scaling: p2003

Max:

-

Access level: 3

Function plan: 5609, 5620, 5630, 6630

Unit selection: -

Expert list: 1

Default:

2902[5]

Description:

Sets the signal source for the upper or torque/force limit when motoring.

Dependency:

p1400.4 = 0: upper/lower

p1400.4 = 1: motoring / regenerating

See also: p1520, p1521, p1523, p1532



DANGER

For p1400.4 = 0 (torque limiting, upper/lower) the following applies:

Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

p1523[0...n]

SERVO_828,
SERVO_COMBI

CI: Torque limit lower/regenerative / M_max lower/regen

Changeable: T

Data type: Unsigned32 / FloatingPoint32

P group: Closed-loop control

Not for motor type: REL

Min:

-

Calculation: -

Dynamic index: CDS, p0170

Unit group: -

Scaling: p2003

Max:

-

Access level: 3

Function plan: 5609, 5620, 5630

Unit selection: -

Expert list: 1

Default:

2902[12]

Description:

Sets the signal source for the lower or torque/force limit when regenerating.

Dependency:

p1400.4 = 0: upper/lower

p1400.4 = 1: motoring / regenerating

See also: p1520, p1521, p1522, p1532



DANGER

For p1400.4 = 0 (torque limiting, upper/lower) the following applies:

Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

p1523[0...n]

HLA_828

CI: Force limit lower/regenerative / F_max lower/regen

Changeable: T

Data type: Unsigned32 / FloatingPoint32

P group: Closed-loop control

Not for motor type: REL

Min:

-

Calculation: -

Dynamic index: CDS, p0170

Unit group: -

Scaling: p2003

Max:

-

Access level: 3

Function plan: 5609, 5620, 5630

Unit selection: -

Expert list: 1

Default:

2902[12]

Description:

Sets the signal source for the lower or torque/force limit when regenerating.

Dependency:

p1400.4 = 0: upper/lower

p1400.4 = 1: motoring / regenerating

See also: p1520, p1521, p1522, p1532



DANGER

For p1400.4 = 0 (torque limiting, upper/lower) the following applies:

Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

p1524[0...n]	CO: Force limit upper/motoring scaling / F_max up/mot scal		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-2000.0 [%]	2000.0 [%]	100.0 [%]
Description:	Sets the scaling for the upper force limit or the force 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.

The value has the meaning stated above if it is interconnected from connector input p1528.

p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5620, 5630
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the upper torque limit or the torque limit when motoring.

Dependency: p1400.4 = 0: upper/lower
p1400.4 = 1: motoring / regenerating

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.

The value has the meaning stated above if it is interconnected from connector input p1528.

p1525[0...n]	CO: Force limit lower/regenerative scaling / F_max lo/reg scal		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the lower force limit or the force limit when regenerating.

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.

The value has the meaning stated above if it is interconnected from connector input p1528.

p1525[0...n]
 SERVO_828,
 SERVO_COMBI

CO: Torque limit lower/regenerative scaling / M_max low/gen scal

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5620, 5630
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: PERCENT	Expert list: 1
Min: -2000.0 [%]	Max: 2000.0 [%]	Default: 100.0 [%]

Description: Sets the scaling for the lower torque limit or the torque limit when regenerating.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating

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.
 The value has the meaning stated above if it is interconnected from connector input p1528.

r1526
 HLA_828

CO: Force limit upper/motoring without offset / F_max up w/o offs

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: 8_1	Unit selection: p0505
Not for motor type: REL	Scaling: p2003	Expert list: 1
Min: - [N]	Max: - [N]	Default: - [N]

Description: Display and connector output for the upper force limit of all force limits without offset.

Dependency: See also: p1520, p1521, p1522, p1523, p1528, p1529

r1526
 SERVO_828,
 SERVO_COMBI

CO: Torque limit upper/motoring without offset / M_max up w/o offs

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5620, 5630
P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: p2003	Expert list: 1
Min: - [Nm]	Max: - [Nm]	Default: - [Nm]

Description: Display and connector output for the upper torque limit of all torque limits without offset.

Dependency: p1400.4 = 0: upper/lower
 p1400.4 = 1: motoring / regenerating
 See also: p1520, p1521, p1522, p1523, p1528, p1529

r1527
 HLA_828

CO: Force limit lower/regenerative without offset / F_max low w/o offs

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: 8_1	Unit selection: p0505
Not for motor type: REL	Scaling: p2003	Expert list: 1
Min: - [N]	Max: - [N]	Default: - [N]

Description: Display and connector output for the lower force limit of all force limits without offset.

Dependency: See also: p1520, p1521, p1522, p1523, p1528, p1529

r1527	CO: Torque limit lower/regenerative without offset / M_max low w/o offs		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5620, 5630
	P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min: - [Nm]	Max: - [Nm]	Default: - [Nm]
Description:	Display and connector output for the lower torque limit of all torque limits without offset.		
Dependency:	p1400.4 = 0: upper/lower p1400.4 = 1: motoring / regenerating See also: p1520, p1521, p1522, p1523, p1528, p1529		
p1528[0...n]	CI: Force limit upper/motoring scaling / F_max up/mot scal		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1524[0]
Description:	Sets the signal source for the scaling of the upper or motoring force limit in p1522.		
	NOTICE		
	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1528[0...n]	CI: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3617, 5609, 5620, 5630
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1524[0]
Description:	Sets the signal source for the scaling of the upper or motoring torque limit in p1522.		
Dependency:	p1400.4 = 0: upper/lower p1400.4 = 1: motoring / regenerating		
	⚠ DANGER		
	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.		
	NOTICE		
	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1529[0...n]	CI: Force limit lower/regenerative scaling / F_max lo/reg scal		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1525[0]

Description: Sets the signal source for the scaling of the lower force limit or the regenerative force limit in p1523.

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

p1529[0...n]


SERVO_828,
SERVO_COMBI

CI: Torque limit lower/regenerative scaling / M_max low/gen scal

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 3617, 5609, 5620, 5630
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: PERCENT	Expert list: 1
Min: -	Max: -	Default: 1525[0]

Description: Sets the signal source for the scaling of the lower torque limit or the regenerative torque limit in p1523.

Dependency: p1400.4 = 0: upper/lower
p1400.4 = 1: motoring / regenerating

 **DANGER**
For p1400.4 = 0 (torque limiting, upper/lower) the following applies:
Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.

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

p1530[0...n]

SERVO_828,
SERVO_COMBI

Power limit motoring / P_max mot

Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5640
P group: Closed-loop control	Unit group: 14_5	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [kW]	Max: 100000.00 [kW]	Default: 0.00 [kW]

Description: Sets the power limit when motoring.

Dependency: See also: p0500, p1531

p1531[0...n]

SERVO_828,
SERVO_COMBI

Power limit regenerative / P_max gen

Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5640
P group: Closed-loop control	Unit group: 14_5	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -100000.00 [kW]	Max: -0.01 [kW]	Default: -0.01 [kW]

Description: Sets the regenerative power limit.

Dependency: See also: p0500, p1530

p1532[0...n] HLA_828	CO: Force offset, force limit / F_max offset Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -100000.00 [N]	Calculation: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Unit group: 8_1 Scaling: p2003 Max: 100000.00 [N]	Access level: 3 Function plan: 4970 Unit selection: p0505 Expert list: 1 Default: 0.00 [N]
Description:	Sets the force offset for the force limit.		
Dependency:	See also: p1520, p1521, p1522, p1523, p1528, p1529		
NOTICE			
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.			
p1532[0...n] SERVO_828, SERVO_COMBI	CO: Torque limit offset / M_max offset Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: -100000.00 [Nm]	Calculation: - Dynamic index: DDS, p0180 Unit group: 7_1 Scaling: p2003 Max: 100000.00 [Nm]	Access level: 3 Function plan: 5620, 5630, 5650, 7010, 8012 Unit selection: p0505 Expert list: 1 Default: 0.00 [Nm]
Description:	Sets the torque offset for the torque limit.		
Dependency:	See also: p1520, p1521, p1522, p1523, p1528, p1529		
NOTICE			
A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.			
r1533 SERVO_828, SERVO_COMBI	Current limit torque-generating total / Iq_max total Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: 5640, 5722 Unit selection: p0505 Expert list: 1 Default: - [Arms]
Description:	Displays the maximum torque/force generating current as a result if all current limits.		
r1534 SERVO_828, SERVO_COMBI	CO: Torque limit upper total / M_max upper total Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: - [Nm]	Calculation: - Dynamic index: - Unit group: 7_1 Scaling: p2003 Max: - [Nm]	Access level: 3 Function plan: 5609, 5620, 5630, 5640 Unit selection: p0505 Expert list: 1 Default: - [Nm]
Description:	Display and connector output for the upper torque limit of all torque limits.		
Dependency:	See also: p1520, p1521, p1522, p1523, p1528, p1529, p1532		

r1535 SERVO_828, SERVO_COMBI	CO: Torque limit lower total / M_max lower total Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: - [Nm]	Calculation: - Dynamic index: - Unit group: 7_1 Scaling: p2003 Max: - [Nm]	Access level: 3 Function plan: 5609, 5620, 5630, 5640 Unit selection: p0505 Expert list: 1 Default: - [Nm]
Description:	Display and connector output for the lower torque limit of all torque limits.		
Dependency:	See also: p1520, p1521, p1522, p1523, p1528, p1529, p1532		

r1538 HLA_828	CO: Upper force limit effective / F_max upper eff Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: - [N]	Calculation: - Dynamic index: - Unit group: 8_1 Scaling: p2003 Max: - [N]	Access level: 2 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [N]
Description:	Display and connector output for the actual effective upper force 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.
The following applies in the case of VECTOR: This may be the case for rotating measurements (see p1960).
The following applies in the case of VECTOR: Further variable torque limiting is possible (e.g. binector input p1540).
The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

r1538 SERVO_828, SERVO_COMBI	CO: Upper effective torque limit / M_max upper eff Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: - [Nm]	Calculation: - Dynamic index: - Unit group: 7_1 Scaling: p2003 Max: - [Nm]	Access level: 2 Function plan: 5609, 5650 Unit selection: p0505 Expert list: 1 Default: - [Nm]
Description:	Display and connector output for the actual 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.
The following applies in the case of VECTOR: This may be the case for rotating measurements (see p1960).
The following applies in the case of VECTOR: Further variable torque limiting is possible (e.g. binector input p1540).
The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

r1539 HLA_828	CO: Lower force limit effective / F_max lower eff Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: - [N]	Calculation: - Dynamic index: - Unit group: 8_1 Scaling: p2003 Max: - [N]	Access level: 2 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [N]
Description:	Display and connector output for the actual effective lower force 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.

The following applies in the case of VECTOR: This may be the case for rotating measurements (see p1960).

The following applies in the case of VECTOR: Further variable torque limiting is possible (e.g. binector input p1541).

The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

r1539

SERVO_828,
SERVO_COMBI

CO: Lower effective torque limit / M_max lower eff

Changeable: -

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: REL

Min:

- [Nm]

Calculation: -

Dynamic index: -

Unit group: 7_1

Scaling: p2003

Max:

- [Nm]

Access level: 2

Function plan: 5609, 5650

Unit selection: p0505

Expert list: 1

Default:

- [Nm]

Description:

Display and connector output for the actual 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.

The following applies in the case of VECTOR: This may be the case for rotating measurements (see p1960).

The following applies in the case of VECTOR: Further variable torque limiting is possible (e.g. binector input p1541).

The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.

p1542[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Cl: Travel to fixed stop torque reduction / TfS M_red

Changeable: T

Data type: Unsigned32 / FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: CDS, p0170

Unit group: -

Scaling: PERCENT

Max:

-

Access level: 3

Function plan: 5610

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the signal source for the torque reduction when traversing to a fixed stop.

This value is converted into a factor and is interconnected to the scaling of the torque limits.

Dependency:

See also: p1528, p1529, r1543, p1544, p1545

NOTICE

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

r1543

HLA_828,
SERVO_828,
SERVO_COMBI

CO: Travel to fixed stop torque scaling / TfS M scal

Changeable: -

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

- [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: PERCENT

Max:

- [%]

Access level: 3

Function plan: 5610

Unit selection: -

Expert list: 1

Default:

- [%]

Description:

Displays the internally converted factor to interconnect to the scaling of the torque/force limits.

Dependency:

See also: p1528, p1529, p1542, p1544, p1545

p1544
HLA_828,
SERVO_828,
SERVO_COMBI

Travel to fixed stop evaluation torque reduction / TfS M_red eval

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5610
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [%]	Max: 65535 [%]	Default: 100 [%]

Description: Sets the evaluation for the torque/force reduction when traversing to a fixed stop.

Dependency: See also: p1528, p1529, p1542, r1543, p1545

Note
4000 hex (16384 dec) in the MOMRED control word corresponds to a reduction by the percentage specified in this parameter.

p1545[0...n]
HLA_828

BI: Activates travel to a fixed stop / TfS activation

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2520, 3617, 8012
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0

Description: Sets the signal source to activate/de-activate the "travel to fixed stop" function
1: Travel to fixed stop is active
0: Travel to fixed stop is inactive

Dependency: See also: p1542, r1543, p1544

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

p1545[0...n]
SERVO_828,
SERVO_COMBI

BI: Activates travel to a fixed stop / TfS activation

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2520, 3617, 8012
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -	Max: -	Default: [0] 0 [1] 0

Description: Sets the signal source to activate/de-activate the "travel to fixed stop" function
1: Travel to fixed stop is active
0: Travel to fixed stop is inactive

Dependency: See also: p1542, r1543, p1544

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

p1546 SERVO_828, SERVO_COMBI	Speed threshold motoring/regenerating / n_thresh mot/regen Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00 [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: - Max: 210000.00 [rpm]	Access level: 2 Function plan: - Unit selection: p0505 Expert list: 1 Default: 20.00 [rpm]
Description:	Sets the speed threshold for the motoring/regenerative limit. For speeds where the absolute value is less than p1546, then the following applies: - For p1400.13 = 0: Motoring limit (speed threshold is compared to the speed actual value). - For p1400.13 = 1: Regenerative limiting (speed threshold is compared to the speed setpoint).		
r1549 SERVO_828, SERVO_COMBI	CO: Stall power actual value / P_stall Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [kW]	Calculation: - Dynamic index: - Unit group: 14_5 Scaling: r2004 Max: - [kW]	Access level: 3 Function plan: 5640 Unit selection: p0505 Expert list: 1 Default: - [kW]
Description:	Displays the instantaneous stall power.		
Dependency:	See also: p0326		
	Note The stall power is influenced by p0326, p0353, p0354 and p0356.		
p1550[0...n] SERVO_828, SERVO_COMBI	BI: Transfer actual torque as torque offset / Accept act torque Changeable: T Data type: Unsigned32 / Binary P group: Closed-loop control Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: 9718.23
Description:	For a positive edge, the actual torque (r0079[0]) at this instant in time is used instead of the torque offset from p1532 as long as p1550 remains at 1.		
p1551[0...n] SERVO_828, SERVO_COMBI	BI: Torque limit variable/fixed signal source / M_lim var/fixS_src Changeable: T, U Data type: Unsigned32 / Binary P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 5620, 5630, 6060, 6630 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source to change over the torque limits between variable and fixed torque limit. BI: p1551 = 1 signal: The variable torque limit applies (fixed torque limit + scaling). BI: p1551 = 0 signal: The fixed torque limit applies. Example: In order that for a Quick Stop (OFF3) the fixed torque limit is effective, binector input: p1551 must be interconnected to r0899.5.		

p1552[0...n]	Stiction velocity threshold / Stiction v_thresh		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [m/min]	Max: 10.000 [m/min]	Default: 0.010 [m/min]
Description:	Sets the velocity threshold for the stiction.		

p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up w/o offs		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 5060
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1
Description:	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.		

NOTICE
Speed controller limiting is only active if a BICO interconnection is set for connector input p1552 or p1554, (different than the factory setting).

p1554[0...n]	Stiction shutdown rate action / Stict shutdown		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: 3.0 [%]	Max: 100.0 [%]	Default: 40.0 [%]
Description:	Sets the shutdown rate time for the stiction compensation. The force controller is shut down via the shutdown rate time somewhat before reaching the force setpoint, so that the actuating time of the control valve does not result in an overshoot.		
Dependency:	See also: p1400, p1552, p1555, p1556		

p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low w/o offs		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Function plan: 5060
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1
Description:	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.		

NOTICE
Speed controller limiting is only active if a BICO interconnection is set for connector input p1552 or p1554, (different than the factory setting).

p1555[0...n]	Stiction force velocity positive / Stiction F v pos		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: 8_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100000000.0 [N]	Max: 100000000.0 [N]	Default: 0.0 [N]
Description:	Sets the force for positive velocity for the stiction compensation.		
Dependency:	See also: p1400, p1552, p1554, p1556		

p1556[0...n]	Stiction force velocity negative / Stiction F v neg		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: 8_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100000000.0 [N]	Max: 100000000.0 [N]	Default: 0.0 [N]
Description:	Sets the force for negative velocity for the stiction compensation.		
Dependency:	See also: p1400, p1552, p1554, p1555		

p1560[0...n]	Moment of inertia estimator accelerating torque threshold value / J_est M thresh		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: C2(3), T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.10 [%]	Max: 100.00 [%]	Default: 10.00 [%]
Description:	Sets the threshold for the accelerating torque for the moment of inertia estimator. The moment of inertia estimator is active above this threshold. The value is referred to the rated torque (r0333).		
Dependency:	See also: p1400, p1561, p1562		

Note

The moment of inertia estimation is inaccurate at very low accelerating torques/accelerating forces. As a consequence, below this threshold, the estimator does not provide any new values.

p1561[0...n]	Moment of inertia estimator change time moment of inertia / J_est t J		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.00 [ms]	Max: 5000.00 [ms]	Default: 500.00 [ms]
Description:	Sets the change time for the moment of inertia for the moment of inertia estimator. Lower values mean that faster changes are possible. For a higher value, this estimated value is smoothed more significantly.		
Dependency:	See also: p1400, p1560, p1562		

p1562[0...n] **Moment of inertia estimator change time load / J_est t load**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: T, U **Calculation:** CALC_MOD_CON **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 5.00 [ms] 5000.00 [ms] 10.00 [ms]

Description: Sets the change time for the load torque/load force for the moment of inertia estimator. Lower values mean that faster changes are possible. For a higher value, this estimated value is smoothed more significantly.

Dependency: See also: p1400, p1560, p1561

p1563[0...n] **CO: Mom. of inertia estimator load torque direction of rotation pos. / J_est M pos**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2003 **Expert list:** 1
Min: **Max:** **Default:**
 -340.28235E36 [Nm] 340.28235E36 [Nm] 0.00 [Nm]

Description: Display and connector output for the monitored load torque in the positive direction of rotation. The moment of inertia estimator estimates the load torque drawn while the speed is constant.

Dependency: See also: p1400, p1560, p1561

p1564[0...n] **CO: Mom. of inertia estimator load torque direction of rotation neg. / J_est M neg**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2003 **Expert list:** 1
Min: **Max:** **Default:**
 -340.28235E36 [Nm] 340.28235E36 [Nm] 0.00 [Nm]

Description: Display and connector output for the monitored load torque in the negative direction of rotation. The moment of inertia estimator estimates the load torque drawn while the speed is constant.

Dependency: See also: p1400, p1560, p1561

p1569[0...n] **CI: Supplementary torque 3 / M_suppl 3**
 SERVO_828, SERVO_COMBI
Changeable: T **Calculation:** - **Access level:** 2
Data type: Unsigned32 / FloatingPoint32 **Dynamic index:** CDS, p0170 **Function plan:** 7010
P group: Functions **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2003 **Expert list:** 1
Min: **Max:** **Default:**
 - - 3841[0]

Description: Sets the signal source for supplementary torque 3.

Dependency: See also: p3842

NOTICE
 The signal input is after the torque limit (r1538, r1539). For vector drives, the signals that are entered are only limited by the current and power limits.

Note

The signal input is preferably used to enter the friction characteristic. The friction compensation is also effective if the speed controller output reaches its torque limits, but the current limits have still not been reached (this only applies to vector drives).

p1570[0...n]	Stiction voltage pulse positive / Stiction U pos		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [V]	Max: 10.000 [V]	Default: 0.200 [V]
Description:	Sets the voltage pulse for stiction compensation when changing from a negative to a positive traversing direction. This compensation does not require any pressure sensors and does not use the force controller. However, the piston must be calibrated.		
Dependency:	See also: p1400, p1552, p1571, p1572		

Note

The "Stiction compensation voltage pulse" function is activated via p1400.9 = 1.
The duration of the voltage pulse and the magnitude in both directions is set using p1572, p1570 and p1571.
The threshold in p1552 is used to detect standstill.

p1571[0...n]	Stiction voltage pulse negative / Stiction U neg		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.000 [V]	Max: 0.000 [V]	Default: -0.200 [V]
Description:	Sets the voltage pulse for stiction compensation when changing from a positive to a negative traversing direction. This compensation does not require any pressure sensors and does not use the force controller. However, the piston must be calibrated.		
Dependency:	See also: p1400, p1552, p1570, p1572		

Note

The "Stiction compensation voltage pulse" function is activated via p1400.9 = 1.
The duration of the voltage pulse and the magnitude in both directions is set using p1572, p1570 and p1571.
The threshold in p1552 is used to detect standstill.

p1572[0...n]	Stiction voltage pulse duration / Stiction U dur		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 100.00 [ms]	Default: 2.00 [ms]
Description:	Sets the duration of the voltage pulse for the stiction compensation. This compensation does not require any pressure sensors and does not use the force controller. However, the piston must be calibrated.		
Dependency:	See also: p1400, p1552, p1570, p1571		

Note

The "Stiction compensation voltage pulse" function is activated via p1400.9 = 1.
 The duration of the voltage pulse and the magnitude in both directions is set using p1572, p1570 and p1571.
 The threshold in p1552 is used to detect standstill.

p1578[0...n]

SERVO_828,
 SERVO_COMBI

Flux reduction flux decrease smoothing time / Flux red dec t_{sm}

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5722
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
Min: 20 [ms]	Max: 5000 [ms]	Default: 200 [ms]

Description: Sets the smoothing time for the flux setpoint when decreasing the flux due to flux reduction (p1581 < 100 %).
Dependency: See also: p1579, p1581

p1579[0...n]

SERVO_828,
 SERVO_COMBI

Flux reduction flux build-up smoothing time / Flux red up t_{sm}

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5722
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
Min: 0 [ms]	Max: 5000 [ms]	Default: 4 [ms]

Description: Sets the smoothing time for the flux setpoint for the flux build-up due to flux reduction (p1581 < 100 %).
Dependency: See also: p1578, p1581

Note

An excessively long smoothing time extends the time until the maximum torque is reached from the no-load phase.

p1581[0...n]

SERVO_828,
 SERVO_COMBI

Flux reduction factor / Flux red factor

Changeable: T, U	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5722
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: PMSM, SESM, REL	Scaling: -	Expert list: 1
Min: 20 [%]	Max: 100 [%]	Default: 100 [%]

Description: Sets the factor to which the flux is reduced under no-load conditions.
 For a value of 100%, the flux reduction is switched out.
 This parameter refers to the flux saved in the field weakening characteristic.
 By reducing the flux, the losses in induction motors can be reduced under no-load conditions or at low torques.
 However, the time it takes to reach the maximum torque is extended.

Recommendation: For induction motors with closed rotor slots, we recommend that the integral time of the current controller (p1717) is e.g. increased to three times the value.
 For stable operation, the maximum field-weakening factor in operation with an encoder must be less than 16 and in operation without an encoder must be less than 4. Lower field weakening factors are recommended. The field weakening factor is calculated as follows:

$$(p1082 * 100 \% * 600 \text{ V}) / (p0348 * p1581 * p0070)$$
 In order to reduce losses due to magnetizing and de-magnetizing, we recommend that the smoothing times are adapted for flux decrease (p1578) and flux build-up (p1579).
 In order to reduce the losses as a result of building-up and reducing the torque, we recommend that the torque setpoint is smoothed (current setpoint filter (p1656 ...) or speed actual value filter (p1441)).

Dependency: See also: p1578, p1579

Note

It only makes sense to activate this function if there are low dynamic requirements placed on the speed controller and there are frequent phases with a low load.

In order to avoid oscillations, if required, the speed controller parameters should be adapted (decrease Kp (p1460, p1470), increase Tn (p1462, p1472)).

When used without an encoder, flux reduction is not possible for induction motors with closed rotor slots.

p1585[0...n]	Flux actual value smoothing time / Flux actVal T_smth		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 1000 [ms]	Default: 0 [ms]
Description:	Sets the smoothing time for the flux actual value.		

p1590[0...n]	Flux controller P gain / Flux controller Kp		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5722
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min: 0.0 [A/Vs]	Max: 999999.0 [A/Vs]	Default: 10.0 [A/Vs]
Description:	Sets the proportional gain for the flux controller.		

Note

For synchronous motors, this parameters has no effect.

The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameters (p0340 = 4), this value is re-calculated.

p1592[0...n]	Flux controller integral time / Flux controller Tn		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5722
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 10000 [ms]	Default: 30 [ms]
Description:	Sets the integral time for the flux controller.		

Note

For synchronous motors, this parameters has no effect.

The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned.

When calculating controller parameters (p0340 = 4), this value is re-calculated.

p1603[0...n]	Field-generating current maximum / Id max		
SERVO_828, SERVO_COMBI	Changeable: C2, T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [%]	Max: 100.0 [%]	Default: 90.0 [%]

Description: Sets the maximum component of the field-generating current to the permissible maximum current (r0067).

Note

If value = 0.0%:
For synchronous motors, 90 % is effective and for induction motors, 60 %.

p1612[0...n]

Current setpoint open-loop control, encoderless / I_setCtrEncoderI

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [Arms]	Max: 10000.00 [Arms]	Default: 0.00 [Arms]

Description: Sets the current setpoint for controlled (open-loop) encoderless operation.

Note

The value is effective at speeds less than p1755 and represents a reserve for a possibly existing load torque or torque error in the moment of inertia.

r1650

Current setpoint torque-generating before filter / Iq_set before filt

SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5710
P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
Not for motor type: REL	Scaling: p2002	Expert list: 1
Min: - [Arms]	Max: - [Arms]	Default: - [Arms]

Description: Displays the torque generating current setpoint Iqset after the torque limits and the clock cycle interpolation is ahead of the current setpoint filters.

r1651

CO: Torque setpoint function generator / M_set FG

SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: p2003	Expert list: 1
Min: - [Nm]	Max: - [Nm]	Default: - [Nm]

Description: Displays the torque setpoint of the function generator.

p1656[0...n]

Manipulated variable filter velocity controller activation / Filt v_ctrl act

HLA_828

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0000 bin

Description: Setting for activating/de-activating the manipulated variable filter for the velocity controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	-
	01	Activate filter 2	Yes	No	-

Dependency: See also: p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666, p1699

p1656[0...n] SERVO_828, SERVO_COMBI	Activates current setpoint filter / I_setp_filt act			
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3	
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 5710	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -	Max: -	Default: 0001 bin	
Description:	Setting for activating/de-activating the current setpoint filter.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Filter 1	Active	Inactive
	01	Filter 2	Active	Inactive
	02	Filter 3	Active	Inactive
	03	Filter 4	Active	Inactive
Dependency:	The individual current setpoint filters are parameterized as of p1657.			
	Note			
	If not all of the filters are required, then the filters should be used consecutively starting from filter 1.			
p1656 A_INF_828 (Suppl ctrl)	Signal filter activation / I_setp_filt act			
	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Function plan: -	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -	Max: -	Default: 0000 0000 bin	
Description:	Setting for activating/de-activating the 2nd order filter.			
Bit field:	Bit	Signal name	1 signal	0 signal
	04	Filter 5	Active	Inactive
Dependency:	The filter is parameterized from p1677.			
p1657[0...n] HLA_828	Manipulated variable filter 1 velocity controller type / Filt 1 v_ctrl type			
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3	
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 4965	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: REL	Scaling: -	Expert list: 1	
	Min: 1	Max: 2	Default: 1	
Description:	Sets the type for manipulated variable filter 1 of the velocity controller			
Value:	1: PT2 low pass			
	2: General 2nd order filter			
Dependency:	For p1657 = 1, the following parameters should be set: - p1656.0, p1658, p1659			
	For p1657 = 2, the following parameters should be set: - p1656.0, p1658, p1659, p1660, p1661			
	See also: p1656, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666			

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p1657[0...n]

SERVO_828,
SERVO_COMBI

Current setpoint filter 1 type / I_set_filt 1 type

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5710, 6710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 1	Max: 2	Default: 1

Description: Sets the current setpoint filter 1 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p1658[0...n]

HLA_828

Manip. var. filter 1 velocity controller denom. natural freq. / Filt 1 v_ctrl fn_d

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the denominator natural frequency for manipulated variable filter 1 of the velocity controller.

Dependency: See also: p1656, p1657, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666

p1658[0...n]

SERVO_828,
SERVO_COMBI

Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_d

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710, 6710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 1 (PT2, general filter).

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

p1659[0...n] HLA_828	Manip. variable filter 1 velocity controller denominator damping / Filt 1 v_ctrl D_d Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.001	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 4965 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the denominator damping for manipulated variable filter 1 of the velocity controller.		
Dependency:	See also: p1656, p1657, p1658, p1660, p1661, p1662, p1663, p1664, p1665, p1666		
p1659[0...n] SERVO_828, SERVO_COMBI	Current setpoint filter 1 denominator damping / I_set_filt 1 D_d Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.001	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5710, 6710 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the denominator damping for current setpoint filter 1.		
Dependency:	The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		
p1660[0...n] HLA_828	Manip. var. filter 1 velocity controller numerator natural freq. / Filt 1 v_ctrl fn_n Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 4965 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for manipulated variable filter 1 of the velocity controller.		
Dependency:	See also: p1656, p1657, p1658, p1659, p1661, p1662, p1663, p1664, p1665, p1666		
p1660[0...n] SERVO_828, SERVO_COMBI	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_n Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5710, 6710 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 1 (general filter).		
Dependency:	The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		
p1661[0...n] HLA_828	Manip. variable filter 1 velocity controller numerator damping / Filt 1 v_ctrl D_n Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 4965 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the numerator damping for manipulated variable filter 1 of the velocity controller.		

Dependency: See also: p1656, p1657, p1658, p1659, p1660, p1662, p1663, p1664, p1665, p1666

p1661[0...n] **Current setpoint filter 1 numerator damping / I_set_filt 1 D_n**
 SERVO_828, SERVO_COMBI
Changeable: T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5710, 6710
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.000 10.000 0.700

Description: Sets the numerator damping for current setpoint filter 1.

Dependency: The current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.

p1662[0...n] **Manipulated variable filter 2 velocity controller type / Filt 2 v_ctrl type**
 HLA_828
Changeable: T, U **Calculation:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** DDS, p0180 **Function plan:** 4965
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 1 2 1

Description: Sets the type for manipulated variable filter 2 of the velocity controller

Value:
 1: PT2 low pass
 2: General 2nd order filter

Dependency: For p1662 = 1, the following parameters should be set:
 - p1656.1, p1663, p1664
 For p1662 = 2, the following parameters should be set:
 - p1656.1, p1663, p1664, p1665, p1666
 See also: p1656, p1657, p1658, p1659, p1660, p1661, p1663, p1664, p1665, p1666

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p1662[0...n] **Current setpoint filter 2 type / I_set_filt 2 type**
 SERVO_828, SERVO_COMBI
Changeable: T, U **Calculation:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** DDS, p0180 **Function plan:** 5710, 6710
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 1 2 1

Description: Sets the current setpoint filter 2 as low pass (PT2) or general 2nd-order filter.

Value:
 1: PT2 low pass
 2: General 2nd order filter

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{\text{denominator}} * f_{\text{bandstop frequency}}$$

p1663[0...n]	Manip. var. filter 2 velocity controller denom. natural freq. / Filt 2 v_ctrl fn_d		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]
Description:	Sets the denominator natural frequency for manipulated variable filter 2 of the velocity controller.		
Dependency:	See also: p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1664, p1665, p1666		
p1663[0...n]	Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_d		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710, 6710
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 2 (PT2, general filter).		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		
p1664[0...n]	Manip. variable filter 2 velocity controller denominator damping / Filt 2 v_ctrl D_d		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.001	10.000	0.700
Description:	Sets the denominator damping for manipulated variable filter 2 of the velocity controller.		
Dependency:	See also: p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1665, p1666		
p1664[0...n]	Current setpoint filter 2 denominator damping / I_set_filt 2 D_d		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710, 6710
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.001	10.000	0.700
Description:	Sets the denominator damping for current setpoint filter 2.		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		

p1665[0...n]
HLA_828

Manip. var. filter 2 velocity controller numerator natural freq. / Filt 2 v_ctrl fn_n

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the numerator natural frequency for manipulated variable filter 2 of the velocity controller.

Dependency: See also: p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1666

p1665[0...n]
SERVO_828,
SERVO_COMBI

Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_n

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710, 6710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 2 (general filter).

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

p1666[0...n]
HLA_828

Manip. variable filter 2 velocity controller numerator damping / Filt 2 v_ctrl D_n

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.000	Max: 10.000	Default: 0.700

Description: Sets the numerator damping for manipulated variable filter 2 of the velocity controller.

Dependency: See also: p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665

p1666[0...n]
SERVO_828,
SERVO_COMBI

Current setpoint filter 2 numerator damping / I_set_filt 2 D_n

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710, 6710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.000	Max: 10.000	Default: 0.700

Description: Sets the numerator damping for current setpoint filter 2.

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

p1667[0...n]
SERVO_828,
SERVO_COMBI

Current setpoint filter 3 type / I_set_filt 3 type

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 1	Max: 2	Default: 1

Description: Sets the current setpoint filter 3 as low pass (PT2) or general 2nd-order filter.

Value: 1: PT2 low pass
2: General 2nd order filter

Dependency: Current setpoint filter 3 is activated via p1656.2 and parameterized via p1667 ... p1671.

p1668[0...n] **Current setpoint filter 3 denominator natural frequency / I_set_filt 3 fn_d**

SERVO_828, SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 3 (PT2, general filter).

Dependency: Current setpoint filter 3 is activated via p1656.2 and parameterized via p1667 ... p1671.

p1669[0...n] **Current setpoint filter 3 denominator damping / I_set_filt 3 D_d**

SERVO_828, SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for current setpoint filter 3.

Dependency: Current setpoint filter 3 is activated via p1656.2 and parameterized via p1667 ... p1671.

p1670[0...n] **Current setpoint filter 3 numerator natural frequency / I_set_filt 3 fn_n**

SERVO_828, SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 3 (general filter).

Dependency: Current setpoint filter 3 is activated via p1656.2 and parameterized via p1667 ... p1671.

p1671[0...n] **Current setpoint filter 3 numerator damping / I_set_filt 3 D_n**

SERVO_828, SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.000	Max: 10.000	Default: 0.700

Description: Sets the numerator damping for current setpoint filter 3.

Dependency: Current setpoint filter 3 is activated via p1656.2 and parameterized via p1667 ... p1671.

p1672[0...n] **Current setpoint filter 4 type / I_set_filt 4 type**
SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
SERVO_COMBI **Data type:** Integer16 **Dynamic index:** DDS, p0180 **Function plan:** 5710
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
1 2 1

Description: Sets the current setpoint filter 4 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: Current setpoint filter 4 is activated via p1656.3 and parameterized via p1672 ... p1676.

p1673[0...n] **Current setpoint filter 4 denominator natural frequency / I_set_filt 4 fn_d**
SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5710
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.5 [Hz] 16000.0 [Hz] 1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 4 (PT2, general filter).

Dependency: Current setpoint filter 4 is activated via p1656.3 and parameterized via p1672 ... p1676.

p1674[0...n] **Current setpoint filter 4 denominator damping / I_set_filt 4 D_d**
SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5710
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.001 10.000 0.700

Description: Sets the denominator damping for current setpoint filter 4.

Dependency: Current setpoint filter 4 is activated via p1656.3 and parameterized via p1672 ... p1676.

p1675[0...n] **Current setpoint filter 4 numerator natural frequency / I_set_filt 4 fn_d**
SERVO_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
SERVO_COMBI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 5710
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.5 [Hz] 16000.0 [Hz] 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 4 (general filter).

Dependency: Current setpoint filter 4 is activated via p1656.3 and parameterized via p1672 ... p1676.

p1676[0...n]	Current setpoint filter 4 numerator damping / I_set_filt 4 D_n		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5710
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for current setpoint filter 4.		
Dependency:	Current setpoint filter 4 is activated via p1656.3 and parameterized via p1672 ... p1676.		

p1677	Vdc actual value filter 5 type / Vdc act_filt 5 typ		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 2	Default: 2
Description:	Sets the Vdc actual value filter 5 as low pass (PT2) or as extended general 2nd order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	The Vdc actual value filter is activated with p1656.4 and parameterized via p1677 ... p1681.		

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p1678	Vdc actual value filter 5 denominator natural frequency / Vdc act_filt5 fn_n		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1000.0 [Hz]
Description:	Sets the denominator natural frequency for the Vdc actual value filter 5 (PT2, general filter).		
Dependency:	The Vdc actual value filter is activated with p1656.4 and parameterized via p1677 ... p1681.		

p1679	Vdc actual value filter 5 denominator damping / Vdc act_filt 5 D_d		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for Vdc actual value filter 5.		
Dependency:	The Vdc actual value filter is activated with p1656.4 and parameterized via p1677 ... p1681.		

p1680	Vdc actual value filter 5 numerator natural frequency / Vdc act_filt5 fn_n		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1000.0 [Hz]
Description:	Sets the numerator natural frequency for the Vdc actual value filter 5 (general filter).		
Dependency:	The Vdc actual value filter is activated with p1656.4 and parameterized via p1677 ... p1681.		

p1681	Vdc actual value filter 5 numerator damping / Vdc act_filt 5 D_n		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.010
Description:	Sets the numerator damping for Vdc actual value filter 5.		
Dependency:	The Vdc actual value filter is activated with p1656.4 and parameterized via p1677 ... p1681.		

p1699	Filter data acceptance / Filt data accept		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Activates data acceptance for parameter changes for the filter. p1699 = 0: The new filter data are immediately accepted. p1699 = 1: The new filter data are only accepted when this parameter is reset.		
Dependency:	Velocity setpoint filter 1, 2 (p1414 and following) Velocity actual value filter (p1413, p1446 and following) Manipulated variable filter velocity controller 1, 2 (p1656 and following) Manipulated variable filter (p1800 and following) Precontrol filter (p1721 and following)		

p1699	Filter data acceptance / Filt data accept		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0

Description: Activates data acceptance for parameter changes for the filter.
p1699 = 0:
The new filter data are immediately accepted.
p1699 = 1:
The new filter data are only accepted when this parameter is reset.

Dependency: Speed setpoint filter 1, 2 (p1414 and following)
Current setpoint filter 1 ... 4 (p1656 and following)
Current setpoint filter 5 ... 10 (function module, p5200 and following)
See also: p1414, p1656, p5200

p1700[0...n] Force controller loop gain / F_ctrl loop_gain

HLA_828	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [N/V]	Max: 1000000000.0 [N/V]	Default: 0.0 [N/V]

Description: Sets the loop gain for the force controller.

Dependency: See also: p1400, p1715, p1717, r1718, p1718, r1719, p1719, p1720

p1701[0...n] Current controller reference model dead time / I_ctrRefMod t_dead

SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5714
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0	Max: 1.0	Default: 1.0

Description: Sets the fractional dead time for the current controller reference model.
This parameter emulates the computing dead time of the proportionally controlled current control loop.

Note

Dead time = p1701 * p0115[0]

p1715[0...n] Force controller P gain / F_ctrl Kp

HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10000.000	Default: 0.000

Description: Sets the proportional gain for the force controller.

Dependency: See also: p1400, p1700, p1717, r1718, p1718, r1719, p1719, p1720

p1715[0...n] Current controller P gain / I_ctrl Kp

SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5714, 7017
	P group: Closed-loop control	Unit group: 18_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000 [V/A]	Max: 100000.000 [V/A]	Default: 0.000 [V/A]

Description: Sets the proportional gain of the current controller for the lower adaptation current range.
This value is automatically pre-set using p3900 or p0340 when commissioning has been completed.

Dependency: See also: p0391, p0392, p0393

Note

For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.

p1716[0...n] **Force controller P gain weakening / F_ctrl Kp red**
HLA_828

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.1 [%]	Max: 100.0 [%]	Default: 40.0 [%]

Description: Sets the weakening of the proportional gain for large actuating signals for the force controller.
The setting value specifies what percentage of a P component of 10 V is weakened.

Dependency: See also: p1715

p1717[0...n] **Force controller integral time / F_ctrl Tn**
HLA_828

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 2000.00 [ms]	Default: 40.00 [ms]

Description: Sets the integral time of the force controller.

Dependency: See also: p1400, p1700, p1715, r1718, p1718, r1719, p1719, p1720

p1717[0...n] **Current controller integral-action time / I_ctrl Tn**
SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5714, 6700, 6714, 7017
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 1000.00 [ms]	Default: 2.00 [ms]

Description: Sets the integral-action time of the current controller.

Dependency: See also: p1715

p1718[0...n] **Force controller D component smoothing time constant / F_ctrl D comp T**
HLA_828

Changeable: T	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.250 [ms]	Max: 100.000 [ms]	Default: 0.500 [ms]

Description: Sets the smoothing time constant of the D component for the force controller.

Dependency: See also: p1400, p1700, p1715, p1717, r1719, p1719, p1720

p1719[0...n]	Force controller derivative-action time / F_ctrl t_deriv			
HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -10000.0 [ms]	Max: 10000.0 [ms]	Default: 0.0 [ms]	
Description:	Sets the derivative-action time for the force controller.			
Dependency:	See also: p1400, p1700, p1715, p1717, r1718, p1718, p1720			
p1720[0...n]	Force controller pre-control factor / F_ctr prectr fact			
HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: 0.0 [%]	Max: 120.0 [%]	Default: 100.0 [%]	
Description:	Sets the factor for the velocity pre-control of the force controller.			
p1721[0...n]	Precontrol filter activation / Prectrl_filt act			
HLA_828	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 4970	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -	Max: -	Default: 0000 bin	
Description:	Setting for activating/de-activating the precontrol filter.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activate filter	Yes	No
				FP -
Dependency:	See also: p1699, p1722, r1724, p1724, r1725, p1725, p1726, p1727			
p1722[0...n]	Precontrol filter type / Prectrl_filt type			
HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3	
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 4970	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: REL	Scaling: -	Expert list: 1	
	Min: 1	Max: 2	Default: 1	
Description:	Sets the precontrol filter as low pass (PT2) or as general 2nd-order filter.			
Value:	1: PT2 low pass			
	2: General 2nd order filter			
Dependency:	The pre-control filter is activated via p1721.0 and parameterized via p1721 ... p1726.			
	Note			
	For an extended general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.			
	The denominator damping can be determined from the equation for the 3 dB bandwidth:			
	$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$			

p1724[0...n] HLA_828	Precontrol filter denominator natural frequency / Prectrl_filt fn_d		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]
Description:	Sets the denominator natural frequency for the precontrol filter (PT2, general filter).		
Recommendation:	The pre-control filter is activated via p1721.0 and parameterized via p1722 ... p1727.		
Dependency:	See also: p1721		

p1725[0...n] HLA_828	Precontrol filter denominator damping / Prectrl_filt D_d		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2001	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for the precontrol filter (PT2, general filter).		
Dependency:	The pre-control filter is activated via p1721.0 and parameterized via p1722 ... p1727. See also: p1721		

p1726[0...n] HLA_828	Precontrol filter numerator natural frequency / Prectrl_filt fn_n		
	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for the precontrol filter (general filter).		
Dependency:	See also: p1721		

Note
The pre-control filter is activated via p1721.0 and parameterized via p1722 ... p1727.

p1727[0...n] HLA_828	Precontrol filter numerator damping / Prectrl_filt D_n		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4970
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for precontrol filter.		
Dependency:	The pre-control filter is activated via p1721.0 and parameterized via p1722 ... p1727.		

r1732	CO: Direct-axis voltage setpoint / Direct U set		
SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32	Calculation: - Dynamic index: -	Access level: 3 Function plan: 5700, 5714, 6714, 5718
	P group: Closed-loop control Not for motor type: REL	Unit group: 5_1 Scaling: p2001	Unit selection: p0505 Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]
Description:	Display and connector output for the direct axis voltage setpoint Ud.		
r1733	CO: Quadrature-axis voltage setpoint / Quad U set		
SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32	Calculation: - Dynamic index: -	Access level: 3 Function plan: 5700, 5714, 5718, 6714, 6719
	P group: Closed-loop control Not for motor type: REL	Unit group: 5_1 Scaling: p2001	Unit selection: p0505 Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]
Description:	Display and connector output for the quadrature axis voltage setpoint Uq.		
p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc		
SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32	Calculation: CALC_MOD_REG Dynamic index: DDS, p0180	Access level: 3 Function plan: -
	P group: Closed-loop control Not for motor type: REL	Unit group: 3_1 Scaling: -	Unit selection: p0505 Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 210000.00 [rpm]
Description:	Sets the speed to change over the motor model for operation with encoder.		
Dependency:	See also: p1756		
	Note Induction motor (ASM): The motor model is influenced for speeds greater than p1752. Synchronous motor (SRM): A monitoring function (F07412) is activated for speeds greater than p1752. The motor model is additionally influenced when kT adaptation is activated (p1780.3 = 1).		
p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorl		
SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32	Calculation: CALC_MOD_REG Dynamic index: DDS, p0180	Access level: 3 Function plan: -
	P group: Closed-loop control Not for motor type: REL	Unit group: 3_1 Scaling: -	Unit selection: p0505 Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 210000.00 [rpm]
Description:	Sets the speed to change over the motor model to encoderless operation.		
Dependency:	See also: p1756		
	Note The changeover speed applies for the changeover between open-loop and closed-loop control mode.		

p1756 **Motor model changeover speed hysteresis / MotMod n_chgov hys**
 SERVO_828, SERVO_COMBI
Changeable: T, U **Calculation:** CALC_MOD_CON **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.0 [%] 90.0 [%] 5.0 [%]

Description: Sets the hysteresis for the changeover speed/velocity of the motor model.
Dependency: See also: p1752, p1755

Note
 The value is entered relative to p1404, p1752 or p1755.

r1778 **Motor model flux angle difference / MotMod ang diff**
 SERVO_828, SERVO_COMBI
Changeable: - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2005 **Expert list:** 1
Min: **Max:** **Default:**
 - [°] - [°] - [°]

Description: Induction motor (ASM):
 Displays the difference between the motor model flux angle and the transformation angle.
 Permanent-magnet synchronous motor (PESM):
 Displays the angular difference between motor model and encoder.


Dependency: A setting for smoothing the display can be made using p1754.

NOTICE
 The display only makes sense for corrected actual value inversion, encoder pulse number and pole pair number.
 Example:
 Moving in encoderless operation at a speed not equal to zero and without load.
 --> Check the sign of r0061 and r0063. If the sign is not equal, then change p0410.0.
 --> Check the stationary value of r0061 and r0063. If the value is not equal, change the encoder pulse number (p0408) or pole pair number (p0314).

p1780[0...n] **Motor model adaptation configuration / MotMod adapt conf**
 SERVO_828
Changeable: T, U **Calculation:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - 0000 0000 0000 0000 bin

Description: Sets the configuration for the adaptation circuit of the motor model.
 Induction motor (ASM): Rs, Rr (only for operation with encoder), Lh and offset compensation.
 Permanent magnet synchronous motor (PEM): kT

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	03	Select motor model PEM kT adaptation	Yes	No	-
	05	Reserved	Yes	No	-
	07	Reserved	Yes	No	-
	08	Compensation voltage emulation error in the drive converter	Yes	No	-
	09	kT(iq) characteristic active	Yes	No	-

 CAUTION
For the PEM kT adaptation (p1780.3) as well as the compensation of the voltage emulation error (p1780.8) and for the kT(iq) characteristic (p1780.9), the function module "Extended torque control" (r0108.1) should be activated.

Note

ASM: Induction motor

PEM: Permanent magnet synchronous motor

p1800[0...n]	Manipulated variable filter activation / ManVarFilt act			
HLA_828	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 4966	
	P group: Closed-loop control	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0000 bin	
Description:	Setting for activating/de-activating the manipulated variable filter.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activate filter	Yes	No
Dependency:	The manipulated variable filter is parameterized from p1801 and higher. See also: p1699, r1801, p1801, p1802, p1803, p1804, p1805			

p1800[0...n]	Pulse frequency setpoint / Pulse freq setp			
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8014	
	P group: Modulation	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	1.000 [kHz]	32.000 [kHz]	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:	The pulse frequency can, depending on the current controller sampling time (p0115[0]) assume the following values: a) $p1800 = 1000 / (p0115[0] * n)$ with $n = 2, 3, 4, 5$ b) $p1800 = 1000 * n / p0115[0]$ with $n = 1, 2, 3, 4, \dots$ Example: $p0115[0] = 125 \mu s \rightarrow p1800 = 1.6, 2, 2.6, 4 \text{ kHz}$ (from equation a) $p0115[0] = 125 \mu s \rightarrow p1800 = 8, 16 \text{ kHz}$ (from equation b) Possible setting values can be taken from r0114 (if p0009 = p0010 = 0). See also: r0110, r0111, p0112, p0113, r0114, p0115, 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 p1800 is changed while commissioning (p0009, 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).

For encoderless operation (p1404 = 0 or p1300 = 20), the following conditions apply:

$$p1800 = 1 / (2 * p0115[0])$$

or

$$p1800 \geq n / p0115[0], n = 1, 2, \dots$$

For motors with a low power rating (< 300 W) we recommend that p1800 is set acc. to the second condition.

p1801[0...n]	Manipulated variable filter type / ManVarFilt type		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 4966
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2	1
Description:	Sets the manipulated variable filter as low pass (PT2) or as extended general 2nd order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	The manipulated variable filter is activated via p1800.0 and parameterized via p1801 ... p1805. See also: p1800		

Note

For an extended general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB \text{ bandwidth}} = 2 * D_{denominator} * f_{bandstop \text{ frequency}}$$

r1801	Actual pulse frequency / Pulse freq act		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [kHz]	- [kHz]	- [kHz]
Description:	Display and connector output for the actual converter switching frequency.		

Note

The selected pulse frequency (p1800) may be reduced if the drive converter has an overload condition (p0290).

The value can be displayed up to 12 current controller clock cycles later than when it is actually effective, because it is not transferred in every current controller clock cycle.

p1802[0...n]	Manipulated variable filter denominator natural frequency / ManVarFilt fn_d		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]
Description:	Sets the denominator natural frequency for manipulated variable filter (PT2, general filter).		
Dependency:	The manipulated variable filter is activated via p1800.0 and parameterized via p1801 ... p1805. See also: p1800		

p1803[0...n]	Manipulated variable filter denominator damping / Setval_filt D_d				
HLA_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0.001	Max: 10.000	Default: 0.700		
Description:	Sets the denominator damping for the manipulated variable filter (PT2, general filter).				
Dependency:	The manipulated variable filter is activated via p1800.0 and parameterized via p1801 ... p1805. See also: p1800				
p1804[0...n]	Manipulated variable filter numerator natural freq. / ManVarFilt fn_n				
HLA_828	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]		
Description:	Sets the numerator natural frequency for the manipulated variable filter (general filter).				
Dependency:	The manipulated variable filter is activated via p1800.0 and parameterized via p1801 ... p1805. See also: p1800				
p1805[0...n]	Manipulated variable filter numerator damping / ManVarFilt D_n				
HLA_828	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0.000	Max: 10.000	Default: 0.700		
Description:	Sets the numerator damping for the manipulated variable filter (general filter).				
Dependency:	The manipulated variable filter is activated via p1800.0 and parameterized via p1801 ... p1805. See also: p1800				
p1810	Modulator configuration / Modulator config				
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Modulation	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: 0000 0000 0000 0000 bin		
Description:	Sets the configuration for the modulator.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	DC link voltage compensation in the power unit.	Yes	No	-
	11	Current controller dynamics higher	Yes	No	-

Note

For bit 11:

Prerequisite:

- firmware version 4.4 or higher for the Control Unit and power unit.
- booksize or S120 Combi power unit (r0192.27 = 1).
- current controller sampling time $p0115[0] \geq 62.5 \mu s$.
- for a Double Motor Module the two drive controls must be operated with the same current controller sampling time ($p0115[0]$). Otherwise, the higher current controller dynamics can only be activated on the drive with the longer sampling time.

- it is not permissible that the "safety without encoder" is activated (p9306/p9506).

The following changes are necessary after changing bit 11:

- computing dead time ($p0118 = 20.5 \mu s$ for bit 11 = 1, $p0118 = 0 \mu s$ for bit 11 = 0).
- controller gains (p1715, p1460).
- with $p0340 = 4$ computing dead time and controller gains can be automatically pre-assigned. It may be necessary to still optimize the speed controller.

Before commissioning for the first time ($p3925.0 = 0$ for all data sets) this parameter is automatically preassigned to the optimum value.

p1810

A_INF_828,
S_INF_828,
S_INF_COMBI

Modulator configuration / Modulator config

Changeable: T, U

Data type: Unsigned16

P group: Modulation

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

1000 0100 0001 0000 bin

Description:

Sets the configuration for the modulator.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
02	Activate wobulation	Yes	No	-
04	Disable wobulation amplitude	Yes	No	-
05	Activate extended current limitation control	Yes	No	-
06	Activate isochronous current limitation	Yes	No	-
07	Activate voltage impression with dynamic current limits	Yes	No	-
10	Activate pulse-locking/pulse-dropping function	Pulse-Dropping	Pulse-Locking	-
12	Pulse freq. can be asynchronously set to curr. ctrl clock cycle	Yes	No	-
13	Calculate software gating unit on the CU	Yes	No	-
14	Activate optimized pulse pattern	Yes	No	-
15	Activate flat-top modulation	Yes	No	-

Dependency:

If bit 2 is set from 1 to 0, p1811 = 0 is set.

NOTICE
Bit 02 = 1 can only be set subject to the following prerequisites: - Pulse inhibit - r0192.16 = 1 - $p1800 < 2 \times 1000/p0115[0]$
Bit 5, bit 14 and bit 15 can only be changed subject to the following prerequisites: - Pulse inhibit

Note

For bit 02 = 0:

A gating unit that does not permit wobulation is used.

For bit 02 = 1:

A gating unit that permits wobulation is used.

For pulse frequency wobulation with an amplitude equal to zero ($p1811 = 0$), the maximum possible pulse frequency in $p1800 = 2 \times 1/\text{current controller clock cycle}$ ($p0115[0]$).

For a wobulation amplitude greater than zero ($p1811 > 0$), the maximum possible pulse frequency in $p1800 = 1/\text{current controller clock cycle}$ ($p0115[0]$).

For bit 04 = 0 (only valid for bit 2 = 1):

The pulse frequency wobulation amplitude ($p1811$) is enabled.

For bit 04 = 1 (only valid for bit 2 = 1):

The pulse frequency wobulation amplitude ($p1811$) is disabled.

For bit 05 = 1:

Only permissible for $r0192.19 = 1$.

For bit 10 = 0:

The pulse-locking function is activated.

For bit 10 = 1:

The pulse-dropping function is activated.

For bit 12 = 0 (only valid for bit 13 = 1):

The pulse frequency cannot be adjusted asynchronously to the current controller frequency ($p1800$)

For bit 12 = 1 (only valid for bit 13 = 1):

The pulse frequency can be adjusted asynchronously to the current controller frequency ($p1800$)

For bit 14 = 0 (only valid for bit 13 = 1):

Optimized pulse patterns are not used.

For bit 14 = 1 (only valid for bit 13 = 1):

Optimized pulse patterns are used.

For bit 15 = 0:

To de-activate flat-top control mode, $p3400.1$ also needs to be set to 0.

For bit 15 = 1:

Flat-top control mode is active regardless of the setting for $p3400.1$.

p1811**Pulse frequency wobulation amplitude / Puls wobbl ampl**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T

Calculation: -

Access level: 4

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Modulation

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0 [%]

20 [%]

0 [%]

Description:

Sets the amplitude of the statistical wobulation signal.

This signal is used to vary the pulse frequency to create a more pleasant sound.

Note

It is only possible to modify the parameter for $p1810.2 = 1$ (wobulation activated).

p1815**Phase for PWM generation subgroup / Ph for PWM subgr**

A_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Modulation

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0001 bin

Description:

Sets bit 0 for recording the power unit in the subgroup for the "offset clocking".

Bit field:

Bit **Signal name**

1 signal

0 signal

FP

00 Recording in subgroup for offset clocking Yes No -
Dependency: See also: p1818, p1819

Note

A change only becomes effective after booting.
 If one of the following secondary conditions is not fulfilled, then none of the power units from the subgroup are clocked with an offset.
 Secondary conditions for clocking with an offset:
 - the PWM frequency (p1800[D]) of all power units in the subgroup must be the same.
 - the PWM frequency (p1800[D]) must be the same in all drive data sets in the subgroup.
 - the following must apply for the ratio between the PWM cycle (1/p1800[D]) and the current controller cycle (p0115[0]):
 The ratio (1/p1800[D]) / (p0115[0]) must be an even integer number (2, 4, 6, ...) for all power units in the subgroup.
 or
 The ratio (p0115[0]) / (1/p1800[D]) must be an integer number (1, 2, 3, ...) for all power units in the subgroup.

p1816

Set phase for PWM generation manually / Set Ph for PWM

A_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Modulation	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -1	Max: 16	Default: -1

Description: Sets manual setting and overwriting of automatically determined phase shift for "offset clocking".
 For p1816 = -1, the following applies:
 Automatic mode. The phase shift value is automatically determined.
 For p1816 = 0 ... 16, the following applies:
 Manual mode. The user should define the phase shift value as follows:
 1. PWM cycle (1/p1800) > current controller clock cycle (p0115[0])
 The power unit executes a phase shift from Tshift = current controller clock cycle (p0115[0]) * p1816.
 2. PWM cycle (1/p1800) <= current controller clock cycle (p0115[0])
 For p1816 >= 1, the power unit executes a phase shift from Tshift = PWM cycle/2.

Dependency: See also: r0116, p1800, p1819

p1818

Phase for PWM generation configuration / Ph for PWM config

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Changeable: T	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Modulation	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 1	Default: 1

Description: Sets the phase shift for offset clocking.
 For the first active power unit, it is specified whether clocking is to start at 0° (value = 0) or 180° (value = 1). All other active power units are clocked alternately according to the setting made here.

Dependency: See also: p1819

Note

A change only becomes effective after a POWER ON.
 The parameter is not influenced by setting the factory setting.

p1819 Phase for PWM generation / Ph for PWM			
S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Integer16 P group: Modulation Not for motor type: - Min: -1	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -1
Description:	<p>Display for "offset clocking".</p> <p>Depending on the particular case, the value is interpreted differently:</p> <p>Case 1:</p> <p>The PWM clock cycle (1/p1800[D]) is greater than the current controller clock cycle (p115[0]) and the ratio between the PWM clock cycle and the current controller clock cycle and is an integer and even multiple of it (e.g. p0115[0] = 125 µs, p1800[D] = 4 kHz, 2 kHz, 1 kHz).</p> <p>The value displayed refers to:</p> <ul style="list-style-type: none"> - the phase shift in the current-controller cycles to be executed by the power unit. <p>Case 2:</p> <p>The PWM clock cycle (1/p1800[D]) is less than or equal to the current controller clock cycle (p0115[0]) and the ratio between the current controller clock cycle and the PWM clock cycle is an integer and even multiple of it (e.g. p0115[0] = 125 µs, p1800[D] = 8 kHz, 16 kHz).</p> <p>The value 1 displayed means that:</p> <ul style="list-style-type: none"> - the power unit is to apply a phase shift of 180 ° (from the PWM cycle). <p>A value of 0 displayed on all power units of the drive line-up means the following:</p> <ul style="list-style-type: none"> - the general conditions of the "offset clocking" (see p1815) are not fulfilled, i.e. no power unit is clocked with an offset. 		
Dependency:	See also: p0108, r0108, p0115, p1800, p1815, p1816, p1818		
	<p>Note</p> <p>For reasons of compatibility, the parameter is an adjustable parameter. However, it functions solely as a display parameter. This means that factory setting -1 no longer has any significance and is only available for reasons of compatibility.</p>		

p1819 Phase for PWM generation / Ph for PWM			
A_INF_828	Changeable: T, U Data type: Integer16 P group: Modulation Not for motor type: - Min: -1	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	<p>Display for "offset clocking".</p> <p>Depending on the particular case, the value is interpreted differently:</p> <p>Case 1:</p> <p>The PWM clock cycle is greater than the current controller clock cycle (p0115[0]) and the ratio between the PWM clock cycle and the current controller clock cycle and is an integer and even multiple of it (e.g. p0115[0] = 125 µs, pulse frequency = 4 kHz, 2 kHz).</p> <p>The value displayed refers to:</p> <ul style="list-style-type: none"> - the phase shift in the current-controller cycles to be executed by the power unit. <p>Case 2:</p> <p>The PWM clock cycle is less than or equal to the current controller clock cycle (p0115[0]) and the ratio between the current controller clock cycle and the PWM clock cycle is an integer and even multiple of it (e.g. p0115[0] = 125 µs, pulse frequency = 8 kHz, 16 kHz).</p> <p>The value 1 displayed means that:</p> <ul style="list-style-type: none"> - the power unit is to apply a phase shift of 180 ° (from the PWM cycle). <p>A value of 0 displayed on all power units of the drive line-up means the following:</p> <ul style="list-style-type: none"> - the general conditions of the "offset clocking" (see p1815) are not fulfilled, i.e. no power unit is clocked with an offset. 		

Dependency: See also: p0108, r0108, p0115, p1800, p1815, p1816, p1818

Note

For reasons of compatibility, the parameter is an adjustable parameter. However, it functions solely as a display parameter. This means that the minimum value -1 no longer has any significance and is only available for reasons of compatibility.

p1820[0...n]

Invert output voltage / U_output inv

HLA_828

Changeable: C2(3)

Calculation: CALC_MOD_CON **Access level:** 3

Data type: Integer16

Dynamic index: DDS, p0180 **Function plan:** 4966

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

1

0

Description:

Setting to invert the output voltage.

This means that with the same setpoint, the axis direction is reversed without inverting the encoder actual value.

When a speed encoder is being used, it may be necessary to also invert the encoder actual value (p0410).

Value:

0: OFF

1: ON

Note

This setting can only be changed when the pulses are inhibited.

p1821[0...n]

Direction / Direction

HLA_828

Changeable: C2(3)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: DDS, p0180

Function plan: -

P group: Motor

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

1

0

Description:

Setting to change the direction.

If the parameter is changed, it reverses the direction of rotation of the cylinder and the encoder actual value without changing the setpoint.


Value:

0: CW

1: CCW

Dependency:

See also: F07434

 **CAUTION**
Changing the direction using p1820 or p1821 is not recognized by the "Safe Direction without encoder". As a consequence, the limit provided by SDI (Safe Direction) from r9733 no longer functions.

NOTICE
For a drive data set changeover with differently set direction and power enable, an appropriate fault is output. The piston must be recalibrated after a direction reversal.

Note

The actual velocity (e.g. r0063) is also reversed so that the control sense is kept and internally causing the direction of rotation to be reversed with the same setpoint. Further, the position actual values of the actual encoder are reversed (e.g. r0482[0...2]).

p1820 can be used to reverse the direction of the cylinder without reversing the encoder actual value.

p1821[0...n]	Dir of rot / Dir of rot		
SERVO_828	Changeable: C2(3)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 4704, 4710, 4711, 4715, 5730, 6730, 6731, 6732
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Setting to change the direction of rotation. If the parameter is changed, it reverses the direction of rotation of the motor and the encoder actual value without changing the setpoint.		
Value:	0: CW 1: CCW		
Dependency:	See also: F07434		

⚠ CAUTION

Changing the direction using p1820 or p1821 is not recognized by the "Safe Direction without encoder". As a consequence, the limit provided by SDI (Safe Direction) from r9733 no longer functions.

NOTICE

An appropriate fault is output for a drive data set changeover where the direction of rotation changes and the pulses are enabled.

Note

For operation with the phase sequence U/V/W, the direction of rotation is defined when viewing the face side of the motor output shaft.

When changing the direction of rotation, the rotating field direction of the current controller is reversed. The speed actual value (e.g. r0063) is also reversed so that the control sense is kept and internally causing the direction of rotation to be reversed with the same setpoint. Further, the position actual values of the actual encoder are reversed (e.g. r0482[0...2]).

p1822	Power unit line phases monitoring tolerance time / PU ph monit t_tol		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 500 [ms]	Max: 540000 [ms]	Default: 1000 [ms]
Description:	Sets the tolerance time for line phase monitoring for blocksize power units. If a line phase fault is present for longer than this tolerance time, then a corresponding fault is output.		
Dependency:	See also: 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.

p1827	Infeed compensation valve lockout time operating mode / INFcomp t_lockMode		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Sets the operating mode for the compensation of the valve lockout time.		
Value:	0: Compensation valve lockout time de-activated 1: Compensation valve lockout time activated		
	Note The compensation is always active, independent of the value of this parameter if the closed-loop control is activated to suppress circulating currents (p7035) for power units connected in parallel.		

p1830[0...n]	Factor plane adaptation positive / Fact pl_adap pos		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965, 4970, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.0 [%]	Max: 200.0 [%]	Default: 100.0 [%]
Description:	Sets the factor for the plane compensation in the positive direction.		
Dependency:	See also: p1831		

p1831[0...n]	Factor plane adaptation negative / Fact pl_adap neg		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4965, 4970, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.0 [%]	Max: 200.0 [%]	Default: 100.0 [%]
Description:	Sets the factor for the plane compensation in the negative direction.		
Dependency:	See also: p1830		

p1832[0...n]	Valve offset / Valve offset		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: 4966
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.0000 [V]	Max: 10.0000 [V]	Default: 0.0000 [V]
Description:	Sets the offset for the analog valve setpoint.		

p1833[0...n]	Transition point compensation Q1 positive zero range / Trans pt Q1 pos		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.01 [%]	Max: 95.00 [%]	Default: 0.01 [%]
Description:	Sets the flow rate Q for point 1 positive (zero range) of the transition point compensation. The characteristic for the transition point compensation comprises the following value pairs: Flow rate (Q) / voltage (U) Positive range: - p1833 / p1834 --> Point 1 pos (zero range), rounding p1835 - p1839 / p1840 --> Point 2 pos, rounding p1841 - p1845 / p1846 --> Point 3 pos (saturation) Negative range: - p1836 / p1837 --> Point 1 neg (zero range), rounding p1838 - p1842 / p1843 --> Point 2 neg, rounding p1844 - p1847 / p1848 --> Point 3 neg (saturation)		
Dependency:	See also: p1834, p1835		

r1833[0...2]	Setpoints phase currents for HW current control / Setp_I		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the phase setpoint currents for hardware current control.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		

p1834[0...n]	Transition point compensation U1 positive zero range / Trans pt U1 pos		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 0.00 [%]
Description:	Sets the voltage U for point 1 positive (zero range) of the transition point compensation. The characteristic for the transition point compensation comprises the following value pairs: Flow rate (Q) / voltage (U) Positive range: - p1833 / p1834 --> Point 1 pos (zero range), rounding p1835 - p1839 / p1840 --> Point 2 pos, rounding p1841 - p1845 / p1846 --> Point 3 pos (saturation) Negative range: - p1836 / p1837 --> Point 1 neg (zero range), rounding p1838 - p1842 / p1843 --> Point 2 neg, rounding p1844 - p1847 / p1848 --> Point 3 neg (saturation)		

Dependency: See also: r1833, p1833, p1835

p1835[0...n] **Transition point compensation rounding 1 positive zero range / Trans pt rnd 1 pos**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4966, 4975
P group: Motor **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00 [%] 30.00 [%] 0.00 [%]

Description: Sets the rounding for point 1 positive (zero range) of the transition point compensation.
 The characteristic for the transition point compensation comprises the following value pairs:
 Flow rate (Q) / voltage (U)
 Positive range:
 - p1833 / p1834 --> Point 1 pos (zero range), rounding p1835
 - p1839 / p1840 --> Point 2 pos, rounding p1841
 - p1845 / p1846 --> Point 3 pos (saturation)
 Negative range:
 - p1836 / p1837 --> Point 1 neg (zero range), rounding p1838
 - p1842 / p1843 --> Point 2 neg, rounding p1844
 - p1847 / p1848 --> Point 3 neg (saturation)

Dependency: See also: r1833, p1833, p1834

p1836[0...n] **Transition point compensation Q1 negative zero range / Trans pt Q1 neg**
 HLA_828 **Changeable:** T, U **Calculation:** CALC_MOD_REG **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4966, 4975
P group: Motor **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.01 [%] 95.00 [%] 0.01 [%]

Description: Sets the flow rate Q for point 1 negative (zero range) of the transition point compensation.

Dependency: See also: r1837, p1837, r1838, p1838

p1837[0...n] **Transition point compensation U1 negative zero range / Trans pt U1 neg**
 HLA_828 **Changeable:** T, U **Calculation:** CALC_MOD_REG **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4966, 4975
P group: Motor **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00 [%] 95.00 [%] 0.00 [%]

Description: Sets the voltage U for point 1 negative (zero range) of the transition point compensation.

Dependency: See also: r1836, p1836, r1838, p1838

p1838[0...n] **Transition point compensation rounding 1 negative zero range / Trans pt rnd 1 neg**
 HLA_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 4966, 4975
P group: Motor **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00 [%] 30.00 [%] 0.00 [%]

Description: Sets the rounding for point 1 negative (zero range) of the transition point compensation.

Dependency: See also: r1836, p1836, r1837, p1837

p1839[0...n] Transition point compensation Q2 positive / Trans pt Q2 pos

HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 95.00 [%]	Default: 10.00 [%]

Description: Sets the flow rate Q for point 2 positive of the transition point compensation.

Dependency: See also: p1840, r1841, p1841

p1840[0...n] Transition point compensation U2 positive / Trans pt U2 pos

HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 10.00 [%]

Description: Sets the voltage U for point 2 positive of the transition point compensation.

Dependency: See also: r1839, p1839, r1841, p1841

p1841[0...n] Transition point compensation rounding 2 positive / Trans pt rnd 2 pos

HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 30.00 [%]	Default: 2.50 [%]

Description: Sets the rounding for point 2 positive of the transition point compensation.

Dependency: See also: r1839, p1839, p1840

p1842[0...n] Transition point compensation Q2 negative / Trans pt Q2 neg

HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 10.00 [%]

Description: Sets the flow rate Q for point 2 negative of the transition point compensation.

Dependency: See also: p1843, p1844

p1843[0...n]
HLA_828

Transition point compensation U2 negative / Trans pt U2 neg

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [%]	Max: 95.00 [%]	Default: 10.00 [%]

Description: Sets the voltage U for point 2 negative of the transition point compensation.

Dependency: See also: p1842, p1844

Note
During operation (pulses enabled) the configuration cannot be changed by changing over drive data sets.

p1844[0...n]
HLA_828

Transition point compensation rounding 2 negative / Trans pt rnd 2 neg

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966, 4975
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [%]	Max: 30.00 [%]	Default: 2.50 [%]

Description: Sets the rounding for point 2 negative of the transition point compensation.

Dependency: See also: p1842, p1843

p1845[0...n]
HLA_828

Transition point compensation Q3 positive saturation / TransPt Q3 pos sat

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4975
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]

Description: Sets the flow rate Q for point 3 positive (saturation) of the transition point compensation.

Dependency: See also: p1846

p1846[0...n]
HLA_828

Transition point compensation U3 positive saturation / TransPt U3 pos sat

Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4975
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]

Description: Sets the voltage U for point 3 positive (saturation) of the transition point compensation.

Dependency: See also: p1845

p1847[0...n]	Transition point compensation Q3 negative saturation / TransPt Q3 neg sat		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Sets the flow rate Q for point 3 negative (saturation) of the transition point compensation.		
Dependency:	See also: r1848, p1848		

p1848[0...n]	Transition point compensation U3 negative saturation / TransPt U3 neg sat		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4975
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Sets the voltage U for point 3 negative (saturation) of the transition point compensation.		
Dependency:	See also: p1847		

p1850[0...n]	Control voltage limiting positive / U_ctrl lim pos		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [V]	Max: 10.0 [V]	Default: 10.0 [V]
Description:	Sets the limit for the positive control voltage.		
Dependency:	See also: p1851		

p1851[0...n]	Control voltage limiting negative / U_ctrl limit neg		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4966
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.0 [V]	Max: 0.0 [V]	Default: -10.0 [V]
Description:	Sets the limit for the negative control voltage.		
Dependency:	See also: p1850		

p1903	BI: Data identification control / Data ident ctrl		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -	Max: -	Default: 1

Description: Sets the signal source to start data identification.
 Data identification is started using binector input p1903 = 1 signal.
 When data identification is running, the function is canceled with binector input p1903 = 0 signal.

p1909 **Data identification without enabling activation / Data ID w/o enab**
 HLA_828 **Changeable:** T, U **Calculation:** CALC_MOD_ALL **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Function plan:** -
P group: Motor identification **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - 0000 bin

Description: Activates the stationary data identification without enable.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Pressure sensors execute offset calibration	Yes	No	-
	01	Execute piston calibration	Yes	No	-

Dependency: See also: p1910

Note

The offset calibration is immediately started when writing to p1909. The associated bit is automatically reset if the function was executed.

For bit 00:

The precondition for the offset calibration is that the pressure at all of the pressure sensors is zero. The offset is entered in p0241, p0243 and p0245.

For bit 01:

The precondition is that the cylinder must have been completely retracted (piston at the A side). The position offset is entered in p0476.

p1909[0...n] **Motor data identification control word / MotID STW**
 SERVO_828 **Changeable:** T **Calculation:** CALC_MOD_ALL **Access level:** 3
Data type: Unsigned16 **Dynamic index:** MDS, p0130 **Function plan:** -
P group: Motor identification **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - 0010 0111 0000 0000 bin

Description: Sets the configuration for the motor data identification.

Recommendation: For the stationary motor data identification, if a motor holding brake is being used it should be opened and the motor finely synchronized before the measurement. This should only be done if it can be safely carried out and no external forces can act on the motor. This determines the angular commutation offset (p1909.13, p0431).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Measure D inductance	Yes	No	-
	09	Measure Q inductance	Yes	No	-
	10	Magnetizing field inductance and measure rotor resistance	Yes	No	-
	13	Measure commutation angle and direction of rotation	Yes	No	-
	14	Determining the voltage emulation error	Yes	No	-

Dependency: See also: p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951

Note

For an induction motor (ASM) the following bits: 8, 9, 10, 13 are effective

For a synchronous motor (SRM) the following bits: 8, 9, 13, 14 are effective

For bit 14:

- after successfully determining the voltage emulation error, the display of the phase voltage actual values r0089 and the active power actual value r0082 and the torque actual value r0080 are significantly more accurate.

- the voltage emulation errors should be identified with the Motor Module in the warm state.

- the motor temperature (r0035) should not change significantly (i.e. it should not be identified immediately after a load duty cycle).

p1910	Valve offset calibration standstill activation / Valv_off_calib act		
HLA_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Setting to activate the standstill data valve offset calibration when enabled.		
Value:	0: Inactive/cancel 1: Start calibration		
Dependency:	Precondition is position-controlled operation. See also: p1909 See also: A07991		

Note

The offset is entered in p1832.

The calibration is started when enabled, and after data identification has been completed, is automatically set back to a value of zero.

p1910	Motor data identification routine stationary (standstill) / MotID standstill		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -3	Max: 1	Default: 0
Description:	Setting to control the motor data identification with the motor stationary.		
Value:	-3: Accept identified parameters -2: Acknowledge encoder inversion actual value (F07993) -1: Start motor data identification without acceptance 0: Inactive/inhibit 1: Start motor data identification with acceptance		
Recommendation:	For motors with brakes, the brake should be opened before carrying out the stationary motor data identification routine (p1215 = 2) as long as this can be done without incurring any danger. The commutation angle and the direction of rotation are also determined. Motor data identification is not required for catalog motors and DRIVE-CLiQ motors. It is recommended to increase the torque accuracy or for third-party motors.		
Dependency:	See also: p1909, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951 See also: F07990, A07991, F07993		

⚠ CAUTION

For motors without brake or with the brake open (p1215 = 2), for the stationary (zero speed) measurement, the motor may rotate slightly.

Note

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, p0977).

Motor data identification can only be selected when the pulses of all of the drive objects of the Control Unit have been suppressed. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered up until the motor data identification has been completed or de-selected.

After a started motor identification is ended, the parameter is automatically reset to 0.

A motor data identification that is presently being carried out can be terminated with p1910 = 0.

r1912	Stator resistance identified / R_stator ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ohm]	- [ohm]	- [ohm]
Description:	Displays the identified stator resistance.		
Dependency:	See also: p1909, p1910, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1913	Rotor time constant identified / T_rotor ident		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: PMSM	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]
Description:	Displays the identified rotor time constant.		
Dependency:	See also: p1909, p1910, r1912, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1915	Stator inductance identified / L_stator ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]
Description:	Displays the identified stator inductance.		
Dependency:	See also: p1909, p1910, r1912, r1913, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1925	Threshold voltage identified / U_threshold ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the identified threshold voltage of the power unit.		
Dependency:	See also: p1909, p1910, r1912, r1913, r1915, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1927	Rotor resistance identified / R_rotor ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ohm]	- [ohm]	- [ohm]
Description:	Displays the identified rotor resistance.		
Dependency:	See also: p1909, p1910, r1912, r1913, r1915, r1925, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1932[0...19]	d inductance identified / Ld ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]
Description:	Displays the identified (differential) d-inductance.		
Dependency:	See also: p1909, p1910, r1912, r1913, r1915, r1925, r1927, r1933, r1934, r1935, r1936, r1950, r1951		

Note

The Ld characteristic consists of the value pairs from p1932 and p1933 with the same index.
This value corresponds to the value of the total leakage inductance (r0377).

r1933[0...19]	d inductance identification current / Ld I_ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the identification current of the d inductance.		
Dependency:	See also: p1909, p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1934, r1935, r1936, r1950, r1951		

Note

The Ld characteristic consists of the value pairs from p1932 and p1933 with the same index.

r1934[0...9]	q inductance identified / Lq ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]
Description:	Displays the identified (differential) q-inductance.		
Dependency:	See also: p1909, p1910, r1932, r1933		

Note

The Lq characteristic consists of the value pairs from p1934 and p1935 with the same index.
This value corresponds to the value of the total leakage inductance (r0377).

r1935[0...20]	Identification current / I_ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the identification current for the identification of the q-inductance ([0...9]) as well as the torque constant ([10]) and the torque characteristic ([11...20]).		
Index:	<p>[0] = q inductance identification current measuring point 1 [1] = q inductance identification current measuring point 2 [2] = q inductance identification current measuring point 3 [3] = q inductance identification current measuring point 4 [4] = q inductance identification current measuring point 5 [5] = q inductance identification current measuring point 6 [6] = q inductance identification current measuring point 7 [7] = q inductance identification current measuring point 8 [8] = q inductance identification current measuring point 9 [9] = q inductance identification current measuring point 10 [10] = Torque constant identification current [11] = Torque characteristic identification current measuring point 1 [12] = Torque characteristic identification current measuring point 2 [13] = Torque characteristic identification current measuring point 3 [14] = Torque characteristic identification current measuring point 4 [15] = Torque characteristic identification current measuring point 5 [16] = Torque characteristic identification current measuring point 6 [17] = Torque characteristic identification current measuring point 7 [18] = Torque characteristic identification current measuring point 8 [19] = Torque characteristic identification current measuring point 9 [20] = Torque characteristic identification current measuring point 10</p>		
Dependency:	See also: p1909, p1910, r1934, p1959, p1960		
	Note		
	<p>- the Lq characteristic consists of the value pairs from r1934 and r1935 with the same index. - the torque constant is identified with the current r1935[10] and displayed in r1937[0]. If the reluctance torque constant is identified (p1959.7 = 1), the torque constant is identified with 150% rated current (p0305), otherwise with 100% rated current. - the torque characteristic (r1937[1...10]) is identified in the range between the rated current (p0305) and the maximum current (p0640) (r1935[11...20]).</p>		
r1936	Magnetizing inductance identified / L_H ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]
Description:	Displays the identified magnetizing inductance(gamma equivalent circuit diagram).		
Dependency:	See also: p1909, p1910, r1913, r1915, r1927, p1959, p1960, r1962, r1963		
	Note		
	This value corresponds to the value of the transformed magnetizing inductance (r0382).		

r1937[0...10]	Torque constant identified / kT ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: 28_1	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Nm/A]	- [Nm/A]	- [Nm/A]
Description:	Displays the identified torque constant/torque characteristic over the q current.		
Index:	[0] = Torque constant identified [1] = Torque characteristic identified measuring point 1 [2] = Torque characteristic identified measuring point 2 [3] = Torque characteristic identified measuring point 3 [4] = Torque characteristic identified measuring point 4 [5] = Torque characteristic identified measuring point 5 [6] = Torque characteristic identified measuring point 6 [7] = Torque characteristic identified measuring point 7 [8] = Torque characteristic identified measuring point 8 [9] = Torque characteristic identified measuring point 9 [10] = Torque characteristic identified measuring point 10		
Dependency:	See also: r1938, r1939, p1959, p1960, r1969		
	Note		
	- the value in r1937[0] corresponds to the torque constant (p0316) and was identified with the current in r1935[10]. If the reluctance torque is identified (p1959.7 = 1), the torque constant is identified with 150% rated current (p0305), otherwise with 100% rated current.		
	- if indices r1937[1...10] are not equal to zero, they show the values of the torque characteristic identified for the current in r1935[11...20]. The torque characteristic is identified in the range between rated current (p0305) and maximum current (p0640).		
r1938	Voltage constant identified / kE ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the identified voltage constant.		
Dependency:	See also: r1937, r1939, p1959, p1960, r1969		
	Note		
	This value corresponds to the voltage constant (p0317).		
r1939	Reluctance torque constant identified / kT_reluct ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]
Description:	Displays the identified reluctance torque constant.		
Dependency:	See also: r1937, r1938, p1959, p1960, r1969		

Note

This value corresponds to the reluctance torque constant (p0328).

r1947

Optimum load angle identified / phi_load ident

SERVO_828

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Motor identification

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [°]

- [°]

- [°]

Description:

Displays the identified, optimum load angle.

Note

This value corresponds to the optimum load angle (p0327).

r1948

Magnetizing current identified / I_mag ident

SERVO_828

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Motor identification

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [Arms]

- [Arms]

- [Arms]

Description:

Displays the identified magnetizing current.

Dependency:

See also: r1936, p1959, p1960

Note

This value corresponds to the magnetizing current (p0320 / r0331).

r1949.0...1

CO/BO: Status word data identification / ZSW data ident

HLA_828

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for the status word data identification.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Data identification active	Yes	No	-
01	Traversing range identification completed	Yes	No	-

r1950[0...19]

Voltage emulation error voltage values / U_error U_values

SERVO_828

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Motor identification

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [V]

- [V]

- [V]

Description:

The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].

Dependency:

See also: r1951

r1951[0...19]	Voltage emulation error current values / U_error I_error		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	See also: r1950		

p1955[0...3]	Valve identification voltage / Valve ident U		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [V]	10.00 [V]	[0] 0.00 [V] [1] 10.00 [V] [2] 2.00 [V] [3] 2.00 [V]
Description:	Sets the voltage to identify the valve characteristic.		
Index:	[0] = Measuring range start [1] = Measuring range end [2] = Travel positive [3] = Travel negative		
Dependency:	See also: p1956, r1957, p1957, p1958, p1960, p1961, r1961, r1962		

Note

The characteristic is measured with a positive and negative voltage in the range of p1955[0] to p1955[1]. To move to a suitable starting position, either p1955[2] or -p1955[3] is used.

p1956[0...1]	Valve identification measuring distance / Valve ident dist		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [%]	100.0 [%]	[0] 10.0 [%] [1] 90.0 [%]
Description:	Sets the range for the maximum measuring distance for valve identification.		
Index:	[0] = Minimum [1] = Maximum		
Dependency:	See also: p1955, r1957, p1957, p1958, p1960, p1961, r1961, r1962		

Note

The parameter is referred to the maximum valve stroke (p0313). The values are only effective when the piston position is known (r0407.4 = 1).

p1957[0...1]	Valve identification measured value / Valve ident val		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1000	[0] 100
			[1] 4

Description: Sets the measured value for valve identification.

Index: [0] = Number
[1] = Standstill identification encoder pulses

Dependency: See also: p1955, p1956, p1958, p1960, p1961, r1961, r1962

Note

For index 0:

The entered value is used for the positive and negative ranges.

For index 1:

Standstill is identified if these encoder pulses are not passed within the standstill monitoring time.

p1958[0...4]	Valve identification time / Valve ident t		
HLA_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [s]	100.00 [s]	[0] 0.10 [s]
			[1] 0.10 [s]
			[2] 0.10 [s]
			[3] 4.00 [s]
			[4] 4.00 [s]

Description: Sets the times for valve identification.

Index: [0] = Ramp time
[1] = Settling time
[2] = Measuring time
[3] = Standstill time
[4] = Wait time

Dependency: See also: p1955, p1956, r1957, p1957, p1960, p1961, r1961, r1962

Note

For index 0:

In this time, the voltage is changed from 0 ... 10 V. The ramp time is effective for all voltage changes.

For index 1:

After the target voltage has been reached, the system waits this time before the measurement is started.

For index 2:

The velocity is averaged within this time.

For index 3:

If there is no motion, time before the next measurement is made.

For index 4:

Time between 2 measurements in order to fill the pressure accumulator. The value applies for the maximum velocity, and is internally reduced depending on the velocity.

p1958[0...n]	Rotating measurement ramp-up/ramp-down time / Rot meas t_r up/dn		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-1.00 [s]	999999.00 [s]	-1.00 [s]
Description:	Sets the ramp-up/ramp-down time for the rotating measurement. The following applies for negative values: When the function module "extended setpoint channel" is activated (r0108.8 = 1), the maximum of the ramp-up/ramp-down time of the setpoint channel becomes effective. When this function module is inactive, then no ramp-up/ramp-down time is effective. The following applies for positive values: The selected ramp-up/ramp-down time becomes effective.		
Recommendation:	A ramp-up/ramp-down time should not be activated for the motor data identification (p1958 = 0) as long as this can be safely done without incurring any danger. This means that the identification is complete and more accurate. When the ramp-up/ramp-down time is activated, the following steps of the rotating motor data identification are not executed: - p1959.5 (identifying the q inductance) - p1959.7 (identifying the reluctance torque constant)		
Dependency:	See also: p1959, p1960		

p1959[0...n]	Data identification moving configuration / Dat_id mov config				
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 2		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: -		
	P group: Motor identification	Unit group: -	Unit selection: -		
	Not for motor type: REL	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 0001 0011 1111 bin		
Description:	Sets the configuration for data identification with movement.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Control sense correction	Yes	No	-
	01	Valve offset correction	Yes	No	-
	02	Automatic piston calibration	Yes	No	-
	03	Automatic traversing range detection	Yes	No	-
	04	Automatic characteristic identification	Yes	No	-
	05	Stiction forces	Yes	No	-
	08	System pressure correction for characteristic identification	Yes	No	-
Dependency:	See also: F07988				

NOTICE

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

Note

For bit 00:

In order to automatically correct the control sense for the velocity controller, the complete traversing distance must be free. When required, p1820 is automatically adapted.

For bit 01:

The drive moves to correct the valve offset. When required, p1832 is automatically adapted.

For bit 02:

Full automatic piston calibration, the drive must either be referenced, or must be equipped with an absolute encoder. Further, the complete traversing distance must be free.

For piston calibration, the drive is traversed to the end stop (completely inserted) with a negative search voltage (p1955[3]) and the associated absolute position entered in p0476.

For bit 03:

For automatic traversing range identification, the drive must either be referenced (homed), or must be equipped with an absolute encoder. Further, the piston must have been calibrated and the complete traversing distance must be free.

To prepare for the identification of the characteristic, the possible traversing range is determined. To do this, the drive is traversed to the right-hand and left-hand end stops with the search voltage (p1955[3..4]) and the position with distance reserve is entered into p1956.

If there are pressure sensors, then the correct interconnection for pressure measurements A and B is checked.

For bit 04:

For automatic characteristic identification, the drive must either be referenced (homed), or must be equipped with an absolute encoder. Further, the piston must have been calibrated and the free traversing range must have been entered in p1956.

The drive traverses with different valve voltages and takes into account p1958.

For bit 05:

The drive is moved with a positive and negative velocity, and the measured stiction forces are entered into p1555 and p1556.

For bit 06:

The drive is traversed to both end stops. In so doing, the dead volume and the loop gain of the force control loop is measured, and entered into p0314 and p0315.

For bit 08:

For the automatic characteristic identification (p1959.4), the measured velocity with the measured system pressure is converted to the average system pressure; this means that system pressure fluctuations hardly influence the measurement. The system pressure as well as pressures A and B must be measured. The conversion is not performed if the pressure measurements are not available. If the pressure measurements do not measure the specified pressures, then the conversion must be deactivated in order to avoid any errors.

p1959[0...n]

Rotating measurement configuration / Rot meas config

SERVO_828

Changeable: T

Calculation: CALC_MOD_ALL **Access level:** 3

Data type: Unsigned16

Dynamic index: MDS, p0130 **Function plan:** -

P group: Motor identification

Unit group: - **Unit selection:** -

Not for motor type: REL

Scaling: - **Expert list:** 1

Min:

Max:

Default:

-

-

0000 1110 1110 0111 bin

Description:

Sets the configuration of the rotating measurement.

Recommendation:

A direction inhibit should not be activated for the rotating measurement (p1959.14 = 1 and p1959.15 = 1) as long as this can be done without incurring any danger. This means that the identification is complete and more accurate. When the direction inhibit is activated, the reluctance torque constant (p1959.7) is not identified and the angular commutation offset (p1959.10, p0431) is inaccurately determined. The reluctance torque constant (p1959.7) is also not identified in encoderless operation.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Identify the saturation characteristic	Yes	No	-
02	Identify the moment of inertia	Yes	No	-
05	Identify the q inductance	Yes	No	-
06	Identify the torque constant	Yes	No	-

07	Identify the reluctance torque constant	Yes	No	-
08	Identify the q inductance at the test stand	Yes	No	-
09	Identify the magnetizing current / magnetizing inductance	Yes	No	-
10	Identify the commutation angle and direction of rotation	Yes	No	-
11	Identify rotor resistance	Yes	No	-
14	Positive direction permitted	Yes	No	-
15	Negative direction permitted	Yes	No	-

Dependency:

See also: p1958, p1960

NOTICE

The step p1959.8 (identify q inductance on the test stand) may only be selected if the drive can be kept at zero speed or at a fixed speed either using a test stand or other mechanical measures.

During steps p1959.2 (identifying the moment of inertia) and p1959.6 (identifying the torque constant) the Vdc_min controller is disabled (p1240).

During step p1959.7 (identifying the reluctance torque constant) the Vdc_min controller and Vdc_max controller are disabled (p1240).

Note

For an induction motor (ASM), the following bits 1, 2, 5, 8, 9, 10, 14, 15 are effective

For a synchronous motor (SRM), the following bits 2, 5, 6, 7, 8, 10, 14, 15 are effective

For bit 05:

For "motor holding brake the same as sequence control" (p1215 = 1 or 3), the Lq characteristic is only measured up to approximately the rated motor current (p0305) instead of up to the current limit (p0640). Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.

For bit 10:

If the motor holding brake is set just the same as the sequence control (p1215 = 1 or 3), the commutation angle and the direction of rotation are not measured. Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.

For bit 14, 15:

The following applies for bit 14 and 15 = 0:

When the function module "extended setpoint channel" is activated (r0108.8 = 1), the direction inhibit of the setpoint channel becomes effective. No direction of inhibit is effective if the function module is inactive.

The following applies for minimum bit 14 = 1 or bit 15 = 1:

The direction inhibit set in p1959 becomes effective.

p1960**Moving measurement selection / Mov meas sel**

HLA_828

Changeable: T, U**Calculation:** -**Access level:** 2**Data type:** Integer16**Dynamic index:** -**Function plan:** -**P group:** Motor identification**Unit group:** -**Unit selection:** -**Not for motor type:** REL**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-3

1

0

Description:

Activates the moving measurement.

Value:

-3: Accept identified Ch parameters

-1: Start data identification without Ch transfer

0: Inactive/cancel

1: Start data identification with transfer

Dependency:

See also: p1955, p1956, r1957, p1957, p1958, p1961, r1961, r1962

See also: F07990, A07991, F07993

NOTICE

The drive moves after data identification with movement has been activated and enabled. In this case the force limiting is not active.

If it is not permissible that the complete traversing range is traversed, then the following must be executed before the start:

- deselect automatic traversing range detection (p1959.3 = 0).
- deselect automatic piston calibration (p1959.2 = 0).
- calibrate the piston manually.
- manually enter the traversing range limits (p1956).

For the identification of the characteristic (p1959.4), the velocities are traversed up to the maximum velocity, depending on the setting in p1955[0...1].

Note

The identification is executed when the enable signals are activated. After the enable signals have been deactivated, data identification is interrupted, and is continued when the enable signals are activated.

In order to maintain the direction convention, for a positive valve voltage setpoint before inversion (r0070), the piston must move from the A side towards the B side (extend outwards) before data identification is started. If required, the output voltage can be inverted with p1820 for adaptation.

p1960

SERVO_828,
SERVO_COMBI

Rotating measurement selection / Rot meas sel

Changeable: T	Calculation: -	Access level: 2
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Motor identification	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -3	Max: 1	Default: 0

Description: Activates the rotating measurement.

Value:

- 3: Accept identified parameters
- 2: Acknowledge encoder inversion actual value (F07993)
- 1: Start motor data identification without acceptance
- 0: Inactive/inhibit
- 1: Start motor data identification with acceptance

Recommendation: Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger. The commutation angle and the direction are also determined. Motor data identification is not required for catalog motors and DRIVE-CLiQ motors. It is recommended to increase the torque accuracy or for third-party motors.

Dependency: See also: r1934, r1935, r1936, r1937, r1938, r1939, r1947, r1948, p1958, p1959, r1962, r1963, r1969
See also: F07990, A07991, F07993

DANGER

For the rotating measurement, the motor is accelerated up to the maximum speed. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective.

The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).

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, p0977).

Note

The rotating measurement can only be selected when the pulses of all of the drive objects of the Control Unit have been suppressed. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered up until the rotating measurement has been completed or de-selected.

When the rotating measurement is activated (p1960 = 1), it is not possible to save the parameters (p0971, p0977).

r1961[0...511]	Valve identification voltage characteristic / Valve ID char U		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the voltage values for the valve characteristic.		
Dependency:	See also: p1955, p1956, r1957, p1957, p1958, p1960, r1962		
	Note		
	The valve characteristic consists of the value pairs from r1961 and r1962 with the same index.		

r1962[0...511]	Valve identification characteristic velocity / Valve ID char v		
HLA_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]
Description:	Displays the velocity values for the valve characteristic.		
Dependency:	See also: p1955, p1956, r1957, p1957, p1958, p1960, p1961, r1961		
	Note		
	The valve characteristic consists of the value pairs from r1961 and r1962 with the same index.		

r1962[0...9]	Saturation characteristic magnetizing current identified / Sat_char I_mag		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the magnetizing currents of the identified saturation characteristic. The values are referred to r0331.		
Dependency:	See also: p1959, p1960, r1963		
	Note		
	The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.		

r1963[0...511]	Valve identification system pressure characteristic / Valve ID char pp		
HLA_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [bar]	- [bar]	- [bar]
Description:	Displays the system pressure actual values for the valve characteristic.		
	Note		
	The valve characteristic consists of the value pairs from r1961 and r1963 with the same index.		

r1963[0...9]	Saturation characteristic stator flux identified / Sat_char flux		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the stator flux of the identified saturation characteristic. The values are referred to the stator flux at the magnetizing current (r0331).		
Dependency:	See also: p1959, p1960, r1962		

Note
The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.

r1964[0...511]	Valve identification characteristic force / Valve ID char F		
HLA_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: 8_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [N]	- [N]	- [N]
Description:	Displays the force actual values for the valve characteristic.		

Note
The valve characteristic consists of the value pairs from r1961 and r1964 with the same index.

r1969	Moment of inertia identified / M_inertia ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: 25_1	Unit selection: p0100
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [kgm ²]	- [kgm ²]	- [kgm ²]
Description:	Displays the identified moment of inertia.		
Dependency:	IEC drives (p0100 = 0): unit kg m ² NEMA drives (p0100 = 1): unit lb ft ² See also: p0341, p0342, p1498, p1959, p1960		

r1973[0...1]	Encoder pulse number identified / Pulse No. ident		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description:
Index 0:
Rotating motors: Displays the identified encoder pulse number (per revolution).
Linear motors: Encoder pulse number per meter. Grid division = 1/p1973 [meter].
Index 1:
Rotating motors: No significance.
Linear motors: Identified grid division in nm.

Index: [0] = Rotating motor encoder pulse number
[1] = Linear motor grid division in nm

NOTICE

Due to the measuring accuracy (approx. 5 %) only the approximate value is shown in p1973 and may not be directly transferred into p0407 or p0408. An incorrect pole pair number (r0313, p0314) or pole pair width (p0315) results in an incorrect value in p1973.

Note

A negative signal indicates an incorrect polarity of the encoder signal.

p1980[0...n]

SERVO_828,
SERVO_COMBI

PolID technique / PolID technique

Changeable: T, U

Data type: Integer16

P group: Motor identification

Not for motor type: -

Min:

0

Calculation: CALC_MOD_ALL

Dynamic index: MDS, p0130

Unit group: -

Scaling: -

Max:

99

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

99

Description:

Sets the pole position identification technique.

Value:

0: Saturation-based 1st + 2nd harmonics
1: Saturation-based 1st harmonics
4: Saturation based 2-stage
10: Motion-based
20: Elasticity-based
99: No technique selected

Dependency:

See also: p0325, p0329, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097

See also: F07995

NOTICE

If the incorrect technique is applied, this can cause the motor to accelerate in an uncontrolled fashion.

Under the following conditions, the integral time must be disabled (p1996 = 0):

- p1980 = 10 (motion-based)
- motor encoder with track A/B sq-wave (p0404.3 = 1)
- p0430.20 = 0 (flank time measurement)

Once the integral time has been disabled, the motion is increased during the identification (a minimum of 90 ° electrical). As a result of this, the maximum distance (p1981) must also be increased.

Note

PolID: Pole position identification

When commissioning a catalog motor, the technique is automatically selected depending on the motor type being used.

The following applies for 1FN3 motors:

A technique with 2nd harmonic may not be used (do not use p1980 = 0, 4).

For 1FK7 motors, the following applies:

A two-stage technique may not be used (do not use p1980 = 4).

The automatically set value in p0329 may not be changed.

p1981[0...n]	PolID distance max / PolID distance max		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [°]	Max: 180 [°]	Default: 10 [°]

Description: Sets the maximum distance (electrical angle) when carrying out the pole position identification routine. If this distance (travel) is exceeded, an appropriate fault is output.

Dependency: See also: p0325, p0329, p1980, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996, p1997
See also: F07995

NOTICE
Value = 180 °: Monitoring is de-activated.

Note
PolID: Pole position identification

p1982[0...n]	PolID selection / PolID selection		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 2	Default: 0

Description: Activates the pole position identification routine to determine the commutation angle and to carry out a plausibility check.

Value:
0: Pole position identification off
1: Pole position identification for commutation
2: Pole position identification for plausibility check

Recommendation: For p1982 = 1:
This is used for synchronous motors with motor encoder without absolute data.
The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute encoder or from the pole position identification routine.
For p1982 = 2:
This is used for synchronous motor with motor encoder with absolute data to check this data.

Dependency: See also: p0325, p0329, p1980, p1981, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097

Note
PolID: Pole position identification

p1983	PolID test / PolID test		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0

Description:	Starts the pole position identification routine for test purposes. p1983 = 1: Start of pole position identification. The parameter is set to zero automatically on completion of the identification process.
Dependency:	See also: p0325, p0329, p1980, p1981, p1982, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097
NOTICE	
For p1983 = 1 and if the pulses are not enabled, then the function is only executed the next time that the pulses are enabled.	

Note

When this test is executed, it does not influence the commutation angle.

r1984	PolID angular difference / PolID ang diff		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]
Description:	Displays the angular difference between the actual electrical commutation angle and the angle determined by the pole position identification.		
Dependency:	See also: p0325, p0329, p1980, p1981, p1982, p1983, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097		

Note

PolID: Pole position identification

When the pole position identification routine is executed several times using p1983, the spread of the measured values can be determined using this value. At the same position, the spread should be less than 2 degrees electrical.

r1985	Chld v/U characteristic velocity measured / Chld v/U v meas		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]
Description:	Displays the measured v/U characteristics in m/min.		
Dependency:	See also: p1960		

Note

The values for the characteristic of the last identification routine are output every 1 ms in order to record signals (e.g. trace).

r1985	PolID saturation curve / PolID sat_char		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays the saturation characteristic of the pole position identification routine (saturation technique). Displays the current characteristic of the pole position identification routine (elasticity technique).		

Dependency: See also: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097

Note

PolID: Pole position identification

Regarding the saturation technique:

The values for the characteristic of the last saturation-based pole position identification routine are output every 1 ms in order to record signals (e.g. trace).

r1986 Chld v/U characteristic velocity parameterized / Chld v/U v par

HLA_828

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Motor identification

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [m/min]

- [m/min]

- [m/min]

Description: Displays the parameterized v/U characteristics in m/min.

Dependency: See also: p1960, p3030, p3031, p3033, p3034, p3035, p3036, p3037, p3038, p3039, p3040, p3041, p3042, p3043, p3044, p3045, p3046, p3047, p3048, p3075

Note

The values for the characteristic of the last identification routine are output every 1 ms in order to record signals (e.g. trace).

r1986 PolID saturation characteristic 2 / PoleID sat_curve 2

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Motor identification

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description: Displays the pole position characteristic of the elasticity-based pole position identification routine.

The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace).

Dependency: See also: p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097

Note

PolID: Pole position identification

r1987 Chld v/U characteristic voltage / Chld v/U U

HLA_828

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Motor identification

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [V]

- [V]

- [V]

Description: Displays the voltage of the v/U characteristics in V unit.

Dependency: See also: p1960

Note

The values for the characteristic of the last identification routine are output every 1 ms in order to record signals (e.g. trace).

r1987	PollID trigger characteristic / PollID trig_char		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the trigger characteristic of the pole position identification routine. The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace). The values for trigger characteristic and saturation characteristic are always output in synchronism from a time perspective.		
Dependency:	See also: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1986, p1990, r1992, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097		

Note

PollID: Pole position identification

The following information and data can be taken from the trigger characteristic.

- the value -100% marks the angle at the start of the measurement.

- the value +100 % marks the commutation angle determined from the pole position identification routine.

p1990	Encoder adjustment determine angular commutation offset / Enc_adj det ang		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	This function is only required for synchronous motors and can be started when commissioning for the first time or after replacing an encoder. The function acts on the active motor data set. When adjusting the encoder, the angular commutation offset is determined and transferred into p0431. Alarm A07971 is output while the angular commutation offset is being determined. p1990 is automatically set to 0 after the angular commutation offset has been determined. p1990 = 0: De-activated p1990 = 1: Activated with acceptance		
Dependency:	See also: p0325, p0329, p0431, p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987 See also: A07971		

 DANGER

For recommendation 3:

When performing this measurement there is a danger of coming into contact with system parts that are at a high (hazardous) electrical voltage.

This measurement may only be performed by authorized service personnel.

NOTICE

For p1990 = 1 and with the pulses not enabled, the function is only executed the next time that the pulses are enabled. In order to prevent an incorrect orientation of the electrical pole position (uncontrolled motor movement), the automatically determined angular commutation offset (p0431) should, for reasons of safety, be checked using one of the following recommendations:

Recommendation 1:
Set encoderless operation (p1300 = 20 or p1404 = 0), de-select pole position identification (p1982 = 0), operate under no-load conditions with a speed > p1755, correct the actual value inversion (p0410.0) (e.g. r0061 = r0063), read the angular error in r1778; the result in r1778 should be approximately 0, for |r1778| > 2 degrees, add the value to p0431 - taking into account the sign - and enter in p0431.

Recommendation 2:
Set the current limit to 0 (p0640 = 0), activate travel to fixed stop (p1545 = 1), record r0089[0] (phase voltage) and r0093 (electrically scaled pole position) (e.g. trace) while the motor is externally moved; in this case, the rising zero crossover of the phase voltage must coincide with the 360 ° --> 0 ° step (jump) from r0093.

Recommendation 3:
Measure the phase voltage U (measure phase U with respect to the virtual star point using 3 resistors) and r0093 (electrically scaled pole position); the rising zero crossover of the phase voltage must coincide with the 360 ° --> 0 ° step (jump) of r0093.

Recommendation 4:
Determine the average value from several results of a pole position identification routine executed as test (p1983) at various electrical angles and add the value to p0431 - taking into account the sign and enter into p0431.

Note

If fault F07414 is present, the following applies:
First set p1990 to 1, then acknowledge the fault and then issue the enable signals.

p1991[0...n]

SERVO_828,
SERVO_COMBI

Motor changeover angular commutation correction / Ang_com corr

Changeable: T	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -180 [°]	Max: 180 [°]	Default: 0 [°]

Description: Sets the angle that is added to the commutating angle.

 **CAUTION**

If the angular correction is not correctly set, when changing over and with closed-loop torque control, the motor can accelerate to high speeds in spite of the fact that a setpoint of zero has been entered.

r1992.0...15

SERVO_828,
SERVO_COMBI

CO/BO: PolID diagnostics / PolID diag

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Display and BICO output for the diagnostics information of the pole position identification (polID)

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Critical encoder fault occurred	Yes	No	-
	02	Encoder parking active	Yes	No	-
	05	Encoder fault Class 1	Yes	No	-
	06	Encoder fault Class 2	Yes	No	-
	07	Pole position identification for encoder carried out	Yes	No	-
	08	Fine synchronization carried out	Yes	No	-

09	Coarse synchronization carried out	Yes	No	-
10	Commutation information available	Yes	No	-
11	Speed information available	Yes	No	-
12	Position information available	Yes	No	-
15	Zero mark passed	Yes	No	-

Dependency: See also: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, p1993, p1994, p1995, p1996, p1997, p3090, p3091, p3092, p3093, p3094, p3095, p3096, r3097

Note

The data of p1992 are updated in a 4 ms cycle.
Fast changes of the encoder status word bits can be better investigated using p7830 and following.
PolID: Pole position identification

p1993[0...n] PolID motion-based current / PolID I mot_bas

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_EQU	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor identification	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [Arms]	Max: 20000.00 [Arms]	Default: 0.00 [Arms]

Description: Sets the current when executing the motion-based pole position identification.

Dependency: See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1994, p1995, p1996, p1997

Note

PolID mot: Motion-based pole position identification

p1994[0...n] PolID motion-based rise time / PolID T mot_bas

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor identification	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [ms]	Max: 2500 [ms]	Default: 100 [ms]

Description: Sets the rise time of the current when executing the motion-based pole position identification.

Dependency: See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1995, p1996, p1997

Note

PolID mot: Motion-based pole position identification

p1995[0...n] PolID motion-based gain / PolID kp mot_bas

SERVO_828,
SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
P group: Motor identification	Unit group: 17_1	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.000 [Nms/rad]	Max: 999999.000 [Nms/rad]	Default: 0.300 [Nms/rad]

Description: Sets the gain when executing the motion-based pole position identification.

Dependency: See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1996, p1997

Note

PolID mot: Motion-based pole position identification

p1996[0...n]	PolID motion-based integral time / PolID Tn mot_bas		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 500.0 [ms]	Default: 2.0 [ms]
Description:	Sets the integral time when executing the motion-based pole position identification.		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1997		
	Note		
	The value 0 de-activates the I component.		
	Once the integral time has been disabled, the motion is increased during the identification (a minimum of 90 ° electrical).		
	PolID mot: Motion-based pole position identification		

p1997[0...n]	PolID motion-based smoothing time / PolID t_sm mot_bas		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 50.0 [ms]	Default: 0.0 [ms]
Description:	Sets the smoothing time when executing the motion-based pole position identification.		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p1993, p1994, p1995, p1996		
	Note		
	PolID mot: Motion-based pole position identification		

p2000	Reference velocity / v_ref		
HLA_828	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.600 [m/min]	Max: 600.000 [m/min]	Default: 120.000 [m/min]
Description:	Sets the reference quantity for velocity.		
	All velocities 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:	See also: p0500, p2001, p2002, p2003, r2004		
	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. r4055[0]) is connected to a velocity setpoint (e.g. p1155[0]). The actual percentage input value is cyclically converted into the absolute velocity setpoint using the reference velocity (p2000).		
	Example 2:		
	The setpoint from PROFIBUS (r2060[1]) is connected to a velocity setpoint (e.g. p1155[0]). The actual input value is cyclically converted into a percentage value via the pre-specified scaling 4000 0000 hex. This percentage value is converted to the absolute velocity setpoint via reference velocity (p2000).		

p2000	Reference speed reference frequency / n_ref f_ref		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 6.00 [rpm]	Max: 210000.00 [rpm]	Default: 3000.00 [rpm]
Description:	Sets the reference quantity for speed and frequency. All speeds or frequencies 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:	See also: p0500, p2001, p2002, p2003, r2004		
	Note For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. Example 1: The signal of an analog input (e.g. r4055[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).		
p2000	Reference frequency / f_ref		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.10 [Hz]	Max: 100.00 [Hz]	Default: 50.00 [Hz]
Description:	Sets the reference quantity for the frequency. All frequencies 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). The following applies: Reference frequency (in Hz)		
p2001	Reference voltage / Reference voltage		
HLA_828	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10 [V]	Max: 100000 [V]	Default: 1000 [V]
Description:	Sets the reference quantity for voltages. All voltages specified as relative value are referred to this reference quantity. This also applies for direct voltage values (= rms value) like the DC-link voltage. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).		
	Note If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.		

p2001

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Reference voltage / Reference voltage

Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 10 [Vrms]	Max: 100000 [Vrms]	Default: 1000 [Vrms]

Description:

Sets the reference quantity for voltages.
All voltages specified as relative value are referred to this reference quantity. This also applies for direct voltage values (= rms value) like the DC-link voltage.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
Note:
This reference quantity also applies to direct voltage values. It is not interpreted as rms value, but as DC voltage value.

Note

For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.
If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.
For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity.
Example:
The actual value of the DC link voltage (r0070) is connected to a test socket (e.g. p0771[0]). The actual voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling.

p2002

HLA_828

Reference pressure / p_ref

Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.10 [bar]	Max: 5000.00 [bar]	Default: 100.00 [bar]

Description:

Sets the reference quantity for pressures.
All pressures 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).

NOTICE

If various DDS are used with different valve/cylinder data, then the reference quantities remain the same as these are not changed over with the DDS. The resulting conversion factor should be taken into account (e.g. for BICO interconnections).

Note

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

p2002

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Reference current / I_ref

Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.10 [Arms]	Max: 100000.00 [Arms]	Default: 100.00 [Arms]

Description: Sets the reference quantity for currents.
 All currents 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).

NOTICE

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 should be taken into account (e.g. for trace records).

Example:

p2002 = 100 A

Reference quantity 100 A corresponds to 100 %

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

For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

SERVO:

Preassigned value for p0338 > 0.001 is p0338, otherwise 2 * p0305.

VECTOR:

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 force / F_ref		
HLA_828	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: 8_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.01 [N]	Max: 20000000.00 [N]	Default: 100.00 [N]

Description: Sets the reference quantity for forces.
 All forces 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).

Note

For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is at the factory setting.

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 force (r0079[0]) is connected to a test socket (e.g. p0771[0]). The actual force is cyclically converted into a percentage of the reference force (p2003) and output according to the parameterized scaling.

p2003	Reference torque / M_ref		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: 7_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.01 [Nm]	Max: 20000000.00 [Nm]	Default: 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).		
	Note For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. SERVO: Preassigned value for p0338 and p0334 > 0.001 is p0338 * p0334, otherwise 2 * p0333. VECTOR: 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		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: 14_10	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [kW]	Max: - [kW]	Default: - [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: Calculated from the torque x speed (rotating) or from the force x velocity (linear). See also: p2000, p2001, p2002, p2003		
	Note If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. The reference power is calculated as follows: - 2 * Pi * reference speed / 60 * reference torque (rotating) - reference velocity / 60 * reference force (linear)		

r2004	Reference power / P_ref		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: 14_10	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [kW]	Max: - [kW]	Default: - [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. See also: p2000, p2001, p2002, p2003

Note

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference power is calculated as follows:

- $2 * \text{Pi} * \text{reference speed} / 60 * \text{reference torque}$ (motor)

- $\text{reference voltage} * \text{reference current} * \text{root}(3)$ (infeed)

p2005	Reference angle / Reference angle	Calculation: CALC_MOD_ALL	Access level: 3
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Dynamic index: -	Function plan: -
	Data type: FloatingPoint32	Unit group: -	Unit selection: -
	P group: Communications	Scaling: -	Expert list: 1
	Not for motor type: -	Max:	Default:
	Min:	180.00 [°]	90.00 [°]
	90.00 [°]		

Description:	Sets the reference quantity for angle. All angles 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).
---------------------	--

Note

For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

p2006	Reference temp / Ref temp	Calculation: CALC_MOD_ALL	Access level: 3
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T	Dynamic index: -	Function plan: -
	Data type: FloatingPoint32	Unit group: -	Unit selection: -
	P group: Communications	Scaling: -	Expert list: 1
	Not for motor type: -	Max:	Default:
	Min:	300.00 [°C]	100.00 [°C]
	50.00 [°C]		

Description:	Sets the reference quantity for temperature. All temperatures specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
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p2007	Reference acceleration / a_ref	Calculation: CALC_MOD_ALL	Access level: 3
SERVO_828, SERVO_COMBI	Changeable: T	Dynamic index: -	Function plan: -
	Data type: FloatingPoint32	Unit group: -	Unit selection: -
	P group: Communications	Scaling: -	Expert list: 1
	Not for motor type: -	Max:	Default:
	Min:	500000.00 [rev/s ²]	0.01 [rev/s ²]
	0.01 [rev/s ²]		

Description: Sets the reference quantity for acceleration rates.
 All acceleration rates 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).

Note

For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference acceleration is calculated as follows:

Reference speed (p2000) converted from 1/min to 1/s divided by 1 s

$$\rightarrow p2007 = p2000 \text{ [rpm]} / (60 \text{ [s/min]} * 1 \text{ [s]})$$

p2007

HLA_828

Reference acceleration / a_ref

Changeable: T

Data type: FloatingPoint32

P group: Communications

Not for motor type: -

Min:

0.01 [m/s²]

Calculation: CALC_MOD_ALL **Access level:** 3

Dynamic index: -

Unit group: 22_1

Scaling: -

Max:

10000.00 [m/s²]

Function plan: -

Unit selection: p0505

Expert list: 1

Default:

0.01 [m/s²]

Description: Sets the reference quantity for acceleration rates.
 All acceleration rates 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).

Note

For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference acceleration is calculated as follows:

Reference speed (p2000) converted from 1/min to 1/s divided by 1 s

$$\rightarrow p2007 = p2000 \text{ [rpm]} / (60 \text{ [s/min]} * 1 \text{ [s]})$$

r2019[0...7]

CU_I_828,
 CU_I_COMBI

Comm IF error statistics / Comm err

Changeable: -

Data type: Unsigned32

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description: Displays the receive errors at the commissioning interface (RS232).

Index:
 [0] = Number of error-free telegrams
 [1] = Number of rejected telegrams
 [2] = Number of framing errors
 [3] = Number of overrun errors
 [4] = Number of parity errors
 [5] = Number of starting character errors
 [6] = Number of checksum errors
 [7] = Number of length errors

r2032		Master control control word effective / PcCtrl STW eff			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Displays, signals	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the effective control word 1 (STW1) of the drive for the master control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Operation enable	Yes	No	-
	04	Ramp-function generator enable	Yes	No	-
	05	Start ramp-function generator	Yes	No	-
	06	Speed setpoint enable	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	08	Jog bit 0	Yes	No	3030
	09	Jog bit 1	Yes	No	3030
	10	Master control by PLC	Yes	No	-
NOTICE					
The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.					
Note					
OC: Operating condition					

r2032		Master control control word effective / PcCtrl STW eff			
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Displays, signals	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the effective control word 1 (STW1) of the drive for the master control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	03	Operation enable	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	10	Master control by PLC	Yes	No	-
NOTICE					
The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.					
Note					
OC: Operating condition					

p2037	IF1 PROFIdrive STW1.10 = 0 mode / IF1 PD STW1.10=0		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Integer16 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the processing mode for PROFIdrive STW1.10 "master control by PLC". Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.		
Value:	0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Do not freeze setpoints		
Recommendation:	Do not change the setting p2037 = 0.		
	Note If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.		

p2038	IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T Data type: Integer16 P group: Communications Not for motor type: - Min: 1	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Sets the interface mode of the PROFIdrive control words and status words. When selecting a telegram via p0922 (p2079), this parameter influences the device-specific assignment of the bits in the control and status words.		
Value:	1: SIMODRIVE 611 universal		
Dependency:	See also: p0922, p2079		
	NOTICE The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
	Note For p0922 (p2079) = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.		

p2039	Select debug monitor interface / Debug monit select		
CU_I_828, CU_I_COMBI	Changeable: T, U Data type: Unsigned16 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 3	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1

Description: Sets the serial interface for the debug monitor.
 The serial interface for the debug monitor is COM1 (X140) or COM2 (internal).
 Value = 0: COM2 (internal)
 Value = 1: COM1 (X140), commissioning protocol is de-activated
 Value = 2: COM2 (internal)
 Value = 3: Reserved

p2040 **COMM INT monitoring time / COMM INT t_monit**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** -
 CU_LINK, CU_NX_828 **P group:** Communications **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 [ms] 1999999 [ms] 20 [ms]

Description: Sets the monitoring time to monitor the process data received via the internal communications interface.
 If no process data is received within this time, then an appropriate message is output.

Dependency: See also: F01910

Note
 p2040 = 0:
 Monitoring is de-activated.

r2043.0...2 **BO: IF1 PROFIdrive PZD state / IF1 PD PZD state**
 CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** 2410
 CU_NX_828 **P group:** Communications **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - -

Description: Displays the PROFIdrive PZD state.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Setpoint failure	Yes	No	-
	01	Clock cycle synchronous operation active	Yes	No	-
	02	Fieldbus oper	Yes	No	-

Dependency: See also: p2044

Note
 When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.

p2044 **IF1 PROFIdrive fault delay / IF1 PD fault delay**
 A_INF_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 B_INF_828, HLA_828, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** 2410
 S_INF_828, **P group:** Communications **Unit group:** - **Unit selection:** -
 S_INF_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_828, **Min:** **Max:** **Default:**
 SERVO_COMBI 0 [s] 100 [s] 0 [s]

Description: Sets the delay time to initiate fault F01910 after a setpoint failure.
 The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

Dependency: See also: r2043
See also: F01910

p2045 CI: PB/PN clock synchronous controller sign-of-life signal source / PB/PN ctrSoL S_src

CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 / Integer16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2410 Unit selection: - Expert list: 1 Default: 0
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Description: Connector input for the sign-of-life of the clock synchronous PROFIBUS/PROFINET controller. The sign-of-life is expected at bits 12 to 15. Bits 0 to 11 are not evaluated. The sign-of-life signal is normally received in PZD4 (control word 2) from the controller.

Dependency: See also: p0925, r2065

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

p2048 IF1 PROFIdrive PZD sampling time / IF1 PZD t_sample

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(3) Data type: FloatingPoint32 P group: Communications Not for motor type: - Min: 1.00 [ms]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16.00 [ms]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 4.00 [ms]
---------------------------------------	---	--	--

Description: Sets the sampling time for the cyclic interface 1 (IF1).

Note
The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set.
For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

p2049 PROFIdrive isochronous operation asynchronous participation / Isochron async

SERVO_828, SERVO_COMBI	Changeable: C1(3) Data type: Integer16 P group: Closed-loop control Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
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Description: Setting for asynchronous participation in isochronous operation.
For p2049 = 1:
The axis only asynchronously participates in isochronous PROFIdrive operation. The control sampling times of this axis are not included in the bus cycle time check (Tdp), in the time of the actual value sensing (Ti) and in the time of the setpoint sensing (To).
For p2049 = 0:
No effect on the setting in p0092.

Value: 0: No
1: Yes

Dependency: See also: p0092

⚠ CAUTION
Restrictions for asynchronous participation in isochronous PROFIBUS operation: - the setpoints are effective at undefined instant in time (deviating from To). As a consequence, interpolating operation with other axes is not possible, for example. - the actual values are read at undefined instant in time (deviating from Ti). As a consequence, the actual values cannot be used to control other axes, for example.

r2050[0...19]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20		
	Note		
	IF1: Interface 1		

r2050[0...19]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2440, 2468
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.		

Index:

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

Dependency: See also: r2060

NOTICE

Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
 A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

Note
 IF1: Interface 1

r2050[0...9]

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI

CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

Changeable: -	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: 4000H	Expert list: 1
Min:	Max:	Default:
-	-	-

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

Note
 IF1: Interface 1

r2050[0...4]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word		
TM120, TM150	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
	Note		
	IF1: Interface 1		

p2051[0...24]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the fieldbus controller.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25		

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

Note
IF1: Interface 1

p2051[0...27]

HLA_828,
SERVO_828,
SERVO_COMBI

CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: 2470
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: 4000H	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

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

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19
- [19] = PZD 20
- [20] = PZD 21
- [21] = PZD 22
- [22] = PZD 23
- [23] = PZD 24
- [24] = PZD 25
- [25] = PZD 26
- [26] = PZD 27
- [27] = PZD 28

Dependency:

See also: p2061

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

Note
IF1: Interface 1

p2051[0...9]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	0

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

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

NOTICE

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

Note

IF1: Interface 1

p2051[0...4]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
TM120, TM150	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	0

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

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

NOTICE

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

Note

IF1: Interface 1

r2053[0...24]	IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

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

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

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

Note
IF1: Interface 1

r2053[0...27]		IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2450, 2470 Unit selection: - Expert list: 1 Default: -		
Description:	Displays the PZD (actual values) with word format sent to the fieldbus controller.				
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20 [20] = PZD 21 [21] = PZD 22 [22] = PZD 23 [23] = PZD 24 [24] = PZD 25 [25] = PZD 26 [26] = PZD 27 [27] = PZD 28				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-

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

Dependency: See also: p2051, p2061

Note
IF1: Interface 1

r2053[0...9] **IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word**

A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

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

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

Note
IF1: Interface 1

r2053[0..4]		IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word			
TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -		
Description:	Displays the PZD (actual values) with word format sent to the fieldbus controller.				
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
	Note				
	IF1: Interface 1				

r2054		COMM INT state / C INT state			
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828	Changeable: - Data type: Integer16 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 255	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -		
Description:	Status display for the internal communications interface.				
Value:	0: No initialization 1: Fatal fault 2: Initialization 3: Send configuration 4: Receive configuration 5: Non-cyclic communication 6: Cyclic communications but no setpoints (stop/no clock cycle) 255: Cyclic communication				

r2058[0...139]	COMM INT receive configuration data / C INT E_config_dat		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the configuration data received via COMM BOARD.		

r2059[0...7]	COMM INT identification data / C INT ident_dat		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the identification data of the COMM BOARD.		

Note
 Index 0: CB data structure version (e.g.: 100 = V1.00).
 Index 1: CB driver version (e.g.: 100 = V1.00).
 Index 2: Company, (e.g.: 42 = Siemens).
 Index 3: Device type
 Index 4: Firmware version.
 Index 5: Firmware date (year).
 Index 6: Firmware date (day/month).

r2060[0...18]	CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Integer32 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: 4000H Max: -	Access level: 3 Function plan: 2440, 2468 Unit selection: - Expert list: 1 Default: -
Description:	Connector output to interconnect PZD (setpoints) with double word format received from the fieldbus controller.		

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

Dependency: See also: r2050

NOTICE

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

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

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

Note

IF1: Interface 1

p2061[0...26]	CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 2470
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min: -	Max: -	Default: 0
Description:	Selects the PZD (actual values) with double word format to be sent to the fieldbus controller.		

- Index:**
- [0] = PZD 1 + 2
 - [1] = PZD 2 + 3
 - [2] = PZD 3 + 4
 - [3] = PZD 4 + 5
 - [4] = PZD 5 + 6
 - [5] = PZD 6 + 7
 - [6] = PZD 7 + 8
 - [7] = PZD 8 + 9
 - [8] = PZD 9 + 10
 - [9] = PZD 10 + 11
 - [10] = PZD 11 + 12
 - [11] = PZD 12 + 13
 - [12] = PZD 13 + 14
 - [13] = PZD 14 + 15
 - [14] = PZD 15 + 16
 - [15] = PZD 16 + 17
 - [16] = PZD 17 + 18
 - [17] = PZD 18 + 19
 - [18] = PZD 19 + 20
 - [19] = PZD 20 + 21
 - [20] = PZD 21 + 22
 - [21] = PZD 22 + 23
 - [22] = PZD 23 + 24
 - [23] = PZD 24 + 25
 - [24] = PZD 25 + 26
 - [25] = PZD 26 + 27
 - [26] = PZD 27 + 28

Dependency: See also: p2051

NOTICE

A BICO interconnection for a single PZD can only take place either on p2051 or p2061.
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note
IF1: Interface 1

r2063[0...26]

HLA_828,
SERVO_828,
SERVO_COMBI

IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 2450, 2470
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

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

Index:	[0] = PZD 1 + 2
	[1] = PZD 2 + 3
	[2] = PZD 3 + 4
	[3] = PZD 4 + 5
	[4] = PZD 5 + 6
	[5] = PZD 6 + 7
	[6] = PZD 7 + 8
	[7] = PZD 8 + 9
	[8] = PZD 9 + 10
	[9] = PZD 10 + 11
	[10] = PZD 11 + 12
	[11] = PZD 12 + 13
	[12] = PZD 13 + 14
	[13] = PZD 14 + 15
	[14] = PZD 15 + 16
	[15] = PZD 16 + 17
	[16] = PZD 17 + 18
	[17] = PZD 18 + 19
	[18] = PZD 19 + 20
	[19] = PZD 20 + 21
	[20] = PZD 21 + 22
	[21] = PZD 22 + 23
	[22] = PZD 23 + 24
	[23] = PZD 24 + 25
	[24] = PZD 25 + 26
	[25] = PZD 26 + 27
	[26] = PZD 27 + 28

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

23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

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

Note

IF1: Interface 1

r2064[0...7]

CU_I_828,
CU_I_COMBI,
CU_NX_828

PB/PN diagnostics clock cycle synchronism / PB/PN diag clock

Changeable: -	Calculation: -	Access level: 3
Data type: Integer32	Dynamic index: -	Function plan: 2410
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the last parameter received from the PROFIBUS/PROFINET controller for clock synchronism. The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the controller to the device.

Index:

- [0] = Clock synchronous mode activated
- [1] = Bus cycle time (Tdp) [µs]
- [2] = Master cycle time (Tmapc) [µs]
- [3] = Instant of actual value acquisition (Ti) [µs]
- [4] = Instant of setpoint acquisition (To) [µs]
- [5] = Data exchange interval (Tdx) [µs]
- [6] = PLL window (Tpll-w) [1/12 µs]
- [7] = PLL delay time (Tpll-d) [1/12 µs]

r2065

CU_I_828,
CU_I_COMBI,
CU_NX_828, HLA_828,
SERVO_828,
SERVO_COMBI

PB/PN controller sign of life diagnostics / PB/PN ctr SoL diag

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 2410
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays how often the sign-of-life from the clock synchronous PROFIBUS/PROFINET controller last failed. An appropriate fault is output when the tolerance, specified in p0925, is exceeded.

Dependency:

See also: F01912

r2067[0...1]	IF1 PZD maximum interconnected / IF1 PZDmaxIntercon		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display for the maximum interconnected PZD in the receive/send direction Index 0: receive (r2050, r2060) Index 1: send (p2051, p2061)		
p2070	IF1 PROFIdrive SIC/SCC start receive / SIC/SCC start recv		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned8 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 17	Access level: 3 Function plan: 2423 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the start for the SIC/SCC telegram (p60122) in the receive words (r2050, r2060).		
Dependency:	See also: p0922, p2071, p2079, p60122		
	Note For setting p0922/p2079, the value is preset to the end of the PZD telegram. For p0922 equal to 999 and p2079 not equal to 999, the preset value can be increased. The value must be set again after changing p0922/p2079.		
p2071	IF1 PROFIdrive SIC/SCC start send / SIC/SCC start send		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned8 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 26	Access level: 3 Function plan: 2423 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the start for the SIC/SCC telegram (p60122) in the send words (p2051, p2061).		
Dependency:	See also: p0922, p2070, p2079, p60122		
	Note For setting p0922/p2079, the value is preset to the end of the PZD telegram. For p0922 equal to 999 and p2079 not equal to 999, the preset value can be increased. The value must be set again after changing p0922/p2079.		
p2072	Response receive value after PZD failure / Resp aft PZD fail		
SERVO_828, SERVO_COMBI	Changeable: T Data type: Unsigned32 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0000 bin
Description:	Sets the response for the receive value (r2090) after PZD failure.		
Bit field:	Bit	Signal name	1 signal 0 signal FP

00 Unconditionally open holding brake (p0855) Freeze value Zero the value -

r2074[0...19] **IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr rcv**

CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
--	--	---	--

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

Index:

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

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

r2074[0...9] **IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr rcv**

A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
---	--	---	--

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

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

Note

IF1: Interface 1

Value range:

0 - 125: Bus address of the sender

65535: Not assigned

r2074[0...4]	IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv		
TM120, TM150	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

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

Note

IF1: Interface 1

Value range:

0 - 125: Bus address of the sender

65535: Not assigned

r2075[0...19]	IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv		
CU_I_828,	Changeable: -	Calculation: -	Access level: 3
CU_I_COMBI,	Data type: Unsigned16	Dynamic index: -	Function plan: 2410
CU_NX_828, HLA_828,	P group: Communications	Unit group: -	Unit selection: -
SERVO_828,	Not for motor type: -	Scaling: -	Expert list: 1
SERVO_COMBI	Min:	Max:	Default:
	-	-	-

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

Index:

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

Note

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

r2075[0...9]

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI

IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs rcv

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 2410
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

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

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10

Note

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

r2075[0...4]	IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv		
TM120, TM150	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2410
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
	Note		
	IF1: Interface 1		
	Value range:		
	0 - 242: Byte offset		
	65535: Not assigned		

r2076[0...24]	IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2410
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the PZD byte offset in the PROFIdrive send telegram (controller input).		

Index:

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

Note

IF1: Interface 1

Value range:

0 - 242: Byte offset

65535: Not assigned

r2076[0...27]

HLA_828,
SERVO_828,
SERVO_COMBI

IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

Changeable: -

Data type: Unsigned16

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 2410

Unit selection: -

Expert list: 1

Default:

-

Description:

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

Index:	[0] = PZD 1
	[1] = PZD 2
	[2] = PZD 3
	[3] = PZD 4
	[4] = PZD 5
	[5] = PZD 6
	[6] = PZD 7
	[7] = PZD 8
	[8] = PZD 9
	[9] = PZD 10
	[10] = PZD 11
	[11] = PZD 12
	[12] = PZD 13
	[13] = PZD 14
	[14] = PZD 15
	[15] = PZD 16
	[16] = PZD 17
	[17] = PZD 18
	[18] = PZD 19
	[19] = PZD 20
	[20] = PZD 21
	[21] = PZD 22
	[22] = PZD 23
	[23] = PZD 24
	[24] = PZD 25
	[25] = PZD 26
	[26] = PZD 27
	[27] = PZD 28

Note

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

r2076[0...9]	IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2410
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the PZD byte offset in the PROFIdrive send telegram (controller input).		

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10

Note

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

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

TM120, TM150

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 2410
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

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

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5

Note

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

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

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

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

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	390	999	999

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

Value:

390:	SIEMENS telegram 390, PZD-2/2
391:	SIEMENS telegram 391, PZD-3/7
392:	SIEMENS telegram 392, PZD-3/15
393:	SIEMENS telegram 393, PZD-4/21
394:	SIEMENS telegram 394, PZD-3/3
395:	SIEMENS telegram 395, PZD-4/25
396:	SIEMENS telegram 396, PZD-20/21
999:	Free telegram configuration with BICO

Note

For p0922 < 999 the following applies:

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

For p0922 = 999 the following applies:

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

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

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

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
HLA_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	166	999	999

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

Value:

166:	SIEMENS telegram 166, PZD-14/20
999:	Free telegram configuration with BICO

Dependency: See also: 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.

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	999	136

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
 - 2: Standard telegram 2, PZD-4/4
 - 3: Standard telegram 3, PZD-5/9
 - 4: Standard telegram 4, PZD-6/14
 - 5: Standard telegram 5, PZD-9/9
 - 6: Standard telegram 6, PZD-10/14
 - 102: SIEMENS telegram 102, PZD-6/10
 - 103: SIEMENS telegram 103, PZD-7/15
 - 105: SIEMENS telegram 105, PZD-10/10
 - 106: SIEMENS telegram 106, PZD-11/15
 - 116: SIEMENS telegram 116, PZD-11/19
 - 118: SIEMENS telegram 118, PZD-11/19
 - 125: SIEMENS telegram 125, PZD-14/10
 - 126: SIEMENS telegram 126, PZD-15/15
 - 136: SIEMENS telegram 136, PZD-15/19
 - 138: SIEMENS telegram 138, PZD-15/19
 - 220: SIEMENS telegram 220, PZD-10/10
 - 999: Free telegram configuration with BICO

Dependency: See also: 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.

p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	999	999

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

- Value:**
- 1: Standard telegram 1, PZD-2/2
 - 2: Standard telegram 2, PZD-4/4
 - 3: Standard telegram 3, PZD-5/9
 - 4: Standard telegram 4, PZD-6/14

5:	Standard telegram 5, PZD-9/9
6:	Standard telegram 6, PZD-10/14
102:	SIEMENS telegram 102, PZD-6/10
103:	SIEMENS telegram 103, PZD-7/15
105:	SIEMENS telegram 105, PZD-10/10
106:	SIEMENS telegram 106, PZD-11/15
116:	SIEMENS telegram 116, PZD-11/19
118:	SIEMENS telegram 118, PZD-11/19
125:	SIEMENS telegram 125, PZD-14/10
126:	SIEMENS telegram 126, PZD-15/15
136:	SIEMENS telegram 136, PZD-15/19
138:	SIEMENS telegram 138, PZD-15/19
139:	SIEMENS telegram 139, PZD-15/19
220:	SIEMENS telegram 220, PZD-10/10
999:	Free telegram configuration with BICO

Dependency: See also: 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.

p2079

IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

370

999

999

Description: Sets the send and receive telegram.

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

Value: 370: SIEMENS telegram 370, PZD-1/1

371: SIEMENS telegram 371, PZD-5/8

999: Free telegram configuration with BICO

Dependency: See also: 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		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2472 Unit selection: - Expert list: 1 Default: 0

Description: Selects bits to be sent to the PROFIdrive controller.
The individual bits are combined to form status word 1.

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

Dependency: See also: p2088, r2089

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

p2081[0...15]	BI: Binector-connector converter status word 2 / Bin/con ZSW2		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2472 Unit selection: - Expert list: 1 Default: 0

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

Index:

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

Dependency: See also: p2088, r2089

NOTICE

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

Note

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

p2082[0...15]

BI: Binector-connector converter status word 3 / Bin/con ZSW3

A_INF_828,
 B_INF_828, CU_I_828,
 CU_I_COMBI,
 CU_NX_828, HLA_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI,
 TM120, TM150

Changeable: T, U

Data type: Unsigned32 / Binary

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 2472

Unit selection: -

Expert list: 1

Default:

0

Description:

Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form free status word 3.

Index:

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

Dependency: See also: p2088, r2089

NOTICE

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

p2083[0...15]	BI: Binector-connector converter status word 4 / Bin/con ZSW4		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2472 Unit selection: - Expert list: 1 Default: 0
Description:	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form free status word 4.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	See also: p2088, r2089		

p2084[0...15]	BI: Binector-connector converter status word 5 / Bin/con ZSW5		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2472 Unit selection: - Expert list: 1 Default: 0
Description:	Selects bits to be sent to the PROFIdrive controller. The individual bits are combined to form free status word 5.		

Index:

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

Dependency: See also: p2088, r2089

p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

A_INF_828,	Changeable: T, U	Calculation: -	Access level: 3
B_INF_828, CU_I_828,	Data type: Unsigned16	Dynamic index: -	Function plan: 2472
CU_I_COMBI,	P group: Communications	Unit group: -	Unit selection: -
CU_NX_828, HLA_828,	Not for motor type: -	Scaling: -	Expert list: 1
S_INF_828,	Min:	Max:	Default:
S_INF_COMBI,	-	-	0000 0000 0000 0000 bin
SERVO_828,			
SERVO_COMBI,			
TM120, TM150			

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index:

- [0] = Status word 1
- [1] = Status word 2
- [2] = Free status word 3
- [3] = Free status word 4
- [4] = Free status word 5

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: See also: p2080, p2081, p2082, p2083, r2089

r2089[0...4] **CO: Send binector-connector converter status word / Bin/con ZSW send**

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2472 Unit selection: - Expert list: 1 Default: -
--	--	---	---

Description: Connector output to interconnect the status words to a PZD send word.

Index:

- [0] = Status word 1
- [1] = Status word 2
- [2] = Free status word 3
- [3] = Free status word 4
- [4] = Free status word 5

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

Dependency: See also: p2051, p2080, p2081, p2082, p2083

Note

r2089 together with p2080 to p2084 forms five binector-connector converters.

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

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: -
--	--	---	---

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-

03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note

IF1: Interface 1

r2091.0...15**BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw**

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: -
--	---	--	--

Description:

Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

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

Note

IF1: Interface 1

r2092.0...15 **BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw**

CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: -
--	--	---	---

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

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

Note
IF1: Interface 1

r2093.0...15 **BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw**

CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: -
--	--	---	---

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

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

11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note

IF1: Interface 1

r2094.0...15**BO: Connector-binector converter binector output / Con/bin outp**

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: -
--	---	--	--

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[0].

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

Dependency: See also: p2099

r2095.0...15**BO: Connector-binector converter binector output / Con/bin outp**

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: -
--	---	--	--

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller. The PZD is selected via p2099[1].

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

Dependency: See also: p2099

p2098[0...1]

Inverter connector-binector converter binector output / Con/bin outp inv

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T, U Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin
--	--	--	---

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p2098[0], the signals of connector input p2099[0] are influenced.
Using p2098[1], the signals of connector input p2099[1] are influenced.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: See also: r2094, r2095, p2099

p2099[0...1]	CI: Connector-binector converter signal source / Con/bin S_src		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: T, U Data type: Unsigned32 / Integer16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2468 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for the connector-binector converter. A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).		
Dependency:	See also: r2094, r2095		
<hr/>			
Note			
From the signal source set via the connector input, the corresponding lower 16 bits are converted. p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters: Connector input p2099[0] to binector output in r2094.0...15 Connector input p2099[1] to binector output in r2095.0...15			

p2100[0...19]	Change fault response fault number / Chng resp F_no		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned16 P group: Messages Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 65535	Access level: 3 Function plan: 8050, 8075 Unit selection: - Expert list: 1 Default: 0
Description:	Selects the faults for which the fault response should be changed		
Dependency:	The fault is selected and the required response is set under the same index. See also: p2101		
<hr/>			
Note			
Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.			

p2100[0...19]	Change fault response fault number / Chng resp F_no		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned16 P group: Messages Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 65535	Access level: 3 Function plan: 8050, 8075 Unit selection: - Expert list: 1 Default: [0] 7841 [1...19] 0
Description:	Selects the faults for which the fault response should be changed		
Dependency:	The fault is selected and the required response is set under the same index. See also: p2101		
<hr/>			
Note			
Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.			

p2101[0...19] **Change fault response response / Chng resp resp**

CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Integer16 P group: Messages Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 0	Access level: 3 Function plan: 8050, 8075 Unit selection: - Expert list: 1 Default: 0
---	--	---	---

Description: Sets the fault response for the selected fault.

Value: 0: NONE

Dependency: The fault is selected and the required response is set under the same index.

NOTICE

For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note

Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2101[0...19] **Change fault response response / Chng resp resp**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Integer16 P group: Messages Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 7	Access level: 3 Function plan: 8050, 8075 Unit selection: - Expert list: 1 Default: [0] 3 [1...19] 0
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Description: Sets the fault response for the selected fault.

Value: 0: NONE
1: OFF1
2: OFF2
3: OFF3
5: STOP2
6: Internal armature short-circuit / DC braking
7: ENCODER (p0491)

Dependency: The fault is selected and the required response is set under the same index.
See also: p2100

NOTICE

For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note

Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The fault response can only be changed for faults with the appropriate identification (see the List Manual, chapter "Faults and alarms").

Example:

F12345 and fault response = OFF3 (OFF1, OFF2, NONE)

--> The default fault response OFF3 can be changed to OFF1, OFF2 or NONE.

For value = 1 (OFF1):

Braking along the ramp-function generator down ramp followed by a pulse inhibit.

For value = 2 (OFF2):

Internal/external pulse inhibit.

For value = 3 (OFF3):

Braking along the OFF3 down ramp followed by a pulse inhibit.

For value = 5 (STOP2):

n_set = 0

For value = 6 (armature short-circuit, internal/DC braking):

The value can only be set for all motor data sets when p1231 = 3, 4.

a) For synchronous motors (p0300 = 2xx, 4xx), an internal armature short-circuit is executed.

b) For induction motors (p0300 = 1xx), a DC braking is initiated.

For value = 7 (ENCODER (p0491)):

The fault response set in p0491 is executed if applicable.

Note:

IASC: Internal Armature Short Circuit

DCBRK: DC braking

p2101[0...19]**Change fault response response / Chng resp resp**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T, U

Data type: Integer16

P group: Messages

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

2

Access level: 3

Function plan: 8050, 8075

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the fault response for the selected fault.

Value:

0: NONE

1: OFF1

2: OFF2

Dependency:

The fault is selected and the required response is set under the same index.

NOTICE

For the following cases, it is not possible to re-parameterize the fault response to a fault:

- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Fault response is not permissible for the set fault number.

Note

Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2102	BI: Acknowledge all faults / Ackn all faults		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2546, 8060 Unit selection: - Expert list: 1 Default: 2090.7
Description:	Sets the signal source to acknowledge all faults at all drive objects of the drive system.		
	Note A fault acknowledgment is triggered with a 0/1 signal.		

p2103	BI: 1. Acknowledge faults / 1. Acknowledge		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the first signal source to acknowledge faults.		
	NOTICE The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
	Note A fault acknowledgment is triggered with a 0/1 signal.		

p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2441, 2442, 2443, 2447, 2475, 2546, 9220, 9677, 9678 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the first signal source to acknowledge faults.		
	NOTICE The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
	Note A fault acknowledgment is triggered with a 0/1 signal.		

p2104	BI: 2. Acknowledge faults / 2. Acknowledge		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the second signal source to acknowledge faults.		

Note

A fault acknowledgment is triggered with a 0/1 signal.

p2104[0...n]**BI: 2. Acknowledge faults / 2. Acknowledge**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2546, 8060 Unit selection: - Expert list: 1 Default: 0
--	--	--	---

Description: Sets the second signal source to acknowledge faults.

Note

A fault acknowledgment is triggered with a 0/1 signal.

p2105**BI: 3. Acknowledge faults / 3. Acknowledge**

CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
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Description: Sets the third signal source to acknowledge faults.

Note

A fault acknowledgment is triggered with a 0/1 signal.

p2105[0...n]**BI: 3. Acknowledge faults / 3. Acknowledge**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2546, 8060 Unit selection: - Expert list: 1 Default: 0
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Description: Sets the third signal source to acknowledge faults.

Note

A fault acknowledgment is triggered with a 0/1 signal.

p2106**BI: External fault 1 / External fault 1**

CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1
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Description: Sets the signal source for external fault 1.

Dependency: See also: F07860

Note

An external fault is triggered with a 1/0 signal.

If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2106[0...n] **BI: External fault 1 / External fault 1**

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: CDS, p0170
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: 2546
Unit selection: -
Expert list: 1
Default:
1

Description: Sets the signal source for external fault 1.
Dependency: See also: F07860

Note

An external fault is triggered with a 1/0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2107 **BI: External fault 2 / External fault 2**

CU_I_828,
CU_I_COMBI,
CU_LINK, CU_NX_828,
HUB, TM120, TM150,
TM54F_MA, TM54F_SL

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
1

Description: Sets the signal source for external fault 2.
Dependency: See also: F07861

Note

An external fault is triggered with a 1/0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2107[0...n] **BI: External fault 2 / External fault 2**

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: CDS, p0170
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: 2546
Unit selection: -
Expert list: 1
Default:
1

Description: Sets the signal source for external fault 2.
Dependency: See also: F07861

Note

An external fault is triggered with a 1/0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108 **BI: External fault 3 / External fault 3**

CU_I_828,
CU_I_COMBI,
CU_LINK, CU_NX_828,
HUB, TM120, TM150,
TM54F_MA, TM54F_SL

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
1

Description: Sets the signal source for external fault 3.
 External fault 3 is initiated by the following AND logic operation:
 - BI: p2108 negated
 - BI: p3111
 - BI: p3112 negated

Dependency: See also: p3110, p3111, p3112
 See also: F07862

Note

An external fault is triggered with a 1/0 signal.
 If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108[0...n]	BI: External fault 3 / External fault 3		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2546
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	1

Description: Sets the signal source for external fault 3.
 External fault 3 is initiated by the following AND logic operation:
 - BI: p2108 negated
 - BI: p3111
 - BI: p3112 negated

Dependency: See also: p3110, p3111, p3112
 See also: F07862

Note

An external fault is triggered with a 1/0 signal.
 If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108[0...n]	BI: External fault 3 / External fault 3		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 2546
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for external fault 3.
 External fault 3 is initiated by the following AND logic operation:
 - BI: p2108 negated
 - BI: p3111
 - BI: p3112 negated

Dependency: See also: p3110, p3111, p3112
 See also: F07862

Note

An external fault is triggered with a 1/0 signal.
 If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

r2109[0...63]

All objects

Fault time removed in milliseconds / t_ft resolved ms

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 8050, 8060
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [ms]	Max: - [ms]	Default: - [ms]

Description: Displays the system runtime in milliseconds when the fault was removed.

Dependency: See also: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122

NOTICE
The time comprises r2136 (days) and r2109 (milliseconds).

Note

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r2110[0...63]

All objects

Alarm number / Alarm number

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: This parameter is identical to r2122.

p2111

All objects

Alarm counter / Alarm counter

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 8050, 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 65535	Default: 0

Description: Number of alarms that have occurred after the last reset.

Dependency: When p2111 is set to 0, the following is initiated:
- all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63].
- the alarm buffer [0...7] is deleted.
See also: r2110, r2122, r2123, r2124, r2125

Note

The parameter is reset to 0 at POWER ON.

p2112

CU_I_828,
CU_I_COMBI,
CU_LINK, CU_NX_828,
HUB, TM120, TM150,
TM54F_MA, TM54F_SL

BI: External alarm 1 / External alarm 1

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 1

Description: Sets the signal source for external alarm 1.

Dependency: See also: A07850

Note

An external alarm is triggered with a 1/0 signal.

p2112[0...n]	BI: External alarm 1 / External alarm 1		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2546 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source for external alarm 1.		
Dependency:	See also: A07850		

Note

An external alarm is triggered with a 1/0 signal.

r2114[0...1]	System runtime total / Sys runtime tot		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned32 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the total system runtime for the drive unit. The time comprises r2114[0] (milliseconds) and r2114[1] (days). After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented.		
Index:	[0] = Milliseconds [1] = Days		
Dependency:	See also: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146		

Note

The time in r2114 is used to display the times for faults and alarms.
When the electronic power supply is switched out, the counter values are saved.
After the drive unit is powered up, the counter continues to run with the last value that was saved.

p2116	BI: External alarm 2 / External alarm 2		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source for external alarm 2.		
Dependency:	See also: A07851		

Note

An external alarm is triggered with a 1/0 signal.

p2116[0...n] **BI: External alarm 2 / External alarm 2**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min: -

Calculation: -
Dynamic index: CDS, p0170
Unit group: -
Scaling: -
Max: -

Access level: 3
Function plan: 2546
Unit selection: -
Expert list: 1
Default: 1

Description: Sets the signal source for external alarm 2.
Dependency: See also: A07851

Note
 An external alarm is triggered with a 1/0 signal.

p2117 **BI: External alarm 3 / External alarm 3**

CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min: -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max: -

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default: 1

Description: Sets the signal source for external alarm 3.
Dependency: See also: A07852

Note
 An external alarm is triggered with a 1/0 signal.

p2117[0...n] **BI: External alarm 3 / External alarm 3**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min: -

Calculation: -
Dynamic index: CDS, p0170
Unit group: -
Scaling: -
Max: -

Access level: 3
Function plan: 2546
Unit selection: -
Expert list: 1
Default: 1

Description: Sets the signal source for external alarm 3.
Dependency: See also: A07852

Note
 An external alarm is triggered with a 1/0 signal.

p2118[0...19] **Change message type message number / Chng type msg_no**

All objects

Changeable: T, U
Data type: Unsigned16
P group: Messages
Not for motor type: -
Min: 0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max: 65535

Access level: 3
Function plan: 8050, 8075
Unit selection: -
Expert list: 1
Default: 0

Description: Selects faults or alarms for which the message type should be changed.
Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
 See also: p2119

Note

Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

p2119[0...19]	Change message type type / Change type type		
All objects	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 8050, 8075
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 3	Default: 1
Description:	Sets the message type for the selected fault or alarm.		
Value:	1: Fault (F) 2: Alarm (A) 3: No message (N)		
Dependency:	Selects the fault or alarm selection and sets the required type of message realized under the same index. See also: p2118		

Note

Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

The message type can only be changed for messages with the appropriate identification (exception, value = 0).

Example:

F12345(A) --> Fault F12345 can be changed to alarm A12345.

In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

r2120	CO: Sum of fault and alarm buffer changes / Sum buffer changed		
All objects	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: 8065
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the sum of all of the fault and alarm buffer changes in the drive unit.		
Dependency:	See also: r0944, r2121		

r2121	CO: Counter alarm buffer changes / Alrm buff changed		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8065
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	This counter is incremented every time the alarm buffer changes.		
Dependency:	See also: r2110, r2122, r2123, r2124, r2125		

r2122[0...63]

Alarm code / Alarm code

All objects

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 8050, 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the number of alarms that have occurred.

Dependency: See also: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123

NOTICE
The properties of the alarm buffer should be taken from the corresponding product documentation.

Note

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

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

...

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

...

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2123[0...63]

Alarm time received in milliseconds / t_alarm recv ms

All objects

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 8050, 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [ms]	- [ms]	- [ms]

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

Dependency: See also: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123

NOTICE
The time comprises r2145 (days) and r2123 (milliseconds).

Note

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

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2124[0...63]

Alarm value / Alarm value

All objects

Changeable: -	Calculation: -	Access level: 3
Data type: Integer32	Dynamic index: -	Function plan: 8050, 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays additional information about the active alarm (as integer number).

Dependency: See also: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123

Note

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

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2125[0...63]	Alarm time removed in milliseconds / t_alarm res ms		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 8050, 8065
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]
Description:	Displays the system runtime in milliseconds when the alarm was cleared.		
Dependency:	See also: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123		

NOTICE

The time comprises r2146 (days) and r2125 (milliseconds).

Note

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

p2126[0...19]	Change acknowledge mode fault number / Chng ackn F_no		
All objects	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8050, 8075
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0
Description:	Selects the faults for which the acknowledge mode is to be changed		
Dependency:	Selects the faults and sets the required acknowledge mode realized under the same index See also: p2127		

Note

Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2127[0...19]	Change acknowledge mode mode / Chng ackn mode		
All objects	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 8050, 8075
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	3	1
Description:	Sets the acknowledge mode for selected fault.		
Value:	1: Acknowledgment only using POWER ON 2: Ack IMMEDIATELY after the fault cause has been removed 3: Acknowledgment only for PULSE INHIBIT		
Dependency:	Selects the faults and sets the required acknowledge mode realized under the same index See also: p2126		

NOTICE

It is not possible to re-parameterize the acknowledge mode for a fault in the following cases:
- Fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Acknowledge mode is not permissible for the set fault number.

Note

Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The acknowledge mode can only be changed for faults with the appropriate identification.

Example:

F12345 and acknowledge mode = IMMEDIATELY (POWER ON)

--> The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

p2128[0...15]

Faults/alarms trigger selection / F/A trigger sel

All objects

Changeable: T, U

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: 8050, 8070

P group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

65535

0

Description:

Sets the faults/alarms for which a trigger signal should be generated in r2129.0...15.

Dependency:

If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.

See also: r2129

r2129.0...15

CO/BO: Faults/alarms trigger signal / F/A trigger signal

All objects

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: 8070

P group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for the trigger signals of the faults/alarms set in p2128[0...15].

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Trigger signal p2128[0]	ON	OFF	-
01	Trigger signal p2128[1]	ON	OFF	-
02	Trigger signal p2128[2]	ON	OFF	-
03	Trigger signal p2128[3]	ON	OFF	-
04	Trigger signal p2128[4]	ON	OFF	-
05	Trigger signal p2128[5]	ON	OFF	-
06	Trigger signal p2128[6]	ON	OFF	-
07	Trigger signal p2128[7]	ON	OFF	-
08	Trigger signal p2128[8]	ON	OFF	-
09	Trigger signal p2128[9]	ON	OFF	-
10	Trigger signal p2128[10]	ON	OFF	-
11	Trigger signal p2128[11]	ON	OFF	-
12	Trigger signal p2128[12]	ON	OFF	-
13	Trigger signal p2128[13]	ON	OFF	-
14	Trigger signal p2128[14]	ON	OFF	-
15	Trigger signal p2128[15]	ON	OFF	-

Dependency:

If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.

See also: p2128

Note

CO: r2129 = 0 --> None of the selected messages has occurred.

CO: r2129 > 0 --> At least one of the selected messages has occurred.

r2130[0...63]	Fault time received in days / t_fault recv days		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the system runtime in days when the fault occurred.		
Dependency:	See also: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136, r3115, r3120, r3122		

NOTICE

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

Note

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

r2131	CO: Actual fault code / Act fault code		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the code of the oldest active fault.		
Dependency:	See also: r3131, r3132		

Note

0: No fault present.

r2132	CO: Actual alarm code / Actual alarm code		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8065
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the code of the last alarm that occurred.		

Note

0: No alarm present.

r2133[0...63]	Fault value for float values / Fault val float		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8060
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays additional information about the fault that occurred for float values.		
Dependency:	See also: r0945, r0947, r0948, r0949, r2109, r2130, r2136, r3115		

Note

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

r2134[0...63]

Alarm value for float values / Alarm value float

All objects

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays additional information about the active alarm for float values.

Dependency:

See also: r2110, r2122, r2123, r2124, r2125, r2145, r2146, r3121, r3123

Note

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

r2135.0...15

CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

All objects

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 2548
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and BICO output for the second status word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-
12	Fault motor overtemperature	Yes	No	8016
13	Fault power unit thermal overload	Yes	No	8014
14	Alarm motor overtemperature	Yes	No	8016
15	Alarm power unit thermal overload	Yes	No	8014

r2136[0...63]

Fault time removed in days / t_fit resolv days

All objects

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 8060
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the system runtime in days when the fault was removed.

Dependency:

See also: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133, r3115, r3120, r3122

NOTICE

The time comprises r2136 (days) and r2109 (milliseconds).

Note

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

r2138.7...15**CO/BO: Control word faults/alarms / STW fault/alarm**

All objects

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Function plan:** 2546**P group:** Displays, signals**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Display and BICO output for the control word of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
07	Acknowledge fault	Yes	No	8060
10	External alarm 1 (A07850) effective	Yes	No	8065
11	External alarm 2 (A07851) effective	Yes	No	8065
12	External alarm 3 (A07852) effective	Yes	No	8065
13	External fault 1 (F07860) effective	Yes	No	8060
14	External fault 2 (F07861) effective	Yes	No	8060
15	External fault 3 (F07862) effective	Yes	No	8060

Dependency:

See also: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2139.0...15**CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1**

All objects

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned16**Dynamic index:** -**Function plan:** 2548**P group:** Displays, signals**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Display and BICO output for status word 1 of faults and alarms.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Being acknowledged	Yes	No	-
01	Acknowledgment required	Yes	No	-
03	Fault present	Yes	No	8060
05	Safety message present	Yes	No	-
06	Internal message 1 present	Yes	No	-
07	Alarm present	Yes	No	8065
08	Internal message 2 present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Fault gone/can be acknowledged	Yes	No	-

Note

For bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present" or "alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).

For bit 06, 08:

These status bits are used for internal diagnostic purposes only.

For bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8010
	P group: Messages	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [rpm]	300.00 [rpm]	90.00 [rpm]
Description:	Sets the hysteresis speed (bandwidth) for the following signals: " n_act <= speed threshold value 2" (BO: r2197.1) " n_act > speed threshold value 2" (BO: r2197.2)		
Dependency:	See also: p2155, r2197		
p2141[0...n]	Speed threshold 1 / n_thresh val 1		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8010
	P group: Messages	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [rpm]	210000.00 [rpm]	5.00 [rpm]
Description:	Sets the speed threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).		
Dependency:	See also: p2142, r2199		
p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8010
	P group: Messages	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [rpm]	300.00 [rpm]	2.00 [rpm]
Description:	Sets the hysteresis speed (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).		
Dependency:	See also: p2141, r2199		
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Function plan: 8012
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for the negated enable (0 = enable) of the motor stall monitoring.		
Dependency:	See also: p2163, p2164, p2166, r2197, r2198 See also: F07900		
	Note		
	When interconnecting the enable signal with r2197.7 then the stall signal is suppressed if there is no speed setpoint - actual value deviation.		

r2145[0...63]	Alarm time received in days / t_alarm recv days		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8065
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the system runtime in days when the alarm occurred.		
Dependency:	See also: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146, r3121, r3123		

NOTICE

The time comprises r2145 (days) and r2123 (milliseconds).

Note

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

r2146[0...63]	Alarm time removed in days / t_alarm res days		
All objects	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 8065
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the system runtime in days when the alarm was cleared.		
Dependency:	See also: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145, r3121, r3123		

NOTICE

The time comprises r2146 (days) and r2125 (milliseconds).

Note

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

p2147	Delete fault buffer of all drive objects / Del fault buffer		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: 8060
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Setting to delete the fault buffer of all existing drive objects.		
Value:	0: Inactive		
	1: Start to delete the fault buffer of all drive objects		
Dependency:	See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		

Note

p2147 is automatically set to 0 after execution.

p2148[0...n] SERVO_828, SERVO_COMBI	BI: RFG active / RFG active Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: CALC_MOD_LIM_REF Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 8011 Unit selection: - Expert list: 1 Default: 0
--	--	--	---

Description: Sets the signal source for the signal "ramp-function generator active" for the following signals/messages:
"Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4)
"Ramp-up/ramp-down completed" (BO: r2199.5)

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

Note
The binector input is automatically pre-assigned to r1199.2.
The following applies for SERVO:
The pre-assignment using the automatic calculation of the motor/control parameters in the drive (p0340 = 1, 3, 5) is only realized if, at the instant of the calculation, the "setpoint channel" function module is active (r0108.8 = 1). If the calculation in p0340 is not selected when downloading parameters, then the parameter is not preassigned.

p2149[0...n] SERVO_828, SERVO_COMBI	Monitoring configuration / Monit config Changeable: T, U Data type: Unsigned16 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin
--	---	--	--

Description: Sets the configuration for messages and monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable alarm A07903	Yes	No	8011
	01	Load monitoring only in the 1st quadrant	Yes	No	8013
	03	Reserved			-
	15	Automatic parameterization carried out (p0340 = 1, p3900 > 0)	Yes	No	-

Dependency: See also: r2197
See also: A07903

Note
For bit 00:
Alarm A07903 is output when the bit is set with r2197.7 = 0 (n_set <> n_act).
For bit 01:
When the bit is set, load monitoring is only carried out in the 1st quadrant as a result of the positive characteristic parameters (p2182 ... p2190).
For bit 03:
When the bit is set, r2197.1 and r2197.2 are determined using separate hysteresis functions.
For bit 15:
The bit indicates whether the automatic parameterization (p0340 = 1, p3900 > 0) for the parameters of the extended monitoring functions was carried out.
If the bit is not set (e.g. when the configuration is activated (p0108.15)), the parameterization is automatically carried out during booting even if r3925.0 is already 1.

p2150[0...n] SERVO_828, SERVO_COMBI	Hysteresis speed 3 / n_hysteresis 3 Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.00 [rpm]	Calculation: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Unit group: 3_1 Scaling: - Max: 300.00 [rpm]	Access level: 3 Function plan: 8010, 8011 Unit selection: p0505 Expert list: 1 Default: 2.00 [rpm]
Description:	Sets the hysteresis speed (bandwidth) for the following signals: " n_act < speed threshold value 3" (BO: r2199.0) "n_set >= 0" (BO: r2198.5) "n_act >= 0" (BO: r2197.3)		
Dependency:	See also: p2161, r2197, r2199		
p2151[0...n] SERVO_828, SERVO_COMBI	Cl: Speed setpoint for messages/signals / n_set for msg Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: p2000 Max: -	Access level: 3 Function plan: 8011 Unit selection: - Expert list: 1 Default: 1438[0]
Description:	Sets the signal source for the speed setpoint for the following messages: "Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7) "Ramp-up/ramp-down completed" (BO: r2199.5) " n_set < p2161" (BO: r2198.4) "n_set > 0" (BO: r2198.5)		
Dependency:	See also: r2197, r2198, r2199		
p2153[0...n] HLA_828	Velocity actual value filter time constant / v_act_filt T Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0 [ms]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 1000000 [ms]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0 [ms]
Description:	Sets the time constant of the PT1 element to smooth the speed / velocity actual value. The smoothed actual speed/velocity is compared with the threshold values and is only used for messages and signals.		
Dependency:	See also: r2169		
p2153[0...n] SERVO_828, SERVO_COMBI	Speed actual value filter time constant / n_act_filt T Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0 [ms]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 1000000 [ms]	Access level: 3 Function plan: 8010 Unit selection: - Expert list: 1 Default: 0 [ms]
Description:	Sets the time constant of the PT1 element to smooth the speed / velocity actual value. The smoothed actual speed/velocity is compared with the threshold values and is only used for messages and signals.		
Dependency:	See also: r2169		

p2154[0...n] SERVO_828, SERVO_COMBI	CI: Speed setpoint 2 / n_set 2 Changeable: T Data type: Unsigned32 / FloatingPoint32 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: p2000 Max: -	Access level: 3 Function plan: 8010 Unit selection: - Expert list: 1 Default: 0
--	---	--	---

Description: Sets the signal source for speed setpoint 2.
The sum of p2151 and p2154 is used for the following messages/signals:
"Speed setpoint - actual value deviation within tolerance t_off" (r2197.7)
"Speed setpoint - actual value deviation within tolerance t_on" (r2199.4)
"Ramp-up/ramp-down completed" (r2199.5)

Dependency: See also: p2151, r2197, r2199

p2155[0...n] SERVO_828, SERVO_COMBI	Speed threshold 2 / n_thresh val 2 Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.00 [rpm]	Calculation: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Unit group: 3_1 Scaling: - Max: 210000.00 [rpm]	Access level: 3 Function plan: 8010 Unit selection: p0505 Expert list: 1 Default: 900.00 [rpm]
--	--	--	--

Description: Sets the speed threshold value for the following messages:
"|n_act| <= speed threshold value 2" (BO: r2197.1)
"|n_act| > speed threshold value 2" (BO: r2197.2)

Dependency: See also: p2140, r2197

p2156[0...n] SERVO_828, SERVO_COMBI	On delay comparison value reached / t_on cmpr val rchd Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.0 [ms]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10000.0 [ms]	Access level: 2 Function plan: 8010 Unit selection: - Expert list: 1 Default: 0.0 [ms]
--	--	---	--

Description: Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).

Dependency: See also: p2141, p2142, r2199

p2161[0...n] SERVO_828, SERVO_COMBI	Speed threshold 3 / n_thresh val 3 Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.00 [rpm]	Calculation: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Unit group: 3_1 Scaling: - Max: 210000.00 [rpm]	Access level: 3 Function plan: 8010, 8011 Unit selection: p0505 Expert list: 1 Default: 5.00 [rpm]
--	--	--	--

Description: Sets the speed threshold value for the signal "|n_act| < speed threshold value 3" (BO: r2199.0).

Dependency: See also: p2150, r2199

p2162[0...n] SERVO_828, SERVO_COMBI	Hysteresis speed $n_{act} > n_{max}$ / Hyst $n_{act} > n_{max}$		
	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8010
	P group: Messages	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 60000.00 [rpm]	Default: 0.00 [rpm]
Description:	Sets the hysteresis speed (bandwidth) for the signal " $n_{act} > n_{max}$ " (BO: r2197.6).		
Dependency:	See also: r1084, r1087, r2197		

NOTICE

For p0322 = 0, the following applies: $p2162 \leq 0.1 * p0311$
For p0322 > 0, the following applies: $p2162 \leq 1.02 * p0322 - p1082$
If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.

Note

For a negative speed limit (r1087) the hysteresis is effective below the limit value and for a positive speed limit (r1084) above the limit value.

If significant overshoot occurs in the maximum speed range (e.g. due to load shedding), you are advised to increase the dynamic response of the speed controller (if possible). If this is insufficient, the hysteresis p2162 can only be increased by more than 10% of the rated speed when the maximum speed (p0322) of the motor is sufficiently greater than the speed limit p1082.

p2162[0...n] HLA_828	Hysteresis velocity $v_{act} > v_{max}$ / Hyst $v_{act} > v_{max}$		
	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8010
	P group: Messages	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [m/min]	Max: 1000.00 [m/min]	Default: 6.00 [m/min]
Description:	Sets the hysteresis velocity (bandwidth) for the signal " $v_{act} > v_{max}$ " (BO: r2197.6).		
Dependency:	See also: r1084, r1087, r2197		

NOTICE

For p0322 = 0, the following applies: $p2162 \leq 0.1 * p0311$
For p0322 > 0, the following applies: $p2162 \leq 1.02 * p0322 - p1082$
If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.

Note

For a negative velocity limit (r1087) the hysteresis is effective below the limit value and for a positive velocity limit (r1084) above the limit value.

p2163[0...n] HLA_828	Velocity threshold value 4 / v_{thresh} val 4		
	Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: Messages	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [m/min]	Max: 1000.00 [m/min]	Default: 0.90 [m/min]

Description: Sets the velocity threshold value for the "speed setpoint - actual value deviation in tolerance t_off" message (BO: r2197.7).

Dependency: See also: p2164, p2166, r2197

p2163[0...n] Speed threshold 4 / n_thresh val 4

SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation:
CALC_MOD_LIM_REF

Access level: 2

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: 8011

P group: Messages

Unit group: 3_1

Unit selection: p0505

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [rpm]

210000.00 [rpm]

90.00 [rpm]

Description: Sets the speed threshold value for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).

Dependency: See also: p2164, p2166, r2197

p2164[0...n] Hysteresis velocity 4 / v_hysteresis 4

HLA_828

Changeable: T, U

Calculation:
CALC_MOD_LIM_REF

Access level: 2

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: -

P group: Messages

Unit group: 4_1

Unit selection: p0505

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [m/min]

10.00 [m/min]

0.02 [m/min]

Description: Sets the hysteresis velocity (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" message (BO: r2197.7).

Dependency: See also: p2163, p2166, r2197

p2164[0...n] Hysteresis speed 4 / n_hysteresis 4

SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation:
CALC_MOD_LIM_REF

Access level: 2

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: 8011

P group: Messages

Unit group: 3_1

Unit selection: p0505

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [rpm]

200.00 [rpm]

2.00 [rpm]

Description: Sets the hysteresis speed (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).

Dependency: See also: p2163, p2166, r2197

p2166[0...n] Off delay v_act = v_set / t_del_off n_i=n_so

HLA_828

Changeable: T, U

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: DDS, p0180

Function plan: -

P group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0 [ms]

10000.0 [ms]

200.0 [ms]

Description: Sets the switch-off delay time for the "velocity setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).

Dependency: See also: p2163, p2164, r2197

p2166[0...n] SERVO_828, SERVO_COMBI	Off delay n_act = n_set / t_del_off n_i=n_so Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.0 [ms] Description: Sets the switch-off delay time for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7). Dependency: See also: p2163, p2164, r2197	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10000.0 [ms]	Access level: 2 Function plan: 8011 Unit selection: - Expert list: 1 Default: 200.0 [ms]
p2167[0...n] SERVO_828, SERVO_COMBI	Switch-on delay n_act = n_set / t_on n_act=n_set Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.0 [ms] Description: Sets the switch-on delay for the "speed setpoint - actual value deviation in tolerance t_on" signal/message (BO: r2199.4).	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10000.0 [ms]	Access level: 2 Function plan: 8011 Unit selection: - Expert list: 1 Default: 200.0 [ms]
r2169 HLA_828	CO: Actual velocity smoothed signals / v_act smth message Changeable: - Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: - [m/min] Description: Display and connector output of the smoothed velocity actual value for messages. Dependency: See also: p2153	Calculation: - Dynamic index: - Unit group: 4_1 Scaling: p2000 Max: - [m/min]	Access level: 2 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [m/min]
r2169 SERVO_828, SERVO_COMBI	CO: Actual speed smoothed signals / n_act smth message Changeable: - Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: - [rpm] Description: Display and connector output of the smoothed speed actual value for messages. Dependency: See also: p2153	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 2 Function plan: 8010 Unit selection: p0505 Expert list: 1 Default: - [rpm]
p2174[0...n] SERVO_828, SERVO_COMBI	Torque threshold value 1 / M_thresh val 1 Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.00 [Nm] Description: Sets the torque threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).	Calculation: - Dynamic index: DDS, p0180 Unit group: 7_1 Scaling: - Max: 20000000.00 [Nm]	Access level: 2 Function plan: 8012 Unit selection: p0505 Expert list: 1 Default: 5.13 [Nm]

Dependency: See also: p2195, r2198

p2175[0...n] **Motor blocked velocity threshold / Mot lock v_thresh**
 HLA_828

Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8012
P group: Messages	Unit group: 4_1	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [m/min]	Max: 1000.00 [m/min]	Default: 1.20 [m/min]

Description: Sets the velocity threshold for the message "Motor locked".

Dependency: See also: p2177
See also: F07900

p2175[0...n] **Motor blocked speed threshold / Mot lock n_thresh**
 SERVO_828,
 SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8012
P group: Messages	Unit group: 3_1	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 120.00 [rpm]

Description: Sets the speed threshold for the message "Motor blocked" (BO: r2198.6).

Dependency: See also: p0500, p2177, r2198
See also: F07900

p2177[0...n] **Motor blocked delay time / Mot lock t_del**
 HLA_828

Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8012
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.000 [s]	Max: 65.000 [s]	Default: 1.000 [s]

Description: Sets the delay time for the message "Motor locked".

Dependency: See also: p0500, p2175, r2198
See also: F07900

p2177[0...n] **Motor blocked delay time / Mot lock t_del**
 SERVO_828,
 SERVO_COMBI

Changeable: T, U	Calculation: CALC_MOD_LIM_REF	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 8012
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.000 [s]	Max: 65.000 [s]	Default: 1.000 [s]

Description: Sets the delay time for the message "Motor blocked" (BO: r2198.6).

Dependency: See also: p0500, p2175, r2198
See also: F07900

p2194[0...n] SERVO_828, SERVO_COMBI	Torque threshold value 2 / M_thresh val 2 Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.00 [%] Description: Sets the torque threshold value for the message "Torque utilization < torque threshold value 2" (BO: r2199.11). The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired. Dependency: See also: r0033, p2195, r2199	Calculation: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 100.00 [%]	Access level: 2 Function plan: 8012 Unit selection: - Expert list: 1 Default: 90.00 [%]																																			
p2195[0...n] SERVO_828, SERVO_COMBI	Torque utilization switch-off delay / M_util t_off Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0.0 [ms] Description: Sets the switch-off delay time for the negated signal "run-up completed". The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired. Dependency: See also: p2174, p2194	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 1000.0 [ms]	Access level: 2 Function plan: 8012 Unit selection: - Expert list: 1 Default: 800.0 [ms]																																			
p2196[0...n] SERVO_828, SERVO_COMBI	Torque utilization scaling / M_util scal Changeable: C2(1, 3), T, U Data type: FloatingPoint32 P group: Motor Not for motor type: - Min: 0.00 [%] Description: Sets the scaling factor for torque utilization (r0033).	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 1000.00 [%]	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: 100.00 [%]																																			
r2197.1...13 HLA_828	CO/BO: Status word monitoring 1 / ZSW monitor 1 Changeable: - Data type: Unsigned16 P group: Messages Not for motor type: - Min: - Description: Display and BICO output for the first status word of the monitoring functions.	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -																																			
Bit field:	<table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr> <td>01</td> <td> v_act <= velocity threshold value 2 p2155</td> <td>Yes</td> <td>No</td> <td>8010</td> </tr> <tr> <td>02</td> <td> v_act > velocity threshold value 2 p2155</td> <td>Yes</td> <td>No</td> <td>8010</td> </tr> <tr> <td>03</td> <td>v_act >= 0</td> <td>Yes</td> <td>No</td> <td>8011</td> </tr> <tr> <td>06</td> <td> v_act > v_max</td> <td>Yes</td> <td>No</td> <td>8010</td> </tr> <tr> <td>07</td> <td>Velocity setpoint - actual value deviation in tolerance t_off</td> <td>Yes</td> <td>No</td> <td>8011</td> </tr> <tr> <td>13</td> <td> v_act > v_max (F07901)</td> <td>Yes</td> <td>No</td> <td>-</td> </tr> </tbody> </table>	Bit	Signal name	1 signal	0 signal	FP	01	v_act <= velocity threshold value 2 p2155	Yes	No	8010	02	v_act > velocity threshold value 2 p2155	Yes	No	8010	03	v_act >= 0	Yes	No	8011	06	v_act > v_max	Yes	No	8010	07	Velocity setpoint - actual value deviation in tolerance t_off	Yes	No	8011	13	v_act > v_max (F07901)	Yes	No	-		
Bit	Signal name	1 signal	0 signal	FP																																		
01	v_act <= velocity threshold value 2 p2155	Yes	No	8010																																		
02	v_act > velocity threshold value 2 p2155	Yes	No	8010																																		
03	v_act >= 0	Yes	No	8011																																		
06	v_act > v_max	Yes	No	8010																																		
07	Velocity setpoint - actual value deviation in tolerance t_off	Yes	No	8011																																		
13	v_act > v_max (F07901)	Yes	No	-																																		

Note

For bit 01, 02:
The threshold value is set in p2155 and the hysteresis in p2140.
For bit 03:
The hysteresis is set in p2150.
For bit 06:
The hysteresis is set in p2162.
For bit 07:
The threshold value is set in p2163 and the hysteresis is set in p2164.
For bit 13:
Only for internal Siemens use.

r2197.1...13

SERVO_828,
SERVO_COMBI

CO/BO: Status word monitoring 1 / ZSW monitor 1

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 2534
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and BICO output for the first status word of the monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	n_act <= speed threshold value 2 p2155	Yes	No	8010
02	n_act > speed threshold value 2 p2155	Yes	No	8010
03	n_act >= 0	Yes	No	8011
06	n_act > n_max	Yes	No	8010
07	Speed setp - act val deviation in tolerance t_off	Yes	No	8011
13	n_act > n_max (F07901)	Yes	No	-

Note

For bit 01, 02:
The threshold value is set in p2155 and the hysteresis in p2140.
For bit 03:
The hysteresis is set in p2150.
For bit 06:
The hysteresis is set in p2162.
For bit 07:
The threshold value is set in p2163 and the hysteresis is set in p2164.
For bit 13:
Only for internal Siemens use.

r2198.4...12

SERVO_828,
SERVO_COMBI

CO/BO: Status word monitoring 2 / ZSW monitor 2

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 2536
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and BICO output for the second status word of the monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	n_set < p2161	Yes	No	8011
05	n_set > 0	Yes	No	8011
06	Motor blocked	Yes	No	8012

10	M_set < torque threshold value 1	Yes	No	8012
11	Load monitoring signals an alarm	Yes	No	8013
12	Load monitoring signals a fault condition	Yes	No	8013

Note

For bit 10:

The torque threshold value 1 is set in p2174.

For bit 12:

This bit is reset after the fault cause disappears, even if the fault itself is still present.

r2199.0...11

SERVO_828,
SERVO_COMBI

CO/BO: Status word monitoring 3 / ZSW monitor 3

Changeable: -

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Function plan: 2537

P group: Messages

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for the third status word of the monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	n_act < speed threshold value 3	Yes	No	8010
01	f or n comparison value reached or exceeded	Yes	No	8010
04	Speed setp - act val deviation in tolerance t_on	Yes	No	8011
05	Ramp-up/ramp-down completed	Yes	No	8011
06	Current below the zero current threshold	Yes	No	8018
11	Torque utilization < torque threshold value 2	Yes	No	8012

Note

For bit 00:

The speed threshold value 3 is set in p2161.

For bit 01:

The comparison value is set in p2141. We recommend setting the hysteresis (p2142) for canceling the bit to a value lower than that in p2141. Otherwise, the bit is not reset.

For bit 11:

The torque threshold value 2 is set in p2194.

p2503[0...n]

SERVO_828 (APC),
SERVO_COMBI (APC)

LR length unit LU per 10 mm / LU per 10 mm

Changeable: C2(25)

Calculation: -

Access level: 1

Data type: Unsigned32

Dynamic index: DDS, p0180

Function plan: 4010

P group: Closed loop position control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

1 [LU]

2147483647 [LU]

10000 [LU]

Description:

Sets the neutral length units LU per 10 mm.

Therefore, for a linear scale, a reference is established between the physical arrangement and the neutral length units LU used in the drive.

Example:

Linear scale, 10 mm should be broken down to units of μm (i.e. 1 LU = 1 μm).

--> p2503 = 10000

Note

The assignment to the grid spacing can be achieved using this for a rotary axis with linear encoder.

LU: Length Unit

p2504[0...n]	LR motor/load motor revolutions / Mot/load motor rev		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: C2(25)	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: 4010, 4704, 4711
	P group: Closed loop position control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 1048576	Default: 1
Description:	Sets the motor revolutions for the gearbox factor between the motor shaft and load shaft. Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)		
Dependency:	See also: p0432, p0433, p2505		
	Note The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.		

p2505[0...n]	LR motor/load load revolutions / Mot/load load rev		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: C2(25)	Calculation: -	Access level: 1
	Data type: Integer32	Dynamic index: DDS, p0180	Function plan: 4010, 4704, 4711
	P group: Closed loop position control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1048576	Max: 1048576	Default: 1
Description:	Sets the load revolutions for the gearbox factor between the motor shaft and load shaft. Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)		
Dependency:	See also: p0432, p0433, p2504		
	Note The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.		

p2506[0...n]	LR length unit LU per load revolution / LU per load rev		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: C2(25)	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: 4010
	P group: Closed loop position control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1 [LU]	Max: 2147483647 [LU]	Default: 10000 [LU]
Description:	Sets the neutral length units LU per load revolution. Therefore, for a rotary encoder, a reference is established between the physical arrangement and the neutral length units LU used in the drive. Example: Rotary encoder, ballscrew with 10 mm/revolution, 10 mm should be broken down to units of µm (i.e. 1 LU = 1 µm). --> One load revolution corresponds to 10000 LU --> p2506 = 10000		
	Note The position controller can only process position setpoints in the interpolator clock cycle (IPO clock cycle) in integer length units (LU, Length Unit). This is the reason that speed setpoints that are not a multiple integer of 1 LU per IPO clock cycle can only be realized as an average. The result speed setpoint steps are especially noticeable for a high loop gain or when the pre-control is active. Increasing p2506 counteracts this behavior.		

p2600	EPOS search for reference reference point offset / Ref_pt offset		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U Data type: Integer32 P group: Basic positioner Not for motor type: - Min: -2147482648 [LU]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2147482647 [LU]	Access level: 1 Function plan: 3612 Unit selection: - Expert list: 1 Default: 0 [LU]
Description:	Sets the reference point offset for search for reference.		

r2700	CO: Reference speed/reference frequency / n_ref/f_ref		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display and connector output for the reference quantity for speed and frequency (p2000). All speeds or frequencies 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). The following applies: Reference frequency (in Hz) = reference speed (in rpm) / 60 This parameter has the unit rpm.		
Dependency:	See also: p2000		

Note

This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2700	CO: Reference frequency / f_ref		
A_INF_828, B_INF_828	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display and connector output of the actual reference quantity for the frequency (p2000). All frequencies specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit Hz.		
Dependency:	See also: p2000		

Note

This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2700	CO: Reference frequency actual / f_ref act		
S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Display and connector output of the actual reference quantity for the frequency (p2000). All frequencies specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit Hz.		
Dependency:	See also: p2000		
	Note		
	This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.		

r2701	CO: Reference voltage / Reference voltage		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Display and connector output of the reference quantity for voltages p2001. All voltages specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit V.		
Dependency:	See also: p2001		
	Note		
	This BICO parameter provides the numerical value of the reference quantity p2001 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.		

r2701	CO: Reference voltage / Reference voltage		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Connector output of the reference quantity for voltages p2001. All voltages specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit Vrms.		
Dependency:	See also: p2001		
	Note		
	This BICO parameter provides the numerical value of the reference quantity p2001 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.		

r2702	CO: Reference current / Reference current		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Connector output of the reference quantity for currents p2002. All currents specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit Arms.		
Dependency:	See also: p2002		
	Note This BICO parameter provides the numerical value of the reference quantity p2002 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.		
r2703	CO: Reference torque / Reference torque		
SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Connector output of the reference quantity p2003 for torque (r0108.12 = 0) or force (r0108.12 = 1). All torques specified as relative values (r0108.12 = 0) or forces (r0108.12 = 1) are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). The unit of this parameter is the same as the unit selected for p2003.		
Dependency:	p0505, r0108.12 See also: p2003		
	Note This BICO parameter provides the numerical value of the reference quantity p2003 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.		
r2703	CO: Reference force actual / Ref force cur		
HLA_828	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the actual reference quantity for forces. All forces 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:	p0505, r0108.12 See also: p2003		

Note

This BICO parameter represents the numerical value of the reference quantity in the currently selected units and is only available for interconnection with Drive Control Chart (DCC). It is not suitable for interconnecting for cyclic communication.

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 force (r0079[0]) is connected to a test socket (e.g. p0771[0]). The actual force is cyclically converted into a percentage of the reference force (p2003) and output according to the parameterized scaling.

r2704

CO: Reference power / Reference power

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description:

Connector output of the reference quantity for powers p2004.
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).
The unit of this parameter is the same as the unit selected for p2004.

Dependency:

This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls.
See also: r2004

Note

This BICO parameter provides the numerical value of the reference quantity p2004 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

The reference power is calculated as follows:

- $2 * \text{Pi} * \text{reference speed} / 60 * \text{reference torque (motor)}$
- $\text{reference voltage} * \text{reference current} * \text{root}(3) \text{ (infeed)}$

r2705

CO: Reference angle / Reference angle

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description:

Connector output of the reference quantity for angles p2005.
All angles specified as relative value are referred to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit degree.

Dependency:

See also: p2005

Note

This BICO parameter provides the numerical value of the reference quantity p2005 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2706	CO: Reference temp / Reference temp		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Connector output of the reference quantity for temperatures. All temperatures specified as relative value are referred to this reference quantity. The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word). This parameter has the unit degree Celsius.		

Note

This BICO parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

r2707	CO: Reference acceleration / Ref accel		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Connector output of the reference quantity for accelerations p2007. All acceleration rates 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). The unit of this parameter is the same as the unit selected for p2007.		
Dependency:	r0108.12, p0505 See also: p2007		

Note

This BICO parameter provides the numerical value of the reference quantity p2007 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value in the currently selected unit can be adopted unchanged from this connector output in DCC. This BICO parameter is not suitable for interconnecting for cyclic communication.

p2720[0...n]	Load gear configuration / Load gear config		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(1, 4) Data type: Unsigned32 P group: Encoder Not for motor type: - Min: -	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: -	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: 0000 bin
Description:	Sets the configuration for position tracking of a load gear.		
Bit field:	Bit	Signal name	1 signal 0 signal FP
	00	Load gear activate position tracking	Yes No -
	01	Axis type	Linear axis Rotary axis -
	02	Load gear reset position	Yes No -

Note

For the following events, the non-volatile, saved position values are automatically reset:
 - when an encoder replacement has been identified.
 - when changing the configuration of the Encoder Data Set (EDS).
 - when adjusting the absolute encoder again

p2721[0...n]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Load gear rotary absolute encoder revolutions virtual / Abs rot rev

Changeable: C2(1, 4)	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 4194303	Default: 0

Description: Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gear (p2720.0 = 1).

Note

The resolution that is set must be able to be represented using r2723.
 For rotary axes/modulo axes, the following applies:
 This parameter is pre-set with p0421 when activating position tracking and can be changed.
 For linear axes, the following applies:
 This parameter is pre-assigned with p0421 when activating position tracking, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.

p2722[0...n]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Load gear position tracking tolerance window / Pos track tol

Changeable: C2(1, 4)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00	Max: 4294967300.00	Default: 0.00

Description: Sets a tolerance window for position tracking.
 After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:

Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.

Difference outside the tolerance window --> An appropriate message is output.

Dependency: See also: F07449



CAUTION

Rotation, e.g. through a complete encoder range is not detected.

Note

The value is entered in integer (complete) encoder pulses.
 For p2720.0 = 1, the value is automatically pre-assigned quarter of the encoder range.
 Example:
 Quarter of the encoder range = (p0408 * p0421) / 4
 It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

r2723[0...n]	CO: Load gear absolute value / Load gear abs_val		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: 4010, 4704
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the absolute value after the load gear.		

NOTICE

The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note

The increments are displayed in the format the same as r0483.

r2724[0...n]	CO: Load gear position difference / Load gear pos diff		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer32	Dynamic index: DDS, p0180	Function plan: -
	P group: Encoder	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the position difference before the load gear between powering down and powering up.		

Note

The increments are displayed in the same format as for r0483/r2723.

If the measuring gear of the motor encoder is not activated, the position difference should be read in encoder increments.

If the measuring gear of the motor encoder is activated, the position difference is converted using the measuring gear factor.

p2810[0...1]	BI: AND logic operation inputs / AND inputs		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2634
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal sources for the inputs of the AND logic operation.		
Dependency:	See also: r2811		

Note

[0]: AND logic operation, input 1 --> the result is displayed in r2811.0.

[1]: AND logic operation, input 2 --> the result is displayed in r2811.0.

r2811.0	CO/BO: AND logic operation result / AND result		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2634
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the result of the AND logic operation

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00				-

Dependency: See also: p2810

p2816[0...1] BI: OR logic operation inputs / OR inputs

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2634
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal sources for the inputs of the OR logic operation.

Dependency: See also: r2817

Note

[0]: OR logic operation, input 1 --> the result is displayed in r2817.0.
[1]: OR logic operation, input 2 --> the result is displayed in r2817.0.

r2817.0 CO/BO: OR logic operation result / OR result

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2634
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Displays the result of the OR logic operation.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	OR logic operation result	Yes	No	-

Dependency: See also: p2816

p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 1021
	P group: Free function blocks	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -10000.00 [%]	Max: 10000.00 [%]	Default: 0.00 [%]

Description: Setting and connector output for a fixed percentage value.

Dependency: See also: p2901, r2902, p2930

NOTICE

A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note

The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)

p2900	CO: Fixed value 1 [%] / Fixed value 1 [%]		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U Data type: FloatingPoint32 P group: Free function blocks Not for motor type: - Min: -10000.00 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: PERCENT Max: 10000.00 [%]	Access level: 3 Function plan: 1021 Unit selection: - Expert list: 1 Default: 0.00 [%]
Description:	Setting and connector output for a fixed percentage value.		
Dependency:	See also: p2901, r2902, p2930		

NOTICE

A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note

The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)

p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: Free function blocks Not for motor type: - Min: -10000.00 [%]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: PERCENT Max: 10000.00 [%]	Access level: 3 Function plan: 1021 Unit selection: - Expert list: 1 Default: 0.00 [%]
Description:	Setting and connector output for a fixed percentage value.		
Dependency:	See also: 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)

p2901	CO: Fixed value 2 [%] / Fixed value 2 [%]		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U Data type: FloatingPoint32 P group: Free function blocks Not for motor type: - Min: -10000.00 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: PERCENT Max: 10000.00 [%]	Access level: 3 Function plan: 1021 Unit selection: - Expert list: 1 Default: 0.00 [%]
Description:	Setting and connector output for a fixed percentage value.		
Dependency:	See also: 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]
 HLA_828,
 SERVO_828,
 SERVO_COMBI

CO: Fixed values [%] / Fixed values [%]

Changeable: -	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: -	Function plan: 1021
P group: Free function blocks	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: PERCENT	Expert list: 1
Min: - [%]	Max: - [%]	Default: - [%]

Description: Display and connector output for frequently used percentage values.

Index:

- [0] = Fixed value +0 %
- [1] = Fixed value +5 %
- [2] = Fixed value +10 %
- [3] = Fixed value +20 %
- [4] = Fixed value +50 %
- [5] = Fixed value +100 %
- [6] = Fixed value +150 %
- [7] = Fixed value +200 %
- [8] = Fixed value -5 %
- [9] = Fixed value -10 %
- [10] = Fixed value -20 %
- [11] = Fixed value -50 %
- [12] = Fixed value -100 %
- [13] = Fixed value -150 %
- [14] = Fixed value -200 %

Dependency: See also: p2900, p2901, p2930

Note

The signal sources can, for example, be used to interconnect scalings.

p2930[0...n]
 HLA_828

CO: Fixed value F [N] / Fixed value F [N]

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
P group: Free function blocks	Unit group: 8_1	Unit selection: p0505
Not for motor type: REL	Scaling: p2003	Expert list: 1
Min: -100000.00 [N]	Max: 100000.00 [N]	Default: 0.00 [N]

Description: Setting and connector output for a fixed force value.

Dependency: See also: p2900, p2901, r2902

NOTICE

A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note

The value can, for example, be used to interconnect a supplementary force.

p2930[0...n]
 SERVO_828,
 SERVO_COMBI

CO: Fixed value M [Nm] / Fixed value M [Nm]

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 1021
P group: Free function blocks	Unit group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: p2003	Expert list: 1
Min: -100000.00 [Nm]	Max: 100000.00 [Nm]	Default: 0.00 [Nm]

Description: Setting and connector output for a fixed torque value.

Dependency: See also: p2900, p2901, r2902

NOTICE

A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note

The value can, for example, be used to interconnect a supplementary torque.

p3016

SERVO_828,
SERVO_COMBI

MotId torque constant identified / kT ident**Changeable:** T, U**Data type:** FloatingPoint32**P group:** Motor identification**Not for motor type:** ASM, SESM, REL**Min:**

0.00 [Nm/A]

Calculation: CALC_MOD_ALL **Access level:** 3**Dynamic index:** -**Unit group:** 28_1**Scaling:** -**Max:**

100.00 [Nm/A]

Function plan: -**Unit selection:** p0100**Expert list:** 1**Default:**

0.00 [Nm/A]

Description:

Torque constant for the synchronous motor determined by the motor data identification.

This torque constant can be changed after the identification and accepted in p0316 with p1910/p1960 = -3.

Dependency:

See also: p0316, r0334, r1937, p1960

p3017

SERVO_828,
SERVO_COMBI

MotId voltage constant identified / kE ident**Changeable:** T, U**Data type:** FloatingPoint32**P group:** Motor identification**Not for motor type:** ASM, SESM, REL**Min:**

0.0 [Vrms]

Calculation: CALC_MOD_ALL **Access level:** 3**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

10000.0 [Vrms]

Function plan: -**Unit selection:** -**Expert list:** 1**Default:**

0.0 [Vrms]

Description:

Voltage constant for a synchronous motor determined by the motor data identification.

This voltage constant can be changed after the identification and accepted in p0317 with p1910/p1960 = -3.

Units for rotating synchronous motors: Vrms/(1000 rpm), phase-to-phase

Dependency:

See also: p0317, r1938, p1960

p3020

SERVO_828,
SERVO_COMBI

MotId magnetizing current identified / I_mag ident**Changeable:** T, U**Data type:** FloatingPoint32**P group:** Motor identification**Not for motor type:** SESM, REL**Min:**

0.000 [Arms]

Calculation: CALC_MOD_ALL **Access level:** 3**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

5000.000 [Arms]

Function plan: -**Unit selection:** -**Expert list:** 1**Default:**

0.000 [Arms]

Description:

Magnetizing current for an induction motor determined by the motor data identification.

This magnetizing current can be changed after the identification and accepted in p0320 with p1910/p1960 = -3.

Dependency:

See also: p0320, r0331, p1910, r1948, p1960

p3027

SERVO_828,
SERVO_COMBI

MotId optimum load angle identified / phi_load opt ident**Changeable:** T, U**Data type:** FloatingPoint32**P group:** Motor identification**Not for motor type:** ASM, SESM, REL**Min:**

0.0 [°]

Calculation: CALC_MOD_ALL **Access level:** 3**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

135.0 [°]

Function plan: -**Unit selection:** -**Expert list:** 1**Default:**

0.0 [°]

Description: Optimum load angle for a synchronous motor determined by the motor data identification.
This optimum load angle can be changed after the identification and accepted in p0327 with p1910/p1960 = -3.

Dependency: See also: p0327, r1947, p1960

p3028 **MotId reluctance torque constant identified / kT_reluct ident**

SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1
	Min: -1000.00 [mH]	Max: 1000.00 [mH]	Default: 0.00 [mH]

Description: Reluctance torque constant for a synchronous motor determined by the motor data identification.
This reluctance torque constant can be changed after the identification and accepted in p0328 with p1910/p1960 = -3.

Dependency: See also: p0328, r1939, p1960

p3030 **ChId factor plane adaptation positive / ChId pl_adap pos**

HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.00 [%]	Max: 200.00 [%]	Default: 100.00 [%]

Description: Sets the factor for the plane compensation in the positive direction from the characteristic identification.
This value corresponds to p1830 of the drive data set selected for the identification.

Dependency: See also: p1830

p3030 **MotId angular commutation offset identified / Ang_com offset**

SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -180.00 [°]	Max: 180.00 [°]	Default: 0.00 [°]

Description: Angular commutation offset for a synchronous motor determined by the motor data identification.
This angular commutation offset can be changed after the identification and accepted in p0431 with p1910/p1960 = -3.

Dependency: See also: p0431, p1910, p1960, r1984

p3031 **ChId factor plane adaptation negative / ChId pl_adap neg**

HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10 [%]	Max: 200 [%]	Default: 100 [%]

Description: Sets the factor for the plane compensation in the negative direction from the characteristic identification.
This value corresponds to p1831 of the drive data set selected for the identification.

Dependency: See also: p1831

p3031	MotId encoder inversion actual value identified / EnclnvActVal ident			
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Function plan: -	
	P group: Motor identification	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0000 bin	
Description:	Inversion of the encoder actual value determined by the motor data identification. This inversion can be changed after the identification and accepted in p0410 with p1910/p1960 = -3.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert speed actual value	Yes	No
	01	Invert position actual value	Yes	No
Dependency:	See also: p0410, p1910, p1960			
p3033	ChId transition point compensation Q1 positive zero range / ChId tr pt Q1 pos			
HLA_828	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -	
	P group: Motor identification	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0.01 [%]	95.00 [%]	0.01 [%]	
Description:	Displays the flow rate Q for point 1 positive (zero range) of the transition point compensation from the characteristic identification. This value corresponds to p1833 of the drive data set selected for the identification.			
Dependency:	See also: r1833, p1833			
p3034	ChID transition point compensation U1 positive zero range / ChId tr pt U1 pos			
HLA_828	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -	
	P group: Motor identification	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0.00 [%]	95.00 [%]	0.00 [%]	
Description:	Displays the voltage U for point 1 positive (zero range) of the transition point compensation from the characteristic identification. This value corresponds to p1834 of the drive data set selected for the identification.			
Dependency:	See also: p1834			
p3035	ChID transition point compensation rounding 1 pos. zero range / ChId TrPtRnd 1 pos			
HLA_828	Changeable: T, U	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -	
	P group: Motor identification	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0.00 [%]	30.00 [%]	0.00 [%]	
Description:	Displays the rounding for point 1 positive (zero range) of the transition point compensation from the characteristic identification. This value corresponds to p1835 of the drive data set selected for the identification.			

Dependency: See also: p1835

p3036 Chld transition point compensation Q1 negative zero range / Chld tr pt Q1 neg

HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.01 [%]	Max: 95.00 [%]	Default: 0.01 [%]

Description: Displays the flow rate Q for point 1 negative (zero range) of the transition point compensation from the characteristic identification.

This value corresponds to p1836 of the drive data set selected for the identification.

Dependency: See also: r1836, p1836

p3037 Chld transition point compensation U1 negative zero range / Chld tr pt U1 neg

HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 0.00 [%]

Description: Displays the voltage U for point 1 negative (zero range) of the transition point compensation from the characteristic identification.

This value corresponds to p1837 of the drive data set selected for the identification.

Dependency: See also: r1837, p1837

p3038 Chld transition point compensation rounding 1 neg. zero range / Chld TrPtRnd 1 neg

HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 30.00 [%]	Default: 0.00 [%]

Description: Displays the rounding for point 1 negative (zero range) of the transition point compensation from the characteristic identification.

This value corresponds to p1838 of the drive data set selected for the identification.

Dependency: See also: r1838, p1838

p3039 Chld transition point compensation Q2 positive / Chld tr pt Q2 pos

HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.02 [%]	Max: 95.00 [%]	Default: 10.00 [%]

Description: Displays the flow rate Q for point 2 positive of the transition point compensation from the characteristic identification.
This value corresponds to p1839 of the drive data set selected for the identification.

Dependency: See also: r1839, p1839

p3040	Chld transition point compensation U2 positive / Chld tr pt U2 pos		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 10.00 [%]
Description:	Displays the voltage U for point 2 positive of the transition point compensation from the characteristic identification. This value corresponds to p1840 of the drive data set selected for the identification.		
Dependency:	See also: p1840		
p3041	Chld transition point compensation rounding 2 positive / Chld TrPtRnd 2 pos		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 30.00 [%]	Default: 0.00 [%]
Description:	Displays the rounding for point 2 positive of the transition point compensation from the characteristic identification. This value corresponds to p1841 of the drive data set selected for the identification.		
Dependency:	See also: r1841, p1841		
p3041	Motld moment of inertia identified / M_inertia ident		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: 25_1	Unit selection: p0100
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000000 [kgm ²]	Max: 100000.000000 [kgm ²]	Default: 0.000000 [kgm ²]
Description:	Motor moment of inertia determined by the motor data identification. This motor moment of inertia can be changed after the identification and accepted in p0341 with p1910/p1960 = -3.		
Dependency:	See also: p0341, p1960, r1969		
p3042	Chld transition point compensation Q2 negative / Chld tr pt Q2 neg		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 0.00 [%]
Description:	Displays the flow rate Q for point 2 negative of the transition point compensation from the characteristic identification. This value corresponds to p1842 of the drive data set selected for the identification.		
Dependency:	See also: p1842		

p3042 SERVO_828, SERVO_COMBI	MotId load moment of inertia identified / Load mom ident		
	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: 25_1	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [kgm ²]	Max: 100000.00000 [kgm ²]	Default: 0.00000 [kgm ²]

Description: Load moment of inertia determined by the motor data identification.
This load moment of inertia can be changed after the identification and accepted in p1498 with p1910/p1960 = -3.

Dependency: See also: p0342, p1498, p1960, r1969

Note

For p1910/p1960 = -3, p0342 is set to 1 (ratio between the total and motor).

p3043 HLA_828	ChId transition point compensation U2 negative / ChId tr pt U2 neg		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 95.00 [%]	Default: 0.00 [%]

Description: Displays the voltage U for point 2 negative of the transition point compensation from the characteristic identification.
This value corresponds to p1843 of the drive data set selected for the identification.

Dependency: See also: p1843

p3044 HLA_828	ChId transition point compensation rounding 2 negative / ChId TrPtRnd 2 neg		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 30.00 [%]	Default: 0.00 [%]

Description: Displays the rounding for point 2 negative of the transition point compensation from the characteristic identification.
This value corresponds to p1844 of the drive data set selected for the identification.

Dependency: See also: p1844

p3045 HLA_828	ChId transition point compensation Q3 positive saturation / ChId TrPt Q3 pos S		
	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]

Description: Displays the flow rate Q for point 3 positive (saturation) of the transition point compensation from the characteristic identification.

This value corresponds to p1845 of the drive data set selected for the identification.

Dependency: See also: p1845

p3046	Chld transition point compensation U3 positive saturation / Chld TrPt U3 pos S		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Displays the voltage U for point 3 positive (saturation) of the transition point compensation from the characteristic identification. This value corresponds to p1846 of the drive data set selected for the identification.		
Dependency:	See also: p1846		
p3047	Chld transition point compensation Q3 negative saturation / Chld TrPt Q3 neg S		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Displays the flow rate Q for point 3 negative (saturation) of the transition point compensation from the characteristic identification. This value corresponds to p1845 of the drive data set selected for the identification.		
Dependency:	See also: p1847		
p3048	Chld transition point compensation U3 negative saturation / Chld TrPt U3 neg S		
HLA_828	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.20 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Displays the voltage U for point 3 negative (saturation) of the transition point compensation from the characteristic identification. This value corresponds to p1848 of the drive data set selected for the identification.		
Dependency:	See also: r1848, p1848		
p3049[0...n]	MotId Speed at start of field weakening identified / ident		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [rpm]	Max: 210000.00000 [rpm]	Default: 0.00000 [rpm]
Description:	Speed at the start of field weakening determined by the motor data identification. This start speed can be changed after the identification and accepted in p0348 with p1910/p1960 = -3.		
Dependency:	See also: p0348, p1910, p1960		

p3050[0...n]	MotorId stator resistance identified / R_stator ident		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: 16_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [ohm]	Max: 2000.00000 [ohm]	Default: 0.00000 [ohm]

Description: Stator resistance determined by the motor data identification.
This stator resistance can be changed after the identification and accepted in p0350 with p1910/p1960 = -3.

Dependency: See also: p0350, p1910, r1912

p3054[0...n]	MotId rotor resistance identified / R_rotor ident		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: 16_1	Unit selection: p0349
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min: 0.00000 [ohm]	Max: 300.00000 [ohm]	Default: 0.00000 [ohm]

Description: Rotor resistance for an induction motor determined by the motor data identification.
This stator resistance can be changed after the identification and accepted in p0354 with p1910/p1960 = -3.

Dependency: See also: p0354, p0625, p1910, r1927, p1960

Note

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

p3056[0...n]	MotId stator leakage inductance identified / L_stator leak		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: 15_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [mH]	Max: 1000.00000 [mH]	Default: 0.00000 [mH]

Description: Stator leakage inductance determined by the motor data identification.
This stator leakage inductance can be changed after the identification and accepted in p0356 with p1910/p1960 = -3.

Dependency: See also: p0356, p1910, r1932

p3058[0...n]	MotId rotor leakage inductance identified / L_rotor leak		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: 15_1	Unit selection: p0349
	Not for motor type: PMSM, REL	Scaling: -	Expert list: 1
	Min: 0.00000 [mH]	Max: 1000.00000 [mH]	Default: 0.00000 [mH]

Description: Rotor leakage induction for an induction motor determined by the motor data identification.
This rotor leakage inductance can be changed after the identification and accepted in p0358 with p1910/p1960 = -3.

Dependency: See also: p0358, p1910, r1932

p3060[0...n] SERVO_828, SERVO_COMBI	Motld magnetizing inductance identified / Motld Lh ident Changeable: T, U Data type: FloatingPoint32 P group: Motor identification Not for motor type: PMSM, REL Min: 0.00000 [mH]	Calculation: CALC_MOD_ALL Dynamic index: MDS, p0130 Unit group: 15_1 Scaling: - Max: 10000.00000 [mH]	Access level: 3 Function plan: - Unit selection: p0349 Expert list: 1 Default: 0.00000 [mH]
Description:	Magnetizing inductance for an induction motor determined by the motor data identification. This magnetizing inductance can be changed after the identification and accepted in p0360 with p1910/p1960 = -3.		
Dependency:	See also: p0360, p1910, r1936, p1960		
p3075 HLA_828	Chld velocity controller loop gain / Chld v loop_gain Changeable: T, U Data type: FloatingPoint32 P group: Motor identification Not for motor type: - Min: 0.0 [mm/Vmin]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 20000.0 [mm/Vmin]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0.0 [mm/Vmin]
Description:	Sets the loop gain of the velocity controller from the characteristic identification. This value corresponds to r1475 of the data set selected for the identification.		
Dependency:	See also: p1475		
p3080 SERVO_828, SERVO_COMBI	Motld flux controller P gain identified / Flux ctrl Kp ident Changeable: T, U Data type: FloatingPoint32 P group: Motor identification Not for motor type: PMSM, REL Min: 0.0 [A/Vs]	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 999999.0 [A/Vs]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0.0 [A/Vs]
Description:	P gain of the flux controller for an induction motor determined by the motor data identification. This P gain can be changed after the identification and accepted in p1590 with p1910/p1960 = -3.		
Dependency:	See also: p1590, p1910		
p3081 SERVO_828, SERVO_COMBI	Motld flux controller integral time identified / Flux ctrl Tn ident Changeable: T, U Data type: FloatingPoint32 P group: Motor identification Not for motor type: PMSM, REL Min: 0 [ms]	Calculation: CALC_MOD_ALL Dynamic index: - Unit group: - Scaling: - Max: 10000 [ms]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0 [ms]
Description:	Integral time of the flux controller for an induction motor determined by the motor data identification. This integral time can be changed after the identification and accepted in p1592 with p1910/p1960 = -3.		
Dependency:	See also: p1592, p1910		

p3082 SERVO_828, SERVO_COMBI	MotId current controller P gain identified / I_ctrl Kp ident		
	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: 18_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000 [V/A]	Max: 100000.000 [V/A]	Default: 0.000 [V/A]
Description:	P gain of the current controller determined by the motor data identification. This P gain can be changed after the identification and accepted in p1715 with p1910/p1960 = -3.		
Dependency:	See also: p1715, p1910		

p3083 HLA_828	ChId maximum positive velocity / ChId v_max pos		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [m/min]	Max: 1000.000 [m/min]	Default: 0.000 [m/min]
Description:	Displays the maximum velocity for the positive direction from the characteristic identification. This value corresponds to the maximum possible value in p1083 of the drive data set selected for the identification.		
Dependency:	See also: p1083		

p3083 SERVO_828, SERVO_COMBI	MotId current controller integral time identified / I_ctrl Tn ident		
	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 1000.00 [ms]	Default: 0.00 [ms]
Description:	Integral time of the current controller determined by the motor data identification. This integral time can be changed after the identification and accepted in p1717 with p1910/p1960 = -3.		
Dependency:	See also: p1717, p1910		

p3086 HLA_828	ChId maximum negative velocity / ChId v_max neg		
	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1000.000 [m/min]	Max: 0.000 [m/min]	Default: 0.000 [m/min]
Description:	Displays the maximum velocity for the negative direction from the characteristic identification. This value corresponds to the minimum possible value in p1086 of the drive data set selected for the identification.		
Dependency:	See also: p1086		

p3088 SERVO_828, SERVO_COMBI	MotId Motor model changeover speed operation with encoder ident. / MotMod n_chgSnsorI		
	Changeable: T, U	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [rpm]	Max: 210000.00000 [rpm]	Default: 0.00000 [rpm]
Description:	Changeover speed for the motor model with encoder determined by the motor data identification. This changeover speed can be changed after the identification and accepted in p1752 with p1910/p1960 = -3.		
Dependency:	See also: p1752, p1910		

p3090[0...n] SERVO_828	PolID elasticity-based configuration / PolID el config		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0000 bin
Description:	Sets the configuration for the elasticity-based pole position identification. Depending on the mechanical design (sequence machine - encoder - brake) and the braking force, the pole position identification can cause deflections with a different control sense. For bit 00 = 0: The deflection caused by the pole position identification acts in the positive control sense. For bit 00 = 1: The deflection caused by the pole position identification acts in the negative control sense. This can only occur for a linear measuring system if a brake is installed between the machine and the measuring system and the brake is powerful enough to do this.		
Bit field:	Bit	Signal name	1 signal 0 signal FP
	00	Sign change	Yes No -
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3091, p3092, p3093, p3094, p3095, p3096, r3097 See also: F07995		

Note

PolID el: pole position identification, elasticity-based

p3091[0...n] SERVO_828	PolID elasticity-based ramp time / PolID el t_ramp		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 1000.0 [ms]	Default: 250.0 [ms]
Description:	Sets the ramp time for the current increase when executing the elasticity-based pole position identification. The current is ramped up in order to reduce the mechanical load on the machine.		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3092, p3093, p3094, p3095, p3096, r3097 See also: F07995		

Note

PolID el: pole position identification, elasticity-based

p3092[0...n] SERVO_828	PolID elasticity-based wait time / PolID el t_wait		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 1000.0 [ms]	Default: 100.0 [ms]
Description:	Sets the wait time between two measurements when executing the elasticity-based pole position identification. The wait time between two measurements is necessary in order to avoid mechanical resonance effects.		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3091, p3093, p3094, p3095, p3096, r3097 See also: F07995		
	Note PolID el: pole position identification, elasticity-based		

p3093[0...n] SERVO_828	PolID elasticity-based measurement number / PolID el meas		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: Unsigned16	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 6	Max: 56	Default: 12
Description:	Sets the number of measuring operations when executing the elasticity-based pole position identification. When the value is increased, the result is more accurate, however, the identification takes longer.		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3091, p3092, p3094, p3095, p3096, r3097 See also: F07995		
	Note PolID el: pole position identification, elasticity-based		

p3094[0...n] SERVO_828	PolID elasticity-based deflection expected / PolID el defl exp		
	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [°]	Max: 90.0000 [°]	Default: 0.0030 [°]
Description:	Sets the expected deflection when executing the elasticity-based pole position identification. The following setting makes sense: p3094 < p3095		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3091, p3092, p3093, p3095, p3096, r3097 See also: F07995		
	Note PolID el: pole position identification, elasticity-based		

p3095[0...n]	PolID elasticity-based deflection permissible / PolID el defl exp		
SERVO_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [°]	Max: 90.0000 [°]	Default: 1.0000 [°]
Description:	Sets the permissible deflection when executing the elasticity-based pole position identification. The following setting makes sense: p3094 < p3095		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3091, p3092, p3093, p3094, p3096, r3097 See also: F07995		
	Note PolID el: pole position identification, elasticity-based		

p3096[0...n]	PolID elasticity-based current / PolID el curr		
SERVO_828	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [Arms]	Max: 20000.000 [Arms]	Default: 0.000 [Arms]
Description:	Sets the maximum permissible current when executing the elasticity-based pole position identification. The following setting makes sense: p3096 <= min (p0305, p0640, p0209)		
Dependency:	See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3091, p3092, p3093, p3094, p3095, r3097 See also: F07995		
	Note PolID el: pole position identification, elasticity-based		

r3097.0...31	BO: PolID elasticity-based status / PolID el status				
SERVO_828	Changeable: -	Calculation: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Displays the status for the elasticity-based pole position identification.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	PolID el selected	Yes	No	-
	01	PolID el background registered	Yes	No	-
	02	PolID el initialization completed	Yes	No	-
	03	PolID el background started	Yes	No	-
	04	PolID el time slice registered	Yes	No	-
	05	PolID el time slice started	Yes	No	-
	06	PolID el phi used	Yes	No	-
	07	PolID el time slice ready	Yes	No	-
	08	PolID el background ready	Yes	No	-
	14	PolID el is repeated	Yes	No	-

15	PolID el fault present	Yes	No	-
16	Background state machine bit 0	Active	Inactive	-
17	Background state machine bit 1	Active	Inactive	-
18	Background state machine bit 2	Active	Inactive	-
19	Background state machine bit 3	Active	Inactive	-
20	Background state machine bit 4	Active	Inactive	-
21	Background state machine bit 5	Active	Inactive	-
22	Background state machine bit 6	Active	Inactive	-
23	Background state machine bit 7	Active	Inactive	-
24	Time slice state machine bit 0	Active	Inactive	-
25	Time slice state machine bit 1	Active	Inactive	-
26	Time slice state machine bit 2	Active	Inactive	-
27	Time slice state machine bit 3	Active	Inactive	-
28	Time slice state machine bit 4	Active	Inactive	-
29	Time slice state machine bit 5	Active	Inactive	-
30	Time slice state machine bit 6	Active	Inactive	-
31	Time slice state machine bit 7	Active	Inactive	-

Dependency: See also: p1980, p1981, p1982, p1983, r1984, r1985, r1986, r1987, p1990, r1992, p3090, p3091, p3092, p3093, p3094, p3095, p3096
See also: F07995

Note

PolID el: pole position identification, elasticity-based
For bit 00 ... 15:
Displays the actual status of the elasticity-based pole position identification.
For bits 16 ... 23:
Displays the status for the background state machine.
For bits 24 ... 31:
Displays the status for the time slices state machine.

p3100

CU_I_828,
CU_I_COMBI,
CU_NX_828

RTC time stamp mode / RTC t_stamp mode

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 2	Default: 2

Description: Sets the mode for the time stamp
p3100 = 0: Time stamp, operating hours
p3100 = 1: Time stamp, UTC format
p3100 = 2: Time stamp, operating hours + 01.01.2000

NOTICE
The realtime format (p3100 = 1), once selected, remains until the next time that the system is switched off. Switching back to operating hours (p3100 = 0) or operating hours + 01.01.2000 (p3100=2) is prevented.

Note

RTC: Real-time clock
UTC: Universal Time Coordinates
The UTC time started, according to the definition on 01.01.1970 at 00:00:00 and is output in days and milliseconds.

p3101[0...1]	RTC set UTC time / RTC set UTC		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Unsigned32 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Setting the UTC time. This means that the drive system is synchronized to the time specified by the time master. To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted. p3101[0]: Milliseconds p3101[1]: Days		

r3102[0...1]	RTC read UTC time / RTC read UTC		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the actual UTC time in the drive system. p3102[0]: Milliseconds p3102[1]: Days		

p3103	RTC synchronization source / RTC sync_source		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Integer16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 3	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the synchronization source/technique.		
Value:	0: PROFIBUS 1: PROFINET 2: PPI 3: PROFINET PTP		

p3104	BI: RTC real time synchronization PING / RTC PING		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Unsigned32 / Binary P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for the PING event to set the UTC time.		

NOTICE

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

r3107[0...3]	RTC synchronizing time / RTC t_sync		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the last synchronizing event in the drive system.
 3107[0, 1]: synchronizing event after synchronization
 r3107[0]: milliseconds
 r3107[1]: days
 3107[2, 3]: synchronizing event before synchronization
 r3107[2]: milliseconds
 r3107[3]: days

r3108[0...1]	RTC last synchronization deviation / RTC sync_dev		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the absolute value of the last synchronization deviation that was determined.
 r3108[0]: Milliseconds
 r3108[1]: Days

p3109	RTC real time synchronization tolerance window / RTC sync tol		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0 [ms]	1000 [ms]	100 [ms]

Description: Sets the tolerance window for time synchronization.
 When this tolerance window is exceeded, an appropriate alarm is output.

Dependency: See also: A01099

p3110	External fault 3 power-up delay / Ext fault 3 t_on		
All objects	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2546
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0 [ms]	1000 [ms]	0 [ms]

Description: Sets the delay time for external fault 3.

Dependency: See also: p2108, p3111, p3112

See also: F07862

p3111	BI: External fault 3 enable / Ext fault 3 enab		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2546 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	See also: p2108, p3110, p3112 See also: F07862		
p3111[0...n]	BI: External fault 3 enable / Ext fault 3 enab		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	See also: p2108, p3110, p3112 See also: F07862		
p3111[0...n]	BI: External fault 3 enable / Ext fault 3 enab		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 3405.2
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	See also: p2108, p3110, p3112 See also: F07862		

p3112	BI: External fault 3 enable negated / Ext flt 3 enab neg		
CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2546 Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	See also: p2108, p3110, p3111 See also: F07862		

p3112[0...n]	BI: External fault 3 enable negated / Ext flt 3 enab neg		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 / Binary P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: CDS, p0170 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	See also: p2108, p3110, p3111 See also: F07862		

r3113.0...15	CO/BO: NAMUR message bit bar / NAMUR bit bar				
All objects	Changeable: - Data type: Unsigned16 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -		
Description:	Display and BICO output for the status of the NAMUR message bit bar. The faults and alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fault converter information electronics/software error	Yes	No	-
	01	Network fault	Yes	No	-
	02	DC-link overvoltage	Yes	No	-
	03	Fault drive converter power electronics	Yes	No	-
	04	Drive converter overtemperature	Yes	No	-
	05	Ground fault	Yes	No	-
	06	Motor overload	Yes	No	-
	07	Bus error	Yes	No	-

08	External safety-relevant shutdown	Yes	No	-
09	Mot encoder fault	Yes	No	-
10	Error communication internal	Yes	No	-
11	Fault infeed	Yes	No	-
15	Other faults	Yes	No	-

Note

For bit 00:

Hardware or software malfunction was identified. Carry out a POWER ON of the component involved. If it occurs again, contact the hotline.

For bit 01:

A line supply fault has occurred (phase failure, voltage level, ...). Check the line supply / fuses. Check the supply voltage. Check the wiring.

For bit 02:

The DC link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings.

For bit 03:

An inadmissible operating state of the power electronics was identified (overcurrent, overtemperature, IGBT failure, ...). Check that the permissible load cycles are maintained. Check the ambient temperatures (fan).

For bit 04:

The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet cooling.

For bit 05:

A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cable (connection). Check the motor.

For bit 06:

The motor was operated outside the permissible limits (temperature, current, torque, ...). Check the load cycles and limits that have been set. Check the ambient temperature / motor cooling.

For bit 07:

The communication to the higher-level control system (internal coupling, PROFIBUS, PROFINET, ...) is faulted or interrupted. Check the state of the higher-level control system. Check the communication connection/wiring. Check the bus configuration / clock cycles.

For bit 08:

A safety operation monitoring function (Safety) has detected an error.

For bit 09:

When evaluating the encoder signals (track signals, zero marks, absolute values, ...) an illegal signal state was detected. Check the encoder / state of the encoder signals. Observe the maximum frequencies.

For bit 10:

The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant design. Observe the maximum permissible quantity structure / clock cycles.

For bit 11:

The infeed is faulted or has failed. Check the infeed and the surroundings (line supply, filter, reactors, fuses, ...). Check the closed-loop infeed control.

For bit 15:

Group fault. Determine the precise cause of the fault using the commissioning tool.

r3114.9...11**CO/BO: Messages status word global / Msg ZSW global**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -

Data type: Unsigned16

P group: Displays, signals

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the global status word for messages.

The appropriate bit is set if at least one message is present at the drive objects.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
-----	-------------	----------	----------	----

09	Group alarm present	Yes	No	8065
10	Group fault present	Yes	No	8060
11	Safety group message present	Yes	No	-

Note

The status bits are displayed with delay.

r3115[0...63]

Fault drive object initiating / F DO initiating

All objects

Changeable: -	Calculation: -	Access level: 3
Data type: Integer32	Dynamic index: -	Function plan: 8050, 8060
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the drive object number of the initiating drive object for this fault as integer number.
Value = 63:

The fault was initiated by the drive object itself.

Dependency:

See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Note

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

p3116

BI: Acknowledgment automatically suppressed / Ackn suppress

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 8060
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description:

Sets the signal source for the automatic acknowledgment on the device drive object.

BI: p3116 = 0 signal

Faults present are automatically acknowledged on the device drive object. Local device faults are forwarded to the first active drive object.

BI: p3116 = 1 signal

Faults present are not automatically acknowledged on the device drive object. Local device faults are not forwarded.

Dependency:

See also: p2102, p2103, p2104, p2105, p3981

Note

When selecting a standard telegram, the BICO interconnection for control signal STW1.10 (master control by PLC) is automatically established.

p3117

Change safety message type / Ch. SI mess type

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: C1(1)	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	1	1

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.

r3120[0...63] Component fault / Comp fault

All objects

Changeable: -**Data type:** Unsigned32**P group:** Messages**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 3**Function plan:** 8060**Unit selection:** -**Expert list:** 1**Default:**

-

Description: Displays the component of the fault which has occurred.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3122

Note

Value = 0: Assignment to a component not possible.

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

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

r3121[0...63] Component alarm / Comp alarm

All objects

Changeable: -**Data type:** Unsigned32**P group:** Messages**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 3**Function plan:** 8065**Unit selection:** -**Expert list:** 1**Default:**

-

Description: Displays the component of the alarm which has occurred.

Dependency: See also: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3123

Note

Value = 0: Assignment to a component not possible.

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

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r3122[0...63] Diagnostic attribute fault / Diag_attr fault

All objects

Changeable: -**Data type:** Unsigned32**P group:** Messages**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 3**Function plan:** 8060**Unit selection:** -**Expert list:** 1**Default:**

-

Description: Displays the diagnostic attribute of the fault which has occurred.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Hardware replacement recommended	Yes	No	-
	15	Message has gone	Yes	No	-
	16	PROFIdrive fault class bit 0	High	Low	-
	17	PROFIdrive fault class bit 1	High	Low	-
	18	PROFIdrive fault class bit 2	High	Low	-

19	PROFdrive fault class bit 3	High	Low	-
20	PROFdrive fault class bit 4	High	Low	-

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120

Note

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

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

For bits 20 ... 16:

- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFdrive message class 0: not assigned
- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFdrive message class 1: hardware fault/software error
- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFdrive message class 2: line fault
- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFdrive message class 3: supply voltage fault
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFdrive message class 4: DC link fault
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFdrive message class 5: power electronics faulted
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFdrive message class 6: overtemperature electronic components
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFdrive message class 7: ground fault/phase fault detected
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFdrive message class 8: motor overload
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFdrive message class 9: communication error to the higher-level control
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFdrive message class 10: safe monitoring channel has identified an error
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFdrive message class 11: incorrect position actual value/speed actual value or not available
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFdrive message class 12: internal (DRIVE-CLiQ) communication error
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFdrive message class 13: infeed unit faulted
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFdrive message class 14: braking controller/Braking Module faulted
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFdrive message class 15: line filter faulted
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFdrive message class 16: external measured value/signal state outside the permissible range
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFdrive message class 17: application/technology function faulted
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFdrive message class 18: error in the parameterization/configuration/ commissioning sequence
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFdrive message class 19: general drive fault
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFdrive message class 20: auxiliary unit faulted

r3123[0...63]

Diagnostic attribute alarm / Diag_attr alarm

All objects

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 8065
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the diagnostic attribute of the alarm which has occurred.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware replacement recommended	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Message has gone	Yes	No	-
16	PROFdrive fault class bit 0	High	Low	-
17	PROFdrive fault class bit 1	High	Low	-
18	PROFdrive fault class bit 2	High	Low	-
19	PROFdrive fault class bit 3	High	Low	-
20	PROFdrive fault class bit 4	High	Low	-

Dependency: See also: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3121

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.

For bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

For bits 20 ... 16:

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault

Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components

Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error

Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence

Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault

Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 20: auxiliary unit faulted

r3131**CO: Actual fault value / Act fault val**

All objects

Changeable: -

Data type: Integer32

P group: Messages

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 8060

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the fault value of the oldest active fault.

Dependency:

See also: r2131, r3132

r3132**CO: Actual component number / Comp_no act**

All objects

Changeable: -

Data type: Integer32

P group: Messages

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 8060

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the component number of the oldest fault that is still active.

Dependency:

See also: r2131, r3131

p3135 Suppress active fault / Supp act flt

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: 8060 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin
--	---	---	---

Description: Sets the suppression of r2139.3 "Fault present" for certain fault responses.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Suppression of fault response ENCODER	ON	OFF	-
	10	Suppression of fault response NONE	ON	OFF	-

Dependency: See also: p0491, r2139

Note

Depending on the suppression of a fault reaction in this parameter, r2139.1 "Acknowledgment required" is set when at least one fault occurs.
 For bit 08:
 The suppression is only effective if p0491 = 1.

p3235 Phase failure signal motor monitoring time / Ph_fail t_monit

SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: Messages Not for motor type: - Min: 0 [ms]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2000 [ms]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 320 [ms]
---------------------------	---	---	---

Description: Sets the monitoring time for phase failure detection of the motor.

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

Monitoring is only effective for blocksize and booksize power units.
 For p3235 = 0 the function is deactivated.
 For VECTOR, the following applies:
 The monitoring is automatically de-activated during the flying restart operation for a motor that is still rotating.

p3290 Variable signaling function start / Var sig start

HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned8 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 5301 Unit selection: - Expert list: 1 Default: 0010 bin
---------------------------------------	---	---	--

Description: Settings for start/stop and the comparison type for the variable signaling function.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate function	Active	Not active	-
	01	Comparison with sign	With sign	Without sign	-

Dependency: See also: p3291, p3292, p3293, r3294, p3295, p3296, p3297, p3298, p3299
 See also: A02085

NOTICE
The parameters of the variable message function are only checked and become effective when starting. Otherwise, an alarm is output.

p3291HLA_828,
SERVO_828,
SERVO_COMBI**CI: Variable signaling function signal source / Var sig S_src****Changeable:** T, U**Calculation:** -**Access level:** 3**Data type:** Unsigned32 / Integer16**Dynamic index:** -**Function plan:** 5301**P group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

0

Description:

Sets the signal source for the variable signaling function.

Dependency:

See also: p3290, p3292, p3293

NOTICE
This parameter is only checked and becomes effective when restarting the variable message function.

Note

For p3291 = 1: (internal Siemens):

In this case, the signal source is defined via the memory address (p3292) and the data type (p3293).

As the memory address can be different for each version, it must always be redetermined.

Procedure:

- Set the memory address and data type (p3292, p3293).
- Establish the BICO interconnection (p3291 = 1).

p3292HLA_828,
SERVO_828,
SERVO_COMBI**Variable signaling function signal source address / Var sig S_src addr****Changeable:** T, U**Calculation:** -**Access level:** 4**Data type:** Unsigned32**Dynamic index:** -**Function plan:** 5301**P group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0000 hex

FFFF FFFF hex


0000 hex

Description:

Sets the address of the signal source for the variable signaling function.

Dependency:

See also: p3290, p3291

 CAUTION
If an incorrect address and data type are set, then this can cause the software to crash.

NOTICE
This parameter is only checked and becomes effective when restarting the variable message function.

Note

This parameter should only be set for p3291 = 1.

p3293HLA_828,
SERVO_828,
SERVO_COMBI**Variable signaling function signal source data type / Var sig S_src type****Changeable:** T, U**Calculation:** -**Access level:** 4**Data type:** Integer16**Dynamic index:** -**Function plan:** 5301**P group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

7

0

Description:

Sets the data type of the signal source for the variable signaling function.

Value:

0: Unknown

- 1: U8, Unsigned8
- 2: I8, Signed8
- 3: U16, Unsigned16
- 4: I16, Signed16
- 5: U32, Unsigned32
- 6: I32, Signed32
- 7: Float, FloatingPoint32

Dependency: See also: p3290, p3291

CAUTION
If an incorrect address and data type are set, then this can cause the software to crash.

NOTICE
This parameter is only checked and becomes effective when restarting the variable message function.

Note
This parameter should only be set for p3291 = 1.

r3294

HLA_828,
SERVO_828,
SERVO_COMBI

BO: Variable signaling function output signal / Var sig outp_sig

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: 5301
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Display and binector output of the output signal for the variable signaling function.

Dependency: See also: p3290, p3291, p3295, p3296, p3297, p3298

p3295

HLA_828,
SERVO_828,
SERVO_COMBI

Variable signaling function threshold value / Var sig thresh_val

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5301
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-340.28235E36	340.28235E36	0.000

Description: Sets the threshold value for the variable signaling function.

Dependency: See also: p3290

NOTICE
This parameter is only checked and becomes effective when restarting the variable message function.

p3296

HLA_828,
SERVO_828,
SERVO_COMBI

Variable signaling function hysteresis / Var sig hyst

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 5301
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0.000	340.28235E36	0.000

Description: Sets the hysteresis for the variable signaling function.

Dependency: See also: p3290

NOTICE

This parameter is only checked and becomes effective when restarting the variable message function.

p3297

HLA_828,
SERVO_828,
SERVO_COMBI

Variable signaling function pickup delay / Var sig t_pickup**Changeable:** T, U**Data type:** Unsigned16**P group:** -**Not for motor type:** -**Min:**

0 [ms]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

10000 [ms]

Access level: 3**Function plan:** 5301**Unit selection:** -**Expert list:** 1**Default:**

0 [ms]

Description:

Sets the pickup delay for the variable signaling function.

Dependency:

See also: p3290

NOTICE

This parameter is only checked and becomes effective when restarting the variable message function.

Values that do not comply with the following condition are rejected:

Pickup delay (p3297) >= sampling time (p3299)

Note

For a value of 0, the pickup delay is disabled.

The output signal is set if the condition for the 1 signal is fulfilled for longer than the selected time.

p3298

HLA_828,
SERVO_828,
SERVO_COMBI

Variable signaling function dropout delay / Var sig t_dropout**Changeable:** T, U**Data type:** Unsigned16**P group:** -**Not for motor type:** -**Min:**

0 [ms]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

10000 [ms]

Access level: 3**Function plan:** 5301**Unit selection:** -**Expert list:** 1**Default:**

0 [ms]

Description:

Sets the dropout delay for the variable signaling function.

Dependency:

See also: p3290

NOTICE

This parameter is only checked and becomes effective when restarting the variable message function.

Values that do not comply with the following condition are rejected:

Dropout delay (p3298) >= sampling time (p3299)

Note

For a value of 0, the dropout delay is disabled.

The output signal is reset if the condition for the 0 signal is fulfilled for longer than the selected time.

p3299

HLA_828,
SERVO_828,
SERVO_COMBI

Variable signaling function sampling time / Var sig t_sample**Changeable:** T, U**Data type:** FloatingPoint32**P group:** -**Not for motor type:** -**Min:**

1.000 [ms]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

4.000 [ms]

Access level: 3**Function plan:** 5301**Unit selection:** -**Expert list:** 1**Default:**

4.000 [ms]

Description:

Sets the sampling time for the variable signaling function.

Dependency:

See also: p3290

NOTICE

This parameter is only checked and becomes effective when restarting the variable message function.
 The following must apply for the setting:
 Sampling time (p3299) <= pickup delay (p3297), dropout delay (p3298)

Note

Only the following values can be set:
 1.000, 2.000, 3.000, 4.000

p3400

Infeed configuration word / INF config_word

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: T	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: 8940
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0000 1010 bin

Description: Sets the configuration word of the infeed.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Smart Mode	ON	OFF	-
	01	Flat-Top Mode	ON	OFF	-
	03	Vdc controller	ON	OFF	-
	05	Line supply voltage sensing with VSM	ON	OFF	-

Dependency: See also: p0210

Note

For bit 00:
 In the Smart Mode, the DC link voltage is not controlled - however, infeed can still regenerate. The magnitude of the DC link voltage depends on the actual line supply voltage and the DC link load.
 For drive units belonging to the 400 V voltage class, for a drive unit supply voltage (p0210) greater than 415 V, the Smart Mode is activated. This means that the 660 V limit can be maintained for the steady-state DC link voltage (p0280) up to a line supply voltage of 480 V.

For bit 01:
 If the Flat Top Mode is de-activated, switching losses are higher. This means that the full power is no longer continuously available.
 For p3400.0 = 1 or p1810.15 =1, this bit is not effective.

For bit 03:
 If the Vdc controller is switched out, overvoltage or undervoltage conditions occur in the DC link if no other voltage-regulating component is located in the DC link.
 For p3400.0 = 1, this bit is not effective.

For bit 05:
 If a VSM is detected when commissioning the system, this bit is automatically set.
 When the bit is set, the line supply voltage input of the VSM must be connected (connected at the line side of the line reactor).
 The bit must be set in the case of chassis power units.
 VSM: Voltage Sensing Module

r3402

Infeed internal state / INF state int

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: -	Calculation: -	Access level: 2
Data type: Integer16	Dynamic index: -	Function plan: 8832, 8932
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 12	Default: -

Description: Displays the internal status of the infeed module.

Value:	0:	Initialization
	1:	Fault
	2:	No ON command
	3:	Offset measurement running
	4:	ON delay active
	5:	Precharge running
	6:	Pulse enable missing
	7:	Synchronization running
	8:	Voltage ramp-up active
	9:	Operation
	10:	Shutdown running
	11:	Identification running
	12:	Transformer magnetization running

r3402 Infeed status internal BIC / INF state int

B_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: 8932
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	6	-

Description: Displays the internal status of the infeed module.

Value:	0:	Initialization
	1:	Fault
	2:	No ON command
	3:	Offset measurement running
	4:	ON delay active
	5:	Precharge running
	6:	Operation

r3405.0...7 CO/BO: Infeed status word / Inf ZSW

A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: 8828, 8928
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the status word of the infeed.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Smart Mode active	Yes	No	-
	01	Vdc-ctrl active	Yes	No	-
	02	Phase failure detected	Yes	No	-
	03	Current limit reached	Yes	No	-
	04	Infeed operates in generator/motor mode	Regenerative mode	Motor mode	-
	05	Motor mode inhibited	Yes	No	-
	06	Generator mode inhibited	Yes	No	-
	07	DC link undervoltage alarm threshold undershot	Yes	No	-

Note

For bit 00:
Smart Mode is activated with p3400.0.

For bit 01:
The DC link voltage closed-loop control is activated with parameters p3400.3 and p3513.

For bit 02:
When phase failure is detected the bit is set and alarm A06205 is output.
The bit is reset for the following events:
- the infeed had reached the normal operating state again after a phase failure has been bypassed/buffered (p3402 = 9).
- the pulse enable is withdrawn due to a fault or powering down with OFF1/OFF2.

For bit 03:
The present current limit is displayed in r0067.

For bit 04:
An active current setting r0078 >= 0 means infeed operation in motor mode; an active current setting r0078 < 0 means regenerative operation in generator mode.

For bit 05:
The motor mode inhibit is activated with p3532.

For bit 06:
The generator mode inhibit is activated with p3533.

For bit 07:
The alarm threshold is dependent on r0296 and the setting in p0279.

r3405.7

CO/BO: Infeed status word / Inf ZSW

B_INF_828

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Display and connector output for the status word of the infeed.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	07	DC link undervoltage alarm threshold undershot	Yes	No	-

p3408

Infeed line voltage setting / INF U_line_mode

S_INF_COMBI

Changeable: C2(1)	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	1	1

Description: Sets the mode to detect the line voltage.
The parameter is not effective for chassis units.

Value:
0: Manual line voltage setting
1: Automatic line voltage setting

Dependency:
See also: p0210, p0281, p0282, p0283
See also: F06100, A06105, A06301, F06303

Note

For p3408 = 0, the following applies:

The system does not change parameter p0210. The line rated voltage setting p0210 is made by the user.

For p3408 = 1, the following applies:

After POWER ON, the rated line voltage (p0210) is reset to the device's rated value (e.g. 400 V). Once operation has been enabled, the rated voltage is set automatically in line with the currently measured voltage and is adjusted during operation (within the permissible infeed voltage range as indicated on the rating plate).

p3409**Infeed line frequency setting / INF f_line_mode**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

1

1

Description:

Sets the mode to detect the line supply frequency.

Value:

0: Line supply frequency setting 50/60 Hz off

1: Line supply frequency setting 50/60 Hz on

Dependency:

See also: p0211, p0284, p0285

See also: A06350, A06351, F06500

Note

For p3409 = 1, the following applies:

After operation has been enabled, the rated line supply frequency (p0211) is automatically set to a value of 50 Hz or 60 Hz corresponding to the currently measured frequency. This means that the parameter value of p0211 is, under certain circumstances, changed.

For p3409 = 0, the following applies:

The system does not change parameter p0211.

p3410**Infeed identification method / INF Ident_type**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: C2(1), T

Calculation: -

Access level: 1

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

5

0

Description:

Sets the line and DC link parameter identification routine for the infeed module.

Value:

0: Identification (Id) off

1: Activate identification (Id)

2: Set controller settings

3: Save identification and controller settings

4: Save identification and controller settings with L adaptation

5: Reset save Id and controller setting with L adaptation

Dependency:

See also: r3411, r3412, r3414, p3415, p3416, p3417, p3421, p3422, p3424, p3555, p3560, p3614

See also: A06400

NOTICE

For p3410 = 1, 3, 4, 5, alarm A06400 is output and designates that the selected identification will take place the next time that the pulses are enabled.

The line and DC link adaptation is not permissible for Smart Line Modules in the chassis format.

Note

p3410 is automatically set to 0 after an identification run has been completed.

When p3410 = 1 an identification run for the total inductance and DC link capacitance is initiated when the pulses are next enabled. The results are displayed in r3411 and r3412. If a Voltage Sensing Module (VSM) is connected, then the line inductance (r3414) is also measured. The infeed then goes into the ready for switching on state.

For p3410 = 2, the data (r3411, r3412 and r3414) determined during the identification run (p3410 = 1) are transferred into p3421, p3422 and p3424. The control loop parameters are suitably scaled to achieve a rugged controller setting (p3425); the fast controller response (p3555[2]) and the current actual value smoothing (p3614) are pre-set.

Calculations for the controller are then repeated. The user must save the data in a non-volatile fashion so that the new controller setting is effective the next time that the system is switched on.

When p3410 = 3 an identification run for the inductance and DC link capacitance is initiated when the pulses are next enabled. Data determined during the identification (r3411, r3412, r3414) are used, as described under p3410 = 2 for the setting of p3421, p3422, p3424, p3425, p3555 as well as p3614, and the controller is re-calculated. All of the parameters for the infeed module are then automatically stored in a non-volatile memory. The infeed continues to operate without any interruption with the new controller parameters.

When p3410 = 4 an identification run for the inductance and DC link capacitance is initiated when the pulses are next enabled. Data determined during the identification (r3411, r3412, r3414) are used, as described under p3410 = 2 for the setting of p3421, p3422, p3424, p3425, p3555 as well as p3614, and the controller is re-calculated. The line inductance identification is then repeated, if p3415[1] > p3514[0]. If the inductance measured the second time is lower than the first, the parameters are written to the current controller adaptation (p3620, p3622). All of the parameters for the infeed module are then automatically stored in a non-volatile memory. The infeed continues to operate without any interruption with the new controller parameters.

For p3410 = 5, the same measurements and write operations are always carried out as for p3410 = 4. However, for the first identification run, initially the controller setting is reset by setting p3421 = p0223 + p0225, p3424 = p0225, p3422 = p0227 and p3425[0...1] = 100 %. Further, before the measurements are carried out, a brief identification run is executed to coarsely set the controller.

r3411[0...1]

A_INF_828,
S_INF_828,
S_INF_COMBI

Infeed identified inductance / INF L ident

Changeable: -	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [mH]	- [mH]	- [mH]

Description:

Displays the identified total inductance.
The value corresponds to the total inductance between the rigid line supply and the infeed input terminals.

Index:

[0] = Run 1
[1] = Run 2

Dependency:

See also: p3410

Note

The value measured in the first identification run is displayed in r3411[0] (for p3410 = 1, 3, 4, 5). This value is transferred to p3421.

The value measured in the second identification run (for p3410 = 4, 5) is displayed in r3411[1] - this value is used to set the current controller adaptation (p3622).

For the inductance of the commutating reactor, the following applies.

r3411 - r3414

r3412[0...1]

A_INF_828,
S_INF_828,
S_INF_COMBI

Infeed DC link capacitance identified / INF C_DCLink ident

Changeable: -	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [mF]	- [mF]	- [mF]

Description: Displays the identified total DC link capacitance.

Index: [0] = Run 1
[1] = Run 2

Dependency: See also: p3410

Note

The value measured in the first identification run (for p3410 = 1, 3, 4, 5) is displayed in r3412[0]. For p3410 = 1, 3, this value is transferred to p3422.

The DC link capacitance is not measured at the second identification run.

The total DC link capacitance of a DC link group comprises the sum of the sub-capacitances of all motor/infeed modules and the additional DC link capacitors.

r3414[0...1]

A_INF_828,
S_INF_828,
S_INF_COMBI

Infeed line supply inductance identified / INF t_line ident

Changeable: -	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [mH]	- [mH]	- [mH]

Description: Displays the identified line supply inductance.

The value corresponds to the total inductance between the stiff line supply and the connection point of the Voltage Sensing Module (VSM).

Index: [0] = Run 1
[1] = Run 2

Dependency: See also: p3410

NOTICE

The value is only automatically determined for the line supply identification (p3410 > 0), if operation with a Voltage Sensing Module is selected (p3400.5 = 1). Otherwise, r3414 = 0 is displayed.

Note

The value measured in the first identification run is displayed in r3414[0] (for p3410 = 1, 3, 4, 5). This value is transferred to p3421.

The value measured in the second identification run is displayed in r3414[1] (for p3410 = 4, 5).

For the inductance of the commutating reactor, the following applies.

r3411 - r3414

p3415[0...1]

A_INF_828,
S_INF_828,
S_INF_COMBI

Infeed excitation current L identification / INF I_exc L_Ident

Changeable: T	Calculation: -	Access level: 4
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
1.00 [%]	75.00 [%]	20.00 [%]

Description: Sets the magnitude of the excitation frequency for the L identification.

The setting is made as a percentage of the maximum power unit current (r0209).

Index: [0] = Run 1
[1] = Run 2

Dependency: See also: p3410, r3411, p3421, p3620, p3622

NOTICE

To correctly identify the current level (p3410 = 4, 5) depending on the reactor inductance, the following must apply:
 p3415[0] < p3415[1]
 For A_INF booksize units, the following applies:
 The interrelationship between the reactor inductance and the current magnitude should be measured. Generally, the factory setting of p3415[0] and p3415[1] should be kept.
 For chassis units and S_INF booksize units, the following applies:
 Generally, there is only a very low inter-relationship between the reactor inductance and the current magnitude. This means that for the factory setting p3415[0] = p3415[1] = 20 %, i.e. run 2 is not executed.

Note

The reactive current for identification run 1 is set in p3415[0] (basic controller setting).
 The reactive current for identification run 2 is set in p3415[1] (adaptation of the current controller when reducing the reactor inductance with increasing current magnitude).

p3416

Infeed excitation amplitude C identification / INF exc_amp C_Id

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: T	Calculation: -	Access level: 4
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.10 [%]	Max: 20.00 [%]	Default: 2.00 [%]

Description: Sets the level of the excitation frequency for identification of the total DC link capacitance. The amplitude is indicated as a percentage of the DC voltage setpoint ($V_{dc} = p0210 * p3510$).

Dependency: See also: p3410, r3412, p3422

p3417

Infeed excitation frequency C identification / INF f_exc C_ID

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: T	Calculation: -	Access level: 4
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 10.00 [Hz]	Max: 200.00 [Hz]	Default: 50.00 [Hz]

Description: Sets the level of the excitation frequency for identification of the total DC link capacitance.

Dependency: See also: p3410, r3412, p3422

p3421

Infeed inductance / INF L

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: T	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.001 [mH]	Max: 2000.000 [mH]	Default: 1.000 [mH]

Description: Sets the total effective inductance for the closed-loop current control from the sum of the line supply inductance and inductance of the line reactor.

This parameter is pre-set to the sum of p0223 and p0225.

Dependency: See also: p0223, p0225, p3410, p3425, p3614, p3622

Note

The controller setting is derived from this value and p3425.
 The value can be automatically determined using the identification run (p3410).
 For a parallel circuit, the value corresponds to the inductance of a power unit.
 For the inductance value of the line reactor, p3421 - p3424 applies.

p3422

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Infeed DC link capacitance / INF C_DCL**Changeable:** T, U**Data type:** FloatingPoint32**P group:** Closed-loop control**Not for motor type:** -**Min:**

0.20 [mF]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

2000.00 [mF]

Access level: 3**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

2.00 [mF]

Description:

Sets the DC link capacitance for the closed-loop voltage control.
 This value is pre-set with p0227.

Dependency:

See also: p0227, r0227, p3410, p3425

Note

The controller setting is derived from this value and p3425.
 A suitable value can be automatically determined using the identification run (p3410).

p3424

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Infeed line supply inductance / INF L_line**Changeable:** T**Data type:** FloatingPoint32**P group:** Closed-loop control**Not for motor type:** -**Min:**

0.001 [mH]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

1000.000 [mH]

Access level: 3**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

0.001 [mH]

Description:

Sets the line supply inductance.
 This parameter is pre-set with p0225.

Dependency:

See also: p0223, p0225, p3410, p3425, p3622

Note

The controller setting is derived from this value and p3425.
 The value can be automatically determined using the identification (p3410) if operation with a Voltage Sensing Module is selected. Otherwise, p3424 is set to p3421 - p0223.

p3425[0...1]

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Infeed control loop parameter scaling / INF par scal**Changeable:** T**Data type:** FloatingPoint32**P group:** Closed-loop control**Not for motor type:** -**Min:**

1.00 [%]

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

1000.00 [%]

Access level: 4**Function plan:** -**Unit selection:** -**Expert list:** 1**Default:**

100.00 [%]

Description:

Sets the scaling factors for controller parameters p3421, p3422 and p3424.

Index:

[0] = Scaling inductance

[1] = Scaling capacitance

Dependency:

See also: p3410, p3421, p3422, p3424, p3614

Note

p3425 is automatically set to the optimum value when setting the control parameters using the line supply data identification p3410 >= 2. As the line supply inductance (p3424) increases in comparison to the total inductance (p3421), lower values must be selected for p3425. This means that the control is adapted to weak line supplies with high relative short-circuit voltage u_k or high line supply inductance (also refer to p3614).

The scaled control loop parameters become effective for closed-loop control, i.e. the products p3421 * p3425[0] and p3422 * p3425[1] represent the controller setting.

p3440 Smart Mode configuration / Smart Mode config

A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0001 bin

Description: Sets the configuration of the Smart Mode.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Soft Pulse Mode	ON	OFF	-
	01	Extended Smart Mode	ON	OFF	-
	02	De-select automatic line identification after POWER ON	Yes	No	-

NOTICE

For bit 00:
This parameter influences the line harmonics for regenerative operation.
For operation with switched frequency line filter (AIM) the soft-pulse mode must be activated.

Note

For bit 00:
When the pulsed mode for Smart Mode is de-activated, when regenerating, higher phase current gradients occur.
For Smart Line Modules in the "chassis" format, pulsed operation is not effective.

For bit 01:
The Extended Smart Mode can only be activated for booksize power units.
For active Extended Smart Mode, for partial load operation, the line reactive power requirement must be reduced and the average value of the DC link voltage increased.
At rated load and overload, the operating behavior is equivalent to the normal Smart mode.

For bit 02:
When automatic line identification is selected, the inductance and DC-link capacitance values are calculated on the first pulse enable after each POWER ON and saved in p3448[0...1]. In the case of manual input of p3448[0...1], automatic line identification must be de-selected.
The control loop parameters are required for the Extended Smart Mode.

p3440 Smart Mode configuration / Smart Mode config

S_INF_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0010 bin

Description: Sets the configuration of the Smart Mode.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Soft Pulse Mode	ON	OFF	-
	01	Extended Smart Mode	ON	OFF	-
	02	De-select automatic line identification after POWER ON	Yes	No	-

NOTICE
For bit 00: This parameter influences the line harmonics for regenerative operation. For operation with switched frequency line filter (AIM) the soft-pulse mode must be activated.

Note

For bit 00:

When the pulsed mode for Smart Mode is de-activated, when regenerating, higher phase current gradients occur.
For Smart Line Modules in the "chassis" format, pulsed operation is not effective.

For bit 01:

The Extended Smart Mode can only be activated for booksize power units.

For active Extended Smart Mode, for partial load operation, the line reactive power requirement must be reduced and the average value of the DC link voltage increased.

At rated load and overload, the operating behavior is equivalent to the normal Smart mode.

For bit 02:

When automatic line identification is selected, the inductance and DC-link capacitance values are calculated on the first pulse enable after each POWER ON and saved in p3448[0...1]. In the case of manual input of p3448[0...1], automatic line identification must be de-selected.

The control loop parameters are required for the Extended Smart Mode.

p3441[0...1]	Smart Mode Vdc ctrl Kp/Tn / SLM Vdc_ctrl Kp/Tn		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 1000.00 [%]	Default: 100.00 [%]
Description:	Sets the standardized proportional gain (index 0) and the integral time (index 1) for the DC-link voltage controller (Vdc controller) in Smart Mode.		
Index:	[0] = Proportional gain [1] = Integral time		
	Note A value of 100% corresponds to the basic setting derived from loop control parameters (p0115, p3409, p3448[1]).		

p3442[0...1]	Smart Mode smoothing times / SLM t_smooth		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 20.00 [ms]	Default: [0] 0.25 [ms] [1] 1.00 [ms]
Description:	Sets the time constant for PT1 filtering of the DC-link voltage for the Vdc controller (index 0) and the monitored DC-link load current (index 1) in Smart Mode.		
Index:	[0] = DC link voltage actual value (r3445) [1] = Monitored DC link load current (r3446[2])		
Dependency:	See also: r3445, r3446		

p3443[0...1]	Smart Mode line commutation current threshold values / SLM line com I_thr		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 1000.00 [%]	Default: [0] 100.00 [%] [1] 200.00 [%]
Description:	Sets the current threshold values for the de-activation (index 0) and activation (index 1) of line commutation in Smart Mode.		
Index:	[0] = De-activating [1] = Activating		
	Note A value of 100% corresponds to the minimum feedback load current derived from the loop control parameters (p0210, p0211, p3409, p3448[0], p3432) without infeed components. To avoid frequent changeovers in operation close to the changeover point, the value for activation (index 1) must be significantly higher than the value for de-activation (index 0).		

p3444[0...1]	Smart Mode voltages / SLM voltages		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 105.00 [%]	Default: [0] 90.00 [%] [1] 100.50 [%]
Description:	Sets the minimum line voltage for regenerative feedback or the DC-link voltage setpoint in Smart Mode.		
Index:	[0] = Minimum line voltage for feedback [1] = DC link voltage setpoint		
	Note For index 0: A value of 100% corresponds to the supply voltage set in p0210. If the minimum line voltage is undershot, feedback is de-activated to prevent the DC-link voltage decaying in the event of a significant system voltage dip. For index 1: A value of 100% corresponds to the rectified value of the actual line voltage. The value must be greater than or equal to 100%.		

r3445[0...1]	Smart Mode voltages display / SLM voltages disp		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Displays the various voltages in Smart Mode.		
Index:	[0] = DC link voltage smoothed [1] = DC link voltage setpoint		
Dependency:	See also: r0070, p3442		

Note

For index 0:

Displays the DC-link voltage actual value measured and smoothed with p3442[0].

The smoothed value is used for the DC-link voltage controller (Vdc controller) in Smart Mode.

The DC-link voltage is also available unsmoothed (r0070).

For index 1:

Displays the DC-link voltage setpoint for the DC-link voltage controller (Vdc controller) in Smart Mode.

r3446[0...2]**Smart Mode currents / SLM currents**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [A]

Calculation: -

Dynamic index: -

Unit group: 6_4

Scaling: p2002

Max:

- [A]

Access level: 3

Function plan: -

Unit selection: p0505

Expert list: 1

Default:

- [A]

Description:

Displays the various current values in Smart Mode.

Index:

[0] = DC link current setpoint

[1] = Vdc controller I component

[2] = Monitored DC link load current

Note

For index 0:

Displays the DC-link current setpoint requested by the DC-link voltage controller (Vdc controller) in Smart Mode.

For index 1:

Displays the I component of the DC-link voltage controller (Vdc controller).

For index 2:

Displays the monitored DC-link load current.

r3447**Smart Mode OFF angle / SLM phi_OFF**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [°]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2005

Max:

- [°]

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [°]

Description:

Displays the OFF angle requested by the DC-link voltage controller (Vdc controller) in Smart Mode.

Note

A value = 30 ° de-activates feedback.

A value = 0 ° requests maximum feedback (line commutation).

p3448[0...1]**Smart Mode effective inductance/DC link capacitance / SLM L/C effect**

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T, U

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

10.00 [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

10000.00 [%]

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

[0] 110.00 [%]

[1] 100.00 [%]

Description:

Sets the effective inductance or DC-link capacitance in Smart Mode.

Index:

[0] = Effective inductance referred to p0223

[1] = Effective DC link capacitance referred to p0227

NOTICE

p3448[0] is used in the calculation of the reference value of p3443 and in the controller models.
 p3448[1] is used in the calculation of the reference value of p3441 and in the controller models.
 When automatic line identification is selected (p3440.2 = 0), the following applies:
 - the inductance and DC-link capacitance values are calculated on the first pulse enable after each POWER ON and saved in p3448[0...1].
 - values entered manually are overwritten after the next POWER ON.
 When automatic line identification is de-selected (p3440.2 = 1), the following applies:
 - the inductance and DC-link capacitance values must be entered manually.

Note

For index 0:
 A value of 100% corresponds to the inductance parameterized in p0223.
 For a parallel circuit, the value corresponds to the inductance of a power unit.
 For index 1:
 A value of 100% corresponds to the capacitance parameterized in p0227.
 The value includes the capacitances of all modules connected on the DC link.

r3452

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Infeed PLL status / INF PLL status

Changeable: -	Calculation: -	Access level: 4
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	7	-

Description:

Displays the status of the line supply PLL.

Value:

- 0: Initialization running
- 1: Error when synchronizing
- 2: Line analysis
- 3: Calculation line data
- 4: Pulse enable missing
- 5: PLL calculation
- 6: Final status controlled / Smart Mode
- 7: Reserved

p3458[0...1]

A_INF_828,
 S_INF_828,
 S_INF_COMBI

Infeed PLL smoothing time / INF PLL t_{smooth}

Changeable: T, U	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Closed-loop control	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
1.0 [ms]	1000.0 [ms]	[0] 23.1 [ms] [1] 9.1 [ms]

Description:

Sets the smoothing time for the line supply PLL.

Index:

- [0] = Encoderless operation line supply frequency smoothing time
- [1] = VSM operation line supply frequency smoothing time

Note

It may be necessary to reduce the smoothing time for weak line supplies with high frequency fluctuations. There is otherwise a risk of brief orientation errors and the infeed could fail.

r3460	Infeed PLL system deviation / INF PLL ctrl_dev		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: - [°]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [°]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: - [°]
Description:	Displays the PLL system deviation.		
r3461	Infeed PLL system deviation after filtering / INF PLL ctrl_devSm		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: - [°]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [°]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: - [°]
Description:	Displays the PLL system deviation after filtering.		
Dependency:	See also: p3458		
p3462	Infeed line fault maximum time / INF line fault t		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10000.00 [s]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0.00 [s]
Description:	Sets the maximum permissible wait time for the line supply to return after identifying a line fault.		
	Note This parameter is used to define how long alarm A06205 may be continuously present. F06200 is initiated after the wait time has expired. For p3462 = 0, the following applies: The time monitoring is de-activated. Fault F06200 is only output, if in addition to A06205, an additional message is initiated with a stop response.		
p3463	Infeed line angle change phase failure detection / INF phi ph_fail		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: -180.0 [°]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 180.0 [°]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 15.0 [°]
Description:	If the line supply angle (angle between the line supply phases) suddenly changes by this value, then a phase failure is assumed. The pulses are then inhibited for 10 ms.		
Dependency:	See also: A06205		

r3467[0...3]

A_INF_828,
S_INF_828,
S_INF_COMBI

CO: Infeed current alpha/beta / INF I a/b

Changeable: -

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

- [A]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

- [A]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [A]

Description:

Display and connector output for the line current in alpha/beta components.

Index:

[0] = Alpha

[1] = Beta

[2] = Alpha

[3] = Beta

Note

For Index 0, 1:

Displays the line current at the input terminals of the line filter.

For Index 2, 3:

Displays the line current at the input terminals of the power unit.

r3468[0...5]

A_INF_828,
S_INF_828,
S_INF_COMBI

CO: Infeed voltage alpha/beta / INF U a/b

Changeable: -

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

- [V]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

- [V]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [V]

Description:

Display and connector output for the line supply voltage at the input terminals of the line filter in alpha/beta components.

Index:

[0] = Alpha

[1] = Beta

[2] = Alpha

[3] = Beta

[4] = Alpha

[5] = Beta

Note

For Index 0, 1:

The input terminals of the line filter form, for infeeds, the connection point of the Voltage Sensing Module (VSM) to measure the line supply voltage.

For operation with VSM (p3400.5 = 1), the following applies:

The voltage measured values r3661 and r3662, transformed into the alpha/beta system are displayed in r3468.

For encoderless operation without VSM (p3400.5 = 0), the following applies:

The estimated values of the voltages from the line supply model of the PLL transformed into the alpha/beta system are displayed in r3468.

For Index 2, 3:

The basic fundamental amplitudes of the clocked inverter output voltages are displayed.

The values are only valid when operation is enabled.

For Index 4, 5:

The basic fundamental amplitudes of the voltage source calculated using a line model are displayed.

The values are only valid when operation is enabled.

p3469[0...n]	Latch delay time correction, zero crossover detection / t_{latch corr} PLL		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10000.0 [μs]	Max: 10000.0 [μs]	Default: 0.0 [μs]
Description:	Calibration value for the RC filter of the zero crossover detection of the line supply voltage in the power unit. When p3469 = 0, a new calibration is performed the next time identification is carried out with p3410 = 4 or 5.		
	Note The calibration value is stored in the EEPROM of the power unit because it is a characteristic of the power unit.		
r3470	Infeed active current filter / INF I_{act} filter		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Displays the active current requirement due to the line filter.		
Dependency:	See also: r0038, p0221, p0222		
	Note With respect to the line supply, the sum of the active currents of the power unit (p0078) and line filter (r3470) are effective. The active current demand of the line filter is taken into account when calculating the power factor (r0038). The magnitude of the line filter active current depends on the capacitance (p0221) and the resistance (p0222) of the line filter.		
r3471	Infeed reactive current filter / INF I_{reactiveFilt}		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Displays the reactive current requirement as a result of the line filter. The reactive current requirement of a line filter is covered by the controlled infeed/regenerative feedback so that the converter always operates with a power factor of 1 compared to the line.		
Dependency:	See also: r0038, r0075, r0076, p0221		
	Note With respect to the line supply, the sum of the reactive currents of the power unit (p0076) and line filter (r3471) are effective. The reactive current requirement of the line filter is taken into account when calculating the power factor (r0038). The amount of the reactive current depends on the capacitance (p0221) of the line filter that is automatically parameterized when a line filter is selected (p0220). If the line phases are reversed and the line voltage therefore has a negative orientation (r0066 < 0), it should be noted that the sign of the reactive current is reversed.		

p3472[0...4]	Line supply PLL line supply voltage smoothing time / Line PLL U_I t_{sm}		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1.0 [ms]	Max: 30000.0 [ms]	Default: [0] 200.0 [ms] [1] 100.0 [ms] [2] 5000.0 [ms] [3] 8.0 [ms] [4] 8.0 [ms]

Description: Sets the smoothing time of the line supply voltage for the line supply PLL.

Index:
 [0] = Encoderless operation line supply voltage smoothing time
 [1] = VSM operation line supply voltage smoothing time
 [2] = Detection line supply undervoltage smoothing time
 [3] = Detection line supply overvoltage smoothing time
 [4] = Detection line supply voltage step smoothing time

Dependency: See also: p3400

Note

For the pre-control of the line supply voltage, a smoothed value of the line supply voltage is used in the closed-loop control.

p3472[0]: Sets the PT1 time constant to smooth the line supply voltage for operation without VSM (p3400.5 = 0).

p3472[1]: Sets the PT1 time constant to smooth the line supply voltage for operation with VSM (p3400.5 = 1).

p3472[2]: Sets the smoothing time constant to slowly detect a line supply undervoltage (F06100).

p3472[3]: Sets the smoothing time constant to quickly detect line supply undervoltages for phase failure (A06205).

p3472[4]: Sets the smoothing time constant to quickly adapt the line supply pre-control for line supply voltage steps (p0286).

p3473[0...3]	CI: cos phi display current signal source / cos phi I_S src		
A_INF_828 (cos phi)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8951
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: -	Max: -	Default: [0] 3467[0] [1] 3467[1] [2] 3467[2] [3] 3467[3]

Description: Sets the signal source for the current for the cos phi display.

Index:
 [0] = Alpha subsystem 1
 [1] = Beta subsystem 1
 [2] = Alpha subsystem 2
 [3] = Beta subsystem 2

Dependency: See also: r3467

Note

Using p3475.1, the signal source format can be converted over from alpha/beta space vector coordinates to a 3-conductor representation. With this setting, measured values from the Voltage Sensing Module (VSM) can be directly interconnected (e.g. r5471[0]).

For index 0:

Current alpha (current phase 1) for r3478[0] space vector 1.

For index 1:

Current beta (current phase 2) for r3478[0] space vector 1.

For index 2:

Current alpha (current phase 1) for r3478[1] space vector 2.

For index 3:

Current beta (current phase 2) for r3478[1] space vector 2.

p3474[0...3]	CI: cos phi display voltage signal source / cos phi U S_src		
A_INF_828 (cos phi)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8951
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	-	-	[0] 3468[0]
			[1] 3468[1]
			[2] 3468[2]
			[3] 3468[3]

Description: Sets the signal source for the voltage for the cos phi display.

Index:
 [0] = Alpha subsystem 1
 [1] = Beta subsystem 1
 [2] = Alpha subsystem 2
 [3] = Beta subsystem 2

Dependency: See also: r3468

Note

Using p3475.1, the signal source format can be converted over from alpha/beta space vector coordinates to a 3-conductor representation. With this setting, measured values from the Voltage Sensing Module (VSM) can be directly interconnected (e.g. r5461[0]).

For index 0:

Voltage alpha (voltage phase-phase 12) for r3478[0] space vector 1.

For index 1:

Voltage beta (voltage phase-phase 23) for r3478[0] space vector 1.

For index 2:

Voltage alpha (voltage phase-phase 12) for r3478[1] space vector 2.

For index 3:

Voltage beta (voltage phase-phase 23) for r3478[1] space vector 2.

p3475[0...1]	cos phi display configuration / cos phi config		
A_INF_828 (cos phi)	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: 8951
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 bin

Description: Sets the configuration for the cos phi display.

Index:
 [0] = Space vector 1
 [1] = Space vector 2

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	cos phi display activation	ON	OFF	-
	01	Signal sources in 3-conductor coordinates	Yes	No	-
	02	Signal source phase sequence negated (negative frequency)	Yes	No	-

Note

For bit 00:

For p3475[0].0 = 1 the values in r3477[0] and p3478[0] are updated.

For p3475[1].0 = 1 the values in r3477[1] and p3478[1] are updated.

For bit 01:

For p3475.1 = 0, the following applies:

The format of the signal source in p3473 and p3474 is interpreted as alpha/beta space vector coordinates.

For p3475.1 = 1, the following applies:

The format of the signal source in p3473 and p3474 is interpreted as 3-conductor representation.

For bit 02:

When the bit is activated, the phase sequence of the signal source, interconnected via connector inputs p3473 and p3474, is negated with respect to the signals at the inputs of the infeed. For example, this is the case for a transformer with a phase rotation of 180 ° and the corresponding tapping of the signals.

For p3475.2 = 0, the following applies:

The phase sequence of the signal source in p3473 and p3474 is not negated.

For p3475.2 = 1, the following applies:

The phase sequence of the signal source in p3473 and p3474 is negated.

p3476[0...1]	cos phi display smoothing time / cos phi t_smooth		
A_INF_828 (cos phi)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8951
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 2000.00 [ms]	Default: 200.00 [ms]
Description:	Sets the smoothing time for the cos phi display.		
Index:	[0] = Space vector 1 [1] = Space vector 2		

r3477[0...1]	CO: cos phi display actual value sign / CosPhi ActVal Sign		
A_INF_828 (cos phi)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8951
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Display and connector output for the sign of the offset factor (cos phi). The offset factor cos phi is defined as the cosine of the phase angle between the sinusoidal oscillations of the voltage and the current of the fundamental frequency.		

Note

The following definition of the signs corresponds with that used in the relevant standards relating to line supplies (e.g. VDE-AR-4105).

For under-excited operation (negative reactive current: r0076 < 0), the following applies:

Lower output voltage or lagging current is identified with a positive sign.

For over-excited operation (positive reactive current: r0076 > 0), the following applies:

Higher output voltage or leading current is identified with a negative sign.

r3478[0...1]	CO: cos phi display absolute actual value / cos phi actVal abs		
A_INF_828 (cos phi)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8951
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the absolute value of the offset factor (cos phi).
The offset factor cos phi is defined as the cosine of the phase angle between the sinusoidal oscillations of the voltage and the current of the fundamental frequency.

Index:
[0] = Space vector 1
[1] = Space vector 2

NOTICE

The current and voltage signals must come from the same line supply to which the Active Line Module is connected (identical line frequency).
p3475.2 can compensate if the phase sequence is reversed with respect to the Active Line Module connection terminals.

p3479[0...1]	cos phi display current measurement dead time / cosPhiDis t_I_dead		
A_INF_828 (cos phi)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-10000.000 [μs]	10000.000 [μs]	620.000 [μs]

Description: Sets a dead time for the current measurement.
This means that a calibration of the current measuring instant ensures a precise cos phi measurement in 3-conductor coordinates.

Index:
[0] = Space vector 1
[1] = Space vector 2

NOTICE

A calibration is only required for signal sources in 3-conductor coordinates (p3475.1 = 1).

Note

A calibration value can be checked as follows:

1. Setting p3473[0, 1] = p3467[2, 3], configuration p3475[0] = 1.
2. Determining a cos phi reference value.
3. Setting p3473[2, 3] = p3671, p3672, configuration p3475[1] = 3.
4. When the calibration value has been correctly set, both indices of the "cos phi display absolute actual value" p3478[0, 1] should have the same value.

p3480	Infeed modulation depth limit / INF mod_depth lim		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	50.0 [%]	110.0 [%]	97.0 [%]

Description: Sets the maximum steady-state modulation depth.
When this limit is reached, the DC link voltage is boosted to maintain the control margin. This means that the control reserve is maintained.

Dependency: See also: p3481, r3485

p3481 Infeed standby controller dynamic response / INF res_ctrl dyn

A_INF_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 1000.0 [ms]	Default: 7.5 [ms]

Description: Sets the dynamic response of the reserve controller for the modulation depth. As the smoothing time increases, the response of the DC link voltage tracking becomes slower.

Dependency: See also: p3480, r3485

r3485 Infeed standby controller output / INF res_ctrl outp

A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]

Description: Displays the reserve controller output for the modulation depth.
The DC link voltage is increased by this voltage value - the summed setpoint for the DC link voltage is output in r0088. The summed setpoint is limited to the maximum steady-stage DC link voltage (p0280).

Dependency: See also: p3480, p3481

p3490 Infeed delay time OFF1 command / INF t_del OFF1

A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8732, 8832, 8932
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 1000000.0 [ms]	Default: 0.0 [ms]

Description: Sets the delay time for the ON/OFF1 command of the infeed.
After ON/OFF1 = 0 the infeed remains in operation for the specified time

Dependency: See also: p0840

NOTICE

The ON/OFF1 command of the infeed can be interrupted.

Note

This parameter is only relevant if a Motor Module and the infeed are controlled by the same OFF command. In this case, the delay time and the stop ramp time of the motor can be coordinated with one another.

p3491 Infeed I-offset measurement monitoring time / INF I_offs t_monit

A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8832, 8932
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [ms]	Max: 65000 [ms]	Default: 2000 [ms]

Description: Sets the monitoring time for the current-offset measurement of the power unit.
The time is started with the normal end of the measurement. If the measurement is invalid and if no valid measurement can be taken within the monitoring period (phase currents too high), an appropriate message is generated.

Note

Set this parameter to 0 to allow variations in the delay when running-up.

p3492 Infeed, line supply undervoltage delay time / INF U_line t_del

A_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: T**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** -**P group:** Commands**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0 [s]

300 [s]

0 [s]

Description: Sets the delay time for shutdown due to a line supply undervoltage condition (F06100).
After the line supply undervoltage is detected, the power unit is tripped (shut down) after this delay time has expired.
If, during this delay time, the line supply undervoltage is no longer detected, then the power unit is not shut down.
While the closed-loop control is being synchronized to the line supply (r3402 = 7) the delay time p3492 is not effective.

Dependency: See also: p0283
See also: F06100

Note

The degree of ruggedness of the infeed with respect to fluctuations in the line supply voltage can be increased by parameterizing this delay value.

However, the following should be noted:

- the infeed power decreases proportionally (linearly) with the line supply voltage.
- when other components are connected, for low line supply voltage, operating faults or damage can occur. In this case, the specifications of the connected electrical components should always be carefully observed.

p3508 Infeed step-up factor maximum / Step-up factor max

A_INF_828

Changeable: T**Calculation:** -**Access level:** 2**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** -**P group:** Converter**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

1.60

3.00

1.60

Description: Sets the maximum permissible step-up factor for the power unit used in conjunction with the line filter parameterized in p0220[0].

Dependency: See also: p0210, p0220, p3510

Note

The maximum step-up factor determines the maximum ratio between the DC link voltage setpoint (p3510) and the unit supply voltage (p0210).

The input of the DC link voltage setpoint (p3510) is limited corresponding to the permissible step-up factor (p3508):
 $p3510 \leq p0210 * p3508$.

Pre-setting values:

380 ... 480 V booksize units without Active Interface Module: 1.60

380 ... 480 V booksize units with Active Interface Module (p0220 = 41 ... 45): 2.00

380 ... 480 V chassis units: 2.00

500 ... 690 V chassis units: 2.00

Maximum values:

380 ... 480 V booksize units without Active Interface Module: 1.60

380 ... 480 V booksize units with Active Interface Module (p0220 = 41 ... 45): 2.00

380 ... 480 V chassis units: 2.00

500 ... 690 V chassis units: 2.00

When the filter setting (p0220) is changed, then the setting of the maximum step-up factor (p3508) is also automatically adapted.

p3510

A_INF_828

Infeed DC link voltage setpoint / INF Vdc setp

Changeable: T, U

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: -

Function plan: 8910, 8940

P group: Closed-loop control

Unit group: 5_2

Unit selection: p0505

Not for motor type: -

Scaling: p2001

Expert list: 1

Min:

Max:

Default:

100.00 [V]

1600.00 [V]

600.00 [V]

Description:

Sets the setpoint for the DC link voltage.

Dependency:

See also: p0210, p0280, p3400, p3508, p3511

⚠ WARNING

Before increasing the voltage limit for pulsed operation of a controlled booksize infeed with line supply voltages p0210 > 415 V it should be checked whether the motors connected to the DC link are specified for the higher motor voltages. The warning information associated with p0210 must be carefully observed.

Note

When the Smart Mode is activated (p3400.0 = 1) the DC link voltage is not regulated, i.e. the value entered here is in this case not effective.

The permissible range of the DC link voltage depends on the parameterized unit supply voltage (p0210) and the permissible, maximum continuous DC link voltage (p0280).

In voltage-controlled operation (p3400.0 = 0) the following applies:

$p3510 \geq 1.42 * p0210$ and

$p3510 \leq p3508 * p0210$ and

$p3510 \leq p0280$.

In the Smart Mode (p3400.0 = 1) the following applies:

The setpoint p3510 for the DC link voltage control is inactive. In order to permit an adapted display, deviating from voltage-controlled operation, the lower limit p3510 is $\geq 1.2 * p0210$.

p3511

A_INF_828

CI: Infeed DC link voltage supplementary setpoint / INF Vdc Z_set

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: -

Function plan: 8940

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: p2001

Expert list: 1

Min:

Max:

Default:

-

-

0

Description:

Sets the signal source for the supplementary setpoint for the DC link voltage.

Dependency: See also: p3510

p3513	BI: Voltage-controlled operation inhibit / U_ctrl op inhib		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 8940
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for inhibiting the voltage-controlled mode of the infeed.

Dependency: See also: p3400, r3405

NOTICE

The DC link voltage must be controlled by a different component at the DC link; otherwise this results in an overvoltage or undervoltage condition.

Note

The current controller remains active and can be controlled by means of its setpoint inputs (p3515, p3610). This binector input is used to change over between master operation (0 signal) and slave operation (1 signal) operation and vice versa.

p3514	Infeed supplementary active current steady-state / INF I_sup_eff stat		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-2000.00 [Arms]	2000.00 [Arms]	0.00 [Arms]

Description: Sets a steady-state supplementary setpoint for the active line supply current.

Dependency: See also: p3515

p3515	CI: Infeed supplementary active current / INF I_supl act		
A_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the supplementary setpoint of the active current.

Dependency: See also: p3514

p3516	Infeed current distribution factor / INF I_distr_factor		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the factor to be multiplied by the active current setpoint for the current controller.

Dependency: See also: p3579

r3517	CO: Infeed active current controller unlimited setpoint / INF I_act ctrl set		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the unlimited setpoint of the active current controller.
 For a master-slave infeed configuration, the master retrieves this setpoint and distributes it to all of the slaves. The slaves operate in the current-controlled mode.

p3519[0...3]	CI: Infeed pre-control power (scaled) / INF prectrl P scal		
A_INF_828	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for power pre-control.

Dependency: See also: p3521

Note

Closed-loop control of the DC link voltage is improved by pre-controlling the power required for the other components.

p3520[0...3]	CI: Infeed pre-control power (not scaled) / INF prctr P n Scal		
A_INF_828	Changeable: T	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for power pre-control.

Dependency: See also: p3521

Note

Closed-loop control of the DC link voltage is improved by pre-controlling the power required for the other modules. A non-scaled quantity is expected so that the various power reference values (r2004) of the drive objects do not have to be taken into account. The scaling factors are used to adapt the scaling (p3521).

p3521[0...3]	Infeed pre-control power scaling / INF prectrl P scal		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-100000.00000 [%]	100000.00000 [%]	100.00000 [%]

Description: Sets the scaling factor for the power pre-control.

Dependency: See also: p3520

r3522	CO: Infeed pre-control power display / INF prectrl P_disp		
A_INF_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [kW]	Max: - [kW]	Default: - [kW]
Description:	Displays the sum of the precontrol powers.		
Dependency:	See also: p3520, p3521		

Note

This display is used to set the correct scaling for the precontrol.

p3524[0...2]	CI: Infeed reactive/apparent power limit scaling / I_re/app_lim scal		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8945
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1
Description:	Sets the signal source for dynamically limiting the reactive current and apparent current.		
Index:	[0] = Inductive reactive current limit [1] = Capacitive reactive current limit [2] = Absolute apparent current limit		
Dependency:	See also: r0209, p0209, p3525, p3526, p3527, r3535, r3536		

Note

For index 0:

The effective current limit is obtained from $p3524[0] * p3525 * r0209[0]$.

For index 1:

The effective current limit is obtained from $p3524[1] * p3526 * r0209[0]$.

For index 2:

The effective current limit is obtained from $p3524[2] * p3527 * r0209[0]$.

p3525	Infeed inductive reactive current limit / I_re_lim ind		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100.00 [%]	Max: 0.00 [%]	Default: -100.00 [%]
Description:	Sets the limit for the controlled inductive reactive current ($r0076 < 0$). The value is referred to the maximum current $r0209[0]$.		
Dependency:	See also: r0209, p0209, p3524, r3535, r3536		

p3526	Infeed capacitive reactive current limit / I_{re_lim cap}		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Sets the limit for the controlled capacitive reactive current (r0076 > 0). The value is referred to the maximum current r0209[0].		
Dependency:	See also: r0209, p0209, p3524, r3535, r3536		

p3527	Infeed absolute apparent current limit / I_{app_lim_abs}		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 100.00 [%]	Default: 100.00 [%]
Description:	Sets the limit for the controlled apparent current (r0068). The value is referred to the maximum current r0209[0].		
Dependency:	See also: r0209, p0209, p3524, r3535, r3536		

p3528	CI: Infeed current limit motoring scaling / INF I_{lim mot scal}		
A_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1
Description:	Sets the signal source for the scaling of the current limit when motoring (p3530) to limit the line active current.		
Dependency:	See also: p3530		

Note
The effective current limit is given by the product of p3530 * CI: p3528 .

p3529	CI: Infeed current limit regenerative scaling / INF I_{lim gen scal}		
A_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1
Description:	Sets the signal source for the scaling of the current limit when generating (p3531) to limit the line active current.		
Dependency:	See also: p3530		

Note
The effective current limit is given by the product of p3531 * CI: p3529.

p3530	Infeed current limit motoring / INF I_lim mot		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1.00 [Arms]	Max: 100000.00 [Arms]	Default: 10000.00 [Arms]
Description:	Sets the motoring limit for the active line current. The currently effective current limit is displayed in r0067[0].		
Dependency:	See also: r0067, p3532		

NOTICE

If this limit is selected lower than the maximum current permissible for the power unit (r0067), the infeed can no longer provide its full controlled power. Operating faults of the infeed can occur due to the resulting DC link undervoltage. For self-commutated infeeds, the DC link voltage decreases if more power is drawn from the DC link by the connected load than can be supplied by the line because of the power unit maximum current or a limit in p3530. If the DC link voltage decreases down to the rectified value, then the complete current - necessary to cover the required active power - flows, uncontrolled into the rectifier circuit via the diodes. This is the reason that, for physical reasons, the value in p3530 cannot act as current limit that is always maintained. The value forms a current threshold from which point onwards the DC link energy is used as buffer for brief power fluctuations.

Note

If Smart Mode is activated (p3400.0 = 1), the setting in this parameter is not active.

p3531	Infeed current limit regenerative / INF I_limit regen		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -100000.00 [Arms]	Max: -1.00 [Arms]	Default: -10000.00 [Arms]
Description:	Sets the limit for the active line supply current when regenerating. The currently effective current limit is displayed in r0067[1].		
Dependency:	See also: r0067, p3533		

NOTICE

If this limit is selected lower than the maximum current permissible for the power unit (r0067), the infeed can no longer provide its full controlled power. This can result in an overvoltage condition in the DC link. For self-commutated infeeds, the DC link voltage increases if more power is input to the DC link through the connected source than can be fed to the line because of the maximum power unit current or a limit in p3531. If the DC link voltage exceeds the permissible threshold (p0297), defined by the hardware, then the unit is tripped due to overvoltage. The value in p3531 represents a current limit that is always maintained - however, this can result in overvoltage conditions in the DC link. The value in p3531 represents a current limit from which point onwards the capacitance of the DC link can be used as buffer for brief power fluctuations.

Note

If Smart Mode is activated (p3400.0 = 1), the setting in this parameter is not active.

p3532	BI: Infeed inhibit motoring / INF mot mode inhib		
A_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 8920
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for inhibiting the motor mode of the infeed.

Dependency: See also: r3405, p3530

NOTICE

If the motor mode is inhibited although power is withdrawn from the DC link, then the DC link voltage drops to the rectified value.
 In this state, the DC link is post-charged through the diodes and motoring power is fed to the power unit in spite of the motoring inhibit.
 The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note

The inhibit only becomes active after operation has been enabled and the Vdc has been ramped up (r0863.0 = 1).
 If Smart Mode is activated (p3400.0 = 1), the setting in this parameter is not active.

p3533	BI: Infeed inhibit generator mode / INF gen mode inhib		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 8820, 8920
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source to inhibit the generator mode of the infeed.

Dependency: See also: r3405, p3531

NOTICE

The DC link voltage will increase if generator mode is inhibited even though power is being regenerated into the DC link.
 The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note

The inhibit only becomes active after operation has been enabled and the Vdc has been ramped up (r0863.0 = 1).

r3534	Infeed line filter maximum current / INF filter I_max		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum permissible current for the line filter set using p0220[0].

Dependency: See also: p0220

Note

The currently effective maximum current for the power unit is displayed in r0067.
 The value in r0067 is obtained as minimum of the current limits in r0209, p3530 ... r3534.

r3535[0...4]	CO: Infeed current limit display / INF I_lim displ			
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: -	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8945	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]	
Description:	Display and connector output for the valid current limits.			
Index:	[0] = Active current motoring [1] = Active current generating [2] = Inductive reactive current [3] = Capacitive reactive current [4] = Absolute apparent current			
Dependency:	See also: r0067, r0209, p0209, p3524, p3525, p3526, p3527, r3536			
	Note			
	For index 0: The value corresponds to r0067[0] (positive value).			
	For index 1: The value corresponds to r0067[1] (negative value).			
	For index 2: The value is negative.			
	For index 3: The value is positive.			
	For index 4: The value is positive.			
r3536.0...4	BO: Infeed current limit status display / INF I_lim stat dis			
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: -	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Function plan: 8945	
	P group: Displays, signals	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: p2002	Expert list: 1	
	Min: -	Max: -	Default: -	
Description:	Display and binector output for the status of the current limits.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Active current limit motoring reached	Yes	No
	01	Active current limit generating reached	Yes	No
	02	Inductive reactive current limit reached	Yes	No
	03	Capacitive reactive current limit reached	Yes	No
	04	Absolute apparent current limit reached	Yes	No
Dependency:	See also: r0209, p0209, r3405, p3524, p3525, p3526, p3527, r3535			
	Note			
	A 1 signal indicates when the limit value is reached.			

r3554[0...1]	Infeed Vdc controller output / INF Vdc_ctrl outp		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Display of the DC link voltage controller output (Vdc controller).		
Index:	[0] = I output [1] = PI output		

p3555[0...5]	Infeed Vdc controller integral component fast intervention / Vdc_ctr I-compFast		
A_INF_828, S_INF_828, S_INF_COMBI	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [%]	200.00 [%]	[0] 2.00 [%] [1] 102.00 [%] [2] 0.00 [%] [3] 5.00 [%] [4] 100.00 [%] [5] 0.00 [%]
Description:	Sets the fast Vdc controller intervention for a step-like decrease of the DC link voltage due to a high motor load of the infeed. The Vdc controller fast intervention is de-activated for p3555[5] = 0 % or p3560 < 100% or p0225 > 0.5 * p0223. For a line supply and DC link identification (p3410 >= 2) the level of the fast controller intervention (p3555[2]) is automatically adapted to the line supply inductance.		
Recommendation:	Precise system knowhow is required when correctly changing this parameter! - generally, the fast controller intervention is used to improve the control behavior for high-speed load changes. The function can therefore always be de-activated with p3555[5] = 0 % if no peak load duty cycles are required in the application. - using p3555[0], the calculation of the modulation depth is determined in the case of high system deviations also when the controller intervention is de-activated. This is the reason that p3555[0] should generally not be changed.		
Index:	[0] = Intervention threshold 1: Vdc deviation from the setpoint [1] = Intervention threshold 2: Vdc difference to the rectified value [2] = Fast intervention automatic scaling [3] = Fast intervention pre-control [4] = Fast intervention timeout [5] = Fast intervention manual scaling		

Note

p3555[0]:

Vdc system deviation as a percentage of the setpoint of the DC link voltage (first condition to initiate fast controller intervention). The threshold is also used to internally change over the modulation depth calculation for high system deviations and should therefore generally not be changed!

p3555[1]:

Vdc threshold as a percentage of the rectified value of the actual line supply voltage (second condition to initiate the fast controller intervention). Both threshold conditions must be fulfilled to initiate the controller intervention.

p3555[2]:

Percentage overall level of the fast intervention (scaling factor). For a line supply identification with p3410 ≥ 2 , the factor is automatically adapted or, for weak line supplies with a high inductance, set to 0.

p3555[3]:

Percentage correction of the pre-control for a fast voltage dip (dead time compensation).

p3555[4]:

Percentage minimum time between two controller interventions (100% corresponds to 100 ms). If high load change frequencies occur with the application, the minimum time between two controller interventions can be reduced using p3555[4].

p3555[5]:

Percentage overall level of the fast intervention (scaling factor). With p3555[5] = 0, the fast controller intervention is inhibited. For weak line supplies with a high inductance, it makes sense to de-activate the fast intervention.

p3560	Infeed Vdc controller proportional gain / INF Vdc_ctrl Kp		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.01 [%]	Max: 1000.00 [%]	Default: 100.00 [%]
Description:	Sets the scaled proportional gain for the DC link voltage controller (Vdc controller).		

Note

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

p3561	CI: Infeed Vdc controller proportional gain scaling / INF Vdc ctr Kpscal		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1
Description:	Sets the signal source for scaling the proportional gain for the DC link voltage controller (Vdc controller)..		
Dependency:	See also: p3560		

Note

The total, effective gain is given by the product CI: p3561 * p3560.

p3562	Infeed Vdc controller integral time / INF Vdc_ctrl Tn		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.10 [%]	Max: 100000.00 [%]	Default: 100.00 [%]

Description: Sets the scaled integral time for the DC link voltage controller (Vdc).

Note

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

p3564	Infeed Vdc monitor time constant / INF Vdc monit T		
A_INF_828	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 100.0 [ms]	Default: 0.2 [ms]

Description: Sets the filter time constant for the DC link voltage monitor (Vdc).

p3566	Infeed Vdc ramp duration / INF Vdc t_ramp		
A_INF_828	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8932
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 40 [ms]	Max: 1000 [ms]	Default: 100 [ms]

Description: Sets the ramp time for the DC link voltage (Vdc) when powering up and powering down.

Powering up (pulses enabled, r0898.3 = 1):
During this time, the DC link voltage is increased from the rectifier value after pre-charging to the voltage setpoint (p3510, p3511). The voltage setpoint is increased, when necessary, so that the modulation depth reserve (p3481) is maintained. The reactive current is set to the value 0 while ramping.

Powering down (inhibit pulses, r0898.3 = 0):
During this time, the DC link voltage is reduced to the rectified value ($\sqrt{2}$ * line supply voltage). The reactive current value is set to the value 0 when the ramp starts.

p3570	CI: Master/slave active current setpoint / I_act_setp		
A_INF_828 (Master/ Slave)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8940
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: -	Max: -	Default: 3573[0]

Description: Sets the signal source of the active current setpoint for the closed-loop current control of the slave. The signal value is received from the master infeed (e.g. via the multiplexer or direct).

Dependency: See also: p3513, p3571, p3572, r3573

p3571[0...3]	CI: Master/slave active current setpoint multiplexer input / I_act multi inp		
A_INF_828 (Master/ Slave)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8948
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal sources for the input values of the multiplexer. The signal values are used as setpoint for the closed-loop current control of the slave infeed.		
Index:	[0] = Multiplexer input value 0 [1] = Multiplexer input value 1 [2] = Multiplexer input value 2 [3] = Multiplexer input value 3		
Dependency:	See also: p3570, p3572, r3573		

Note

For a master infeed and a slave infeed, the active current setpoint can be entered without using a multiplexer. If the multiplexer for the master/slave is not required, then it can also be used for another function.

p3572	CI: Master/slave active current setpoint multiplexer selection / I_act multi sel		
A_INF_828 (Master/ Slave)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: 8948
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source to select the required input value for the multiplexer. CI: p3572 = 0, 1, 2, 3 --> valid values Fault F06320 is output for other values.		
Dependency:	See also: p3570, p3571, r3573 See also: F06320		

Note

For a master infeed and a slave infeed, the active current setpoint can be entered without using a multiplexer. If the multiplexer for the master/slave is not required, then it can also be used for another function.

r3573	CO: Master/slave active current setpoint multiplexer output / I_act multi outp		
A_INF_828 (Master/ Slave)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8948
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]
Description:	Displays (connector output) the output for the multiplexer. The signal value is used as standard for the active current setpoint for the slave infeed.		
Dependency:	See also: p3570, p3571, p3572		

Note

For a master infeed and a slave infeed, the active current setpoint can be entered without using a multiplexer. If the multiplexer for the master/slave is not required, then it can also be used for another function.

p3574[0...3] Master/slave DC link voltage monitoring / Vdc monitoring

A_INF_828 (Master/Slave)	Changeable: C2(1), T Data type: FloatingPoint32 P group: Converter Not for motor type: - Min: -60 [V]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 60 [V]	Access level: 3 Function plan: 8948 Unit selection: - Expert list: 1 Default: [0] 20 [V] [1] -20 [V] [2] 5 [V] [3] -5 [V]
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Description: Sets the upper and lower limit values and hysteresis values for the DC link voltage monitoring. The values are entered as absolute values and refer to the DC link voltage setpoint (p3510). For a slave infeed, if the limits are violated, then the closed-loop voltage control is automatically switched in.

Index:
[0] = Vdc upper limit value
[1] = Vdc lower limit value
[2] = Vdc upper hysteresis value
[3] = Vdc lower hysteresis value

Dependency: See also: r0088, p0210, p3510, r3575

r3575.0...2 BO: Master/slave DC link voltage monitoring status / Vdc monit status

A_INF_828 (Master/Slave)	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 8948 Unit selection: - Expert list: 1 Default: -
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Description: Displays the status of the DC link voltage monitoring for the master/slave.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Upper limit value reached	Yes	No	-
	01	Lower limit value reached	Yes	No	-
	02	Upper/lower limit value reached	Yes	No	-

Dependency: See also: r0088, p3510, p3574

p3576[0...5] Master/slave current distribution factor multiplexer input / I_dist_factor inp

A_INF_828 (Master/Slave)	Changeable: T Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 100.00 [%]	Access level: 3 Function plan: 8948 Unit selection: - Expert list: 1 Default: 100.00 [%]
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Description: Sets up to 6 factors to be multiplied by the active current setpoint for the current controller. For a master slave infeed configuration, the value reduced in this way can be distributed to the slave axes. The overall gain from the perspective of the voltage controller remains the same.

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

Dependency: See also: p3577, r3578, p3579

Note

If the multiplexer for the master/slave is not required, then it can also be used for another function.

p3577**CI: Master/slave current distribution factor multiplexer selection / I_dist_factor sel**

A_INF_828 (Master/
Slave)

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / Integer16

Dynamic index: -

Function plan: 8948

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0

Description:

Sets the signal source to select the required input value for the multiplexer.

CI: p3577 = 0, 1, 2, 3, 4, 5 --> valid values

Fault F06321 is output for other values.

Dependency:

See also: p3576, r3578, p3579

See also: F06321

Note

If the multiplexer for the master/slave is not required, then it can also be used for another function.

r3578**CO: Master/slave current distribution factor multiplexer output / I_dist_factor outp**

A_INF_828 (Master/
Slave)

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 8948

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [%]

- [%]

- [%]

Description:

Display and connector output for the multiplexer output value.

The signal value is used as standard for the current distribution factor for the infeed master slave operation.

Dependency:

See also: p3576, p3577, p3579

Note

If the multiplexer for the master/slave is not required, then it can also be used for another function.

p3579**CI: Master/Slave current distribution factor / I_dist_factor**

A_INF_828 (Master/
Slave)

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: -

Function plan: 8940

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min:

Max:

Default:

-

-

3578[0]

Description:

Sets the factor to be multiplied by the active current setpoint for the current controller.

For a master/slave infeed configuration, the value reduced in this way can be distributed to the slave axes. The overall gain from the perspective of the voltage controller remains the same.

Dependency:

See also: p3576, p3577, r3578

r3602	Infeed control status / INF ctrl state		
A_INF_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	8	-
Description:	Displays the status of the closed-loop infeed control.		
Value:	0: Initialization running 1: Pulse enable missing 2: Ramp-up DC link voltage 3: Ramp-up reactive current 4: Shutdown running 5: Reset identification 6: Operation 7: Identification running 8: Smart Mode running		

p3603	Infeed current pre-control factor D component / INF I_ctrl D-comp		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [%]	500.00 [%]	100.00 [%]
Description:	The D component of the current pre-control is determined from the device data of the filter. p3603 can be used to weigh the pre-calculated D component. If no dynamic pre-control is to be used, set the factor to zero.		

p3604	CI: Infeed current pre-control factor D component scaling / INF I_ctrl D scale		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	1
Description:	Sets the signal source for scaling the current precontrol.		
Dependency:	See also: p3603		

Note
The total, effective gain is given by the product CI: p3604 * p3603

r3606	Infeed active current controller system deviation / INF I_act ctrl dev		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the system deviation of the active current controller.

r3608	Infeed reactive current controller system deviation / INF I_reactvCtrDev		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the system deviation of the reactive current controller.

p3610	Infeed reactive current fixed setpoint / INF I_reactv F_set		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8910, 8946
	P group: Closed-loop control	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-10000.0 [Arms]	10000.0 [Arms]	0.0 [Arms]

Description: Sets the fixed setpoint for the reactive current.
The permissible maximum absolute value for the reactive current is the device rated current r0207.
The following applies: | p3610 | <= r0207

Dependency: See also: r0029, r0075, r0076

NOTICE

If the line phases are reversed and the line voltage therefore has a negative orientation (r0066 < 0), it should be noted that the sign of the reactive current is also reversed. The negated value of p3610 is effective in display parameters r0029, r0075, r0076 as appropriate.

Note

p3610 < 0: Inductive reactive current is produced, i. e. the current follows the voltage.

p3610 > 0: Capacitive reactive current is produced, i. e. the current leads the voltage.

This definition applies to 3AC voltage systems both with positive rotational orientation (r0066 > 0) and for negative rotational orientation (r0066 < 0).

p3611	CI: Infeed reactive current supplementary setpoint / INF I_react Z_set		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the supplementary setpoint of the reactive current.

p3614[0...1]	Infeed current actual value filter smoothing time / INF I_act t_sm		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8950
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.000 [ms]	2.000 [ms]	0.000 [ms]

Description: Sets the time constant for the PT1 filtering of the active current actual value and reactive current actual value.

Index: [0] = Current actual value smoothing with dead time
 [1] = Current actual value smoothing without dead time

Note

The current actual value filter is de-activated with p3614[0, 1] = 0.
 For index 0:
 The PT1 filter with a clock cycle dead time can be used to stabilize the closed-loop current control for extremely weak line supplies (with higher relative short-circuit voltage uk).
 For an automatic controller setting with p3410 >= 2, the current actual value filter is automatically pre-set.
 For index 1:
 The PT1 filter without dead time can be used to optimize the closed-loop current control (e.g. in conjunction with frequency wobulation).

p3615 Infeed current controller P gain / INF I_ctrl Kp

A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 1000.00 [%]	Default: 100.00 [%]

Description: Sets the scaled P gain for closed-loop current control of the infeed.

Note

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

p3616 CI: Infeed current controller P gain scaling / INF I_ctrl Kp scal

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: 1

Description: Sets the signal source for scaling the proportional gain for the current controller.

Dependency: See also: p3615

NOTICE

The total, effective gain is given by the product CI: p3616 * p3615.

p3617 Infeed current controller integral time / INF I_ctrl Tn

A_INF_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.10 [%]	Max: 100000.00 [%]	Default: 100.00 [%]

Description: Sets the scaled integral time for the infeed current controller.

Note

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3422).

r3618	Infeed active current controller integral component / INF I_act_ctrl Tn		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the integral component of the active current controller.		
r3619	Infeed reactive current controller integral component / INF I_reactv_ctrTn		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8946
	P group: Closed-loop control	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the integral action component of the reactive current controller.		
p3620	Infeed current controller adaptation lower application threshold / INF I_adptLowThrsh		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [%]	100.00 [%]	40.00 [%]
Description:	Sets the switch-in threshold for the current controller adaptation. The value refers to the maximum power unit current (r0209). From the starting threshold onwards, the inductance value (p3421) used for current control is reduced linearly as a function of the current value. The inductance value for the maximum power unit current is therefore $p3421 * p3622$.		
Dependency:	See also: p3410, p3415, p3622		
	Note		
	The parameter can be set automatically using the line supply identification (p3410 = 4, 5) (also refer to p3622). Prerequisite for a reliable measurement of p3622 is that the current magnitude for run 2 (p3415[1]) is at least 10 % higher than the current magnitude for run 1 of the line supply identification. Otherwise, the measurement result is rejected. In the case of a correct measurement, p3620 is set to 80% of the current magnitude for run 1 (p3415[0]). For chassis power units, it is generally not necessary to adapt p3620 and p3622 to the characteristics of the line supply. However, when required, the current controller adaptation can be optimized by selecting suitable current magnitudes for p3415. For booksize power units, p3620 and p3622 are automatically adapted with the then valid default setting of the line identification p3415.		
p3622	Infeed current controller adaptation reduction factor / INF I_adapt factor		
A_INF_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.01 [%]	100.00 [%]	85.00 [%]
Description:	Sets the inductance of the line reactor at the maximum power unit current (r0209) as a percentage of the inductance (p3421) at the application threshold (p3620).		

Dependency: See also: p3410, p3415, p3620

Note

The parameter for a line supply identification (p3410 = 4, 5) automatically optimized, if the following applies:
p3415[1] - p3415[0] > 10%. Otherwise, the measurement result is rejected.

For chassis power units, it is generally not necessary to adapt p3620 and p3622 to the characteristics of the line supply. However, when required, the current controller adaptation can be optimized by selecting suitable current magnitudes for p3415.

For booksize power units, p3620 and p3622 are automatically adapted with the then valid default setting of the line identification p3415.

p3624[0...1]

Infeed harmonics controller order / INF harm_ctr order

A_INF_828

Changeable: T

Calculation: -

Access level: 2

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min:

Max:

Default:

5

13

[0] 5

[1] 7

Description:

Sets the Order of the line harmonics for the current harmonics controller.

p3624[0]: Order of the line harmonics for the first harmonics controller.

p3624[1]: Order of the line harmonics for the second harmonics controller.

Dependency:

See also: p3625, r3626

Note

Harmonics in the line supply voltage can cause harmonics in the converter current. These types of current harmonics can be reduced by activating additional controller modules.

Example:

For a 50 Hz line supply harmonics at 250 Hz in the phase currents can be reduced by activating a harmonic controller with Order 5 (p3624[0] = 5).

p3625[0...1]

Infeed harmonics controller scaling / INF harm_ctrl scal

A_INF_828

Changeable: T, U

Calculation: -

Access level: 2

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min:

Max:

Default:

0.0 [%]

300.0 [%]

100.0 [%]

Description:

Sets the gain of the harmonics controller.

p3625[0]: Gain of the first harmonics controller

p3625[1]: Gain of the second harmonics controller

0 %: Controller is de-activated

100 %: Controller is activated with default gain setting

Dependency:

See also: p3624, r3626

Note

The harmonics controller corrects the power unit voltages so that the line-side current harmonics are reduced.

The order of a current harmonic, that is to be dampened using a harmonics controller, is defined using p3624.

r3626[0...1]	Infeed harmonics control output / INF harm_ctrl outp		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the output voltages of the harmonics controller. r3626[0]: RMS value of the 5th harmonic of the controller output voltage r3626[1]: RMS value of the 7th harmonic of the controller output voltage The harmonics controller corrects the power unit voltages so that the line-side current harmonics are reduced.		
Dependency:	See also: p3624, p3625		
r3632	Infeed input voltage Vsd (active component) / INF U_inp Usd		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8910, 8946, 8950
	P group: Closed-loop control	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the voltage Usd (active component) at the 3-phase line supply input of the power unit.		
r3633	Infeed input voltage Usq (reactive component) / INF U_inp Usq		
A_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8910, 8946, 8950
	P group: Closed-loop control	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]
Description:	Displays the voltage Usq (reactive component) at the 3-phase line supply input of the power unit.		
r3635	CO: Infeed input voltage angle / INF U_inp angle		
A_INF_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8950
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]
Description:	Display and connector output for the angle of the input voltage (relative to the line supply angle).		
r3637[0...1]	CO: Negative phase-sequence system control current setpoint / Neg_seq_ctrl I_set		
A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]

Description: Display and connector output for the current setpoint for the negative phase-sequence system control.
Index: [0] = Active
 [1] = Reactive

r3638[0...3] CO: Negative phase-sequence system control current actual value / Neg_seq ctr I_act

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Arms]	Calculation: - Dynamic index: - Unit group: 6_2 Scaling: p2002 Max: - [Arms]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [Arms]
---	--	---	--

Description: Display and connector output for the current actual values for the negative phase-sequence system control. The setpoint for the positive phase-sequence system current is compensated in the displayed negative phase-sequence system current. The setpoint for the negative phase-sequence system current is compensated in the displayed positive phase-sequence system current.

Index: [0] = Negative phase-sequence system component active current
 [1] = Negative phase-sequence system component reactive current
 [2] = Positive phase-sequence system component active current
 [3] = Positive phase-sequence system component reactive current

Note

The total active current actual value in the positive phase-sequence system coordinates is displayed in r0078. The total reactive current actual value in the positive phase-sequence system coordinates is displayed in r0076.

p3639 Negative phase-sequence system control integral time / Neg_seq_ctrl_Tn

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.00 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 300.00 [%]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 100.00 [%]
---	---	---	--

Description: Sets the integral time for the negative phase-sequence system current control.

Note

The value 100% corresponds to the integral time, which is active for the regular positive phase-sequence system current controller (p3617). With p3639 = 0, the integral component of the negative phase-sequence system controller is deactivated.

p3640 Negative phase-sequence system control operating mode / Neg_SeqCtr op_mode

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T Data type: Unsigned16 P group: Closed-loop control Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0000 bin
---	--	--	--

Description: Sets the operating mode of the negative phase-sequence system control.
The negative phase-sequence system control controls the negative phase-sequence system component in the line current (supplementary setpoint p3641).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Negative phase-sequence system current controller activated	Yes	No	-

p3641[0...1] **Cl: Negative phase-sequence system control setpoint / Neg_seq ctrl setp**

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T	Calculation: -	Access level: 4
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal source for the setpoint for the negative phase-sequence system current control.

Index: [0] = Active
[1] = Reactive

WARNING

Setpoints not equal to zero result in an oscillating line power and therefore in voltage fluctuations in the DC link and asymmetrical line supply load.

Note

When the function module "dynamic grid support" (r0108.7 = 1) is activated, the following applies:
The setpoints r5510[4, 6] and the setpoints of the signal source are summed.

r3642[0...1] **CO: Negative phase-sequence system control manipulated variable / NegSeqCtr ManipVar**

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]

Description: Display and connector output for the manipulated variable (output voltage) of the negative phase-sequence system current control.

The manipulated variable is displayed in alpha/beta coordinates.

Index: [0] = Alpha
[1] = Beta

r3643 **Neg phase-sequence system control DC link voltage correction / NegSeqCtr Vdc corr**

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]

Description: Displays the correction value for the DC link voltage setpoint to compensate the negative phase-sequence system active current.

Note

The corrected DC link voltage setpoint (r0088) is effective for the voltage controller.

p3645 Neg. phase-seq. control system Vdc actual value filter damping / NegSysCtr FiltDamp

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5711
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.300

Description: Sets the denominator damping for the bandstop filter of the Vdc actual value for twice the line frequency.

Note

The bandstop filter is deactivated with p3645 = 0.

r3646[0...1] Negative phase-sequence system control integral component / neg_sys_ctrl int

A_INF_828 (Dyn. grid support, Dyn. grid support, Dyn. grid support, Dyn. grid support, Line transf, Line transf, Line transf, Suppl ctrl, Suppl ctrl, Suppl ctrl)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7987
	P group: Closed-loop control	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [Vrms]	Max: - [Vrms]	Default: - [Vrms]

Description: Displays the integral components of the negative phase-sequence system control

Index: [0] = Active
[1] = Reactive

r3648[0...1] CO: Transformer DC component controller current actual value / Tr DC_ctrl I_act

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7987
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]

Description: Display and connector output for the DC components of the current actual values of the negative phase-sequence system control.
The DC components of the current actual values are displayed in alpha/beta coordinates.

Index: [0] = Alpha
[1] = Beta

Dependency: See also: p3649, p3650, p3651, r3652, p3654

p3649 Transformer DC component controller integral time / Tr DC_ctrl Tn

A_INF_828 (Line transf)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7987
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 300.00 [%]	Default: 100.00 [%]

Description: Sets the integral time T_n of the DC component controller.

Dependency: See also: r3648, p3650, p3651, r3652, p3654

Note

The 100% value corresponds to the standard setting

With p3649 = 0, the integral component of the DC component controller is deactivated.

p3650 Transformer DC component controller proportional gain / Tr DC_ctrl Kp

A_INF_828 (Line transf)**Changeable:** T, U

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

0.00 [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

300.00 [%]

Access level: 3

Function plan: 7987

Unit selection: -

Expert list: 1

Default:

0.00 [%]

Description: Sets the proportional gain K_p of the DC component controller.

The DC component control is a very precise control without any remaining system deviation under steady-state operating conditions. It calculates a supplementary voltage for the output voltage of a power unit so that any DC component in the current can be counteracted.

The controller is designed analytically based on a model of the controlled system comprising converter, line filter and transformer.

Dependency: The prerequisite for the "DC component control" function is that the "Line transformer" function module is activated (r0108.4 = 1).

See also: r3648, p3649, p3651, r3652, p3654

Note

The 100% value corresponds to the standard setting

The DC component controller is de-activated with p3650 = 0.

p3651 Transformer DC component controller limiting / Tr DC_ctrl lim

A_INF_828 (Line transf)**Changeable:** T, U

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

2.0 [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

10.0 [%]

Access level: 3

Function plan: 7987

Unit selection: -

Expert list: 1

Default:

5.0 [%]

Description: Sets the limit for the output voltage of the DC component controller.

The value is referred to the device supply voltage (p0210).

Dependency: See also: r3648, p3649, p3650, r3652, p3654

Note

If this parameter is set too low, then a DC component can no longer be corrected

r3652[0...1] CO: Transformer DC component controller manipulated variable / Tr DC_ctrl man_var

A_INF_828 (Line transf)**Changeable:** -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [V]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: p2001

Max:

- [V]

Access level: 3

Function plan: 7987

Unit selection: -

Expert list: 1

Default:

- [V]

Description: Display and connector output for the manipulated variable (output voltage) of the DC component controller.

Index: [0] = Alpha

[1] = Beta

Dependency: See also: r3648, p3649, p3650, p3651, p3654

Note

The manipulated variable is displayed in alpha/beta coordinates, and in comparison to the phase-to-phase rms supply voltage (p0210) is therefore evaluated with a factor of 0.8165.

p3654

Transformer DC component controller PT2 limit frequency / Tr DC_ctrl PT2 f

A_INF_828 (Line transf)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7987
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 4.00 [Hz]	Max: 10.00 [Hz]	Default: 10.00 [Hz]

Description: Sets the limit frequency for the PT2 lowpass filter of the DC component controller.

Dependency: See also: r3648, p3649, p3650, p3651, r3652

p3660

VSM input line supply voltage voltage scaler / VSM inp U_scaler

A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9880
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: 0.00 [%]	Max: 100000.00 [%]	Default: 0.00 [%]

Description: Sets the voltage scaler for the Voltage Sensing Module (VSM).

Note

When the 690 V input is used (X522) without voltage scaler, 0 % should be entered.

When the 100 V input (X521) is used with voltage scaler to measure medium voltages, the dividing (scaling) factor multiplied by 100% should be entered.

Example:

1000 V line supply voltage, voltage scaling, 10:1

--> voltage at the VSM input is 100 V

--> p3660 = 10 * 100 % = 1000 %

r3661

CO: VSM input line supply voltage u1 - u2 / VSM inp u1-u2

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950, 9880
	P group: Closed-loop control	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]

Description: Displays the input voltage between phases L1 and L2 for the Voltage Sensing Module (VSM).

Dependency: See also: r0025, r0072, p3660

Note

X521.1 or X522.1: Connection of L1

X521.2 or X522.2: Connection of L2

X521.3 or X522.3: Connection of L3

The absolute voltage value (3-ph. AC) resulting from the phase voltages is displayed unsmoothed in r0072[1] and smoothed in r0025[1].

r3662	CO: VSM input line supply voltage u2 - u3 / VSM inp u2-u3		
A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8850, 8950, 9880
	P group: Closed-loop control	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the input voltage between phases L2 and L3 for the Voltage Sensing Module (VSM).		
Dependency:	See also: r0025, r0072, p3660		
<hr/>			
Note			
X521.2 or X522.2: Connection of L2			
X521.3 or X522.3: Connection of L3			
The absolute voltage value resulting from the phase voltages is displayed in r0072[1] and smoothed in r0025[1].			

r3664.0...1	BO: VSM temperature evaluation status / VSM temp status				
A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: 9886		
	P group: Terminals	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the status of the temperature evaluation of the Voltage Sensing Module (VSM). This displays whether the temperature actual value has exceeded the fault/alarm threshold.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Alarm is present	Yes	No	-
	01	Fault is present	Yes	No	-
Dependency:	See also: p3665, r3666, p3667, p3668				

p3665[0...n]	VSM temperature evaluation sensor type / VSM TempSensorType		
A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: p0140	Function plan: 9886
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	6	0
Description:	Setting of the temperature sensor for the Voltage Sensing Module (VSM). The temperature sensor is connected to terminals X520.5 and X520.6 of the VSM.		
Value:	0: No sensor		
	1: PTC		
	2: KTY84		
	6: PT1000		

Note

The pre-assignment of the parameter depends on the device type.

For chassis power units, the temperature monitoring of the line filter is active (p3665 = 2).

r3666	CO: VSM temperature actual value / VSM Temp_ActVal		
A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9886
	P group: Closed-loop control	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]
Description:	Displays the temperature actual value of a temperature sensor connected to the Voltage Sensing Module (VSM). Prerequisite: - A KTY/PT1000 temperature sensor is connected, and p3665 is set = 2, 6.		
Dependency:	See also: p3665		
	Note For sensor type PTC (p3665 = 1), the following applies: - below the nominal response temperature, r3666 = -50°C. - above the nominal response temperature, r3666 = 199.9 °C.		

p3667	VSM line filter overtemperature alarm threshold / VSMfilt_T A_thresh		
A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9886
	P group: -	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	-100 [°C]	301 [°C]	150 [°C]
Description:	Sets the alarm threshold for the temperature sensor of the Voltage Sensing Module (VSM) to monitor the line filter temperature. Prerequisite: - A KTY/PT1000 temperature sensor is connected, and p3665 is set = 2, 6.		
Dependency:	See also: p3665 See also: A34211		

p3668	VSM line filter overtemperature shutdown threshold / VSM filt_T F_thres		
A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9886
	P group: -	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	-100 [°C]	301 [°C]	180 [°C]
Description:	Sets the shutdown threshold for the temperature sensor of the VSM to monitor the line filter temperature. Prerequisite: - A KTY/PT1000 temperature sensor is connected, and p3665 is set = 2, 6.		
Dependency:	See also: p3667 See also: F34207		

p3669 VSM line filter overtemperature hysteresis / VSM filt_T hyst

A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9886
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: 1.0 [K]	Max: 50.0 [K]	Default: 3.0 [K]
Description:	Sets the hysteresis for the alarm threshold of the VSM to monitor the line filter temperature.		
Dependency:	See also: p3667		

p3670 VSM 10 V input CT gain / VSM CT_gain

A_INF_828, S_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9880
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: 0.000 [A]	Max: 1000.000 [A]	Default: 1.000 [A]
Description:	Sets CT gain of the CT connected at the 10 V input of the Voltage Sensing Module (VSM). The parameter specifies the current magnitude in [A] referred to the input voltage at the VSM in [V]. Example: CT with 1 V per 200 A. --> p3670 = 200		
Dependency:	See also: r3671, r3672		

Note

The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.
The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

r3671 CO: VSM 10 V input CT 1 actual value / VSM CT 1 I_act

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9880
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the current actual value from current transducer (CT) 1 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	See also: p3670		

Note

The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.

r3672 CO: VSM 10 V input CT 2 actual value / VSM CT 2 I_act

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9880
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the current actual value from current transducer (CT) 2 at the 10 V input of the Voltage Sensing Module (VSM).		

Dependency: See also: p3670

Note

The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.

r3673 CO: VSM 10 V input 1 actual value / VSM inp 1 U_act

<p>A_INF_828, S_INF_828</p> <p>Changeable: -</p> <p>Data type: FloatingPoint32</p> <p>P group: Closed-loop control</p> <p>Not for motor type: -</p> <p>Min: - [V]</p>	<p>Calculation: -</p> <p>Dynamic index: -</p> <p>Unit group: -</p> <p>Scaling: p2001</p> <p>Max: - [V]</p>	<p>Access level: 3</p> <p>Function plan: 9880</p> <p>Unit selection: -</p> <p>Expert list: 1</p> <p>Default: - [V]</p>
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Description: Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM).

Dependency: See also: p3670

Note

10 V input 1: Terminals X520.1 and X520.2

r3674 CO: VSM 10 V input 2 actual value / VSM inp 2 U_act

<p>A_INF_828, S_INF_828</p> <p>Changeable: -</p> <p>Data type: FloatingPoint32</p> <p>P group: Closed-loop control</p> <p>Not for motor type: -</p> <p>Min: - [V]</p>	<p>Calculation: -</p> <p>Dynamic index: -</p> <p>Unit group: -</p> <p>Scaling: p2001</p> <p>Max: - [V]</p>	<p>Access level: 3</p> <p>Function plan: 9880</p> <p>Unit selection: -</p> <p>Expert list: 1</p> <p>Default: - [V]</p>
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Description: Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM).

Dependency: See also: p3670

Note

10 V input 2: Terminals X520.3 and X520.4

p3676 VSM line filter capacitance alarm threshold / VSMfilt C A_thresh

<p>A_INF_828, S_INF_828</p> <p>Changeable: T</p> <p>Data type: FloatingPoint32</p> <p>P group: -</p> <p>Not for motor type: -</p> <p>Min: 0.00 [%]</p>	<p>Calculation: -</p> <p>Dynamic index: -</p> <p>Unit group: -</p> <p>Scaling: -</p> <p>Max: 100.00 [%]</p>	<p>Access level: 4</p> <p>Function plan: -</p> <p>Unit selection: -</p> <p>Expert list: 1</p> <p>Default: 0.00 [%]</p>
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Description: Sets the alarm threshold for the change of the capacitance of the line filter.
The monitoring of the filter capacitance is de-activated with p3676 = 0.00 %.

Dependency: See also: p3670
See also: A06250

NOTICE

The following must be ensured before activating monitoring (e.g. p3676 = 10 %):
 Measured filter capacitance (r3677[0...2]) = 3 x filter capacitance (p0221)
 Otherwise, to establish this ratio, p3670 must be appropriately set.
 Example:
 The filter capacitance is specified with p0221 = 39 µF.
 In order that the measured capacitance is 3x so high, p3670 = 6.7 A must be set in the gain factor.
 p0221[0] = 39 µF
 r3677[0...2] = 3 x 39 = 117 µF
 --> p3670 = 6.7 A

Note

Prerequisites for monitoring the filter capacitance:

The phase currents must be measured at two capacitors of the line filter. To do this, current transformers should be connected at the 10 V inputs of the Voltage Sensing Module (VSM).

r3677[0...2] CO: VSM line filter capacitance / VSM filt C

A_INF_828, S_INF_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [μ F]	- [μ F]	- [μ F]
Description:	Displays the capacitance of the line filter (for a star circuit configuration).		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W		
Dependency:	See also: p3676		

Note

Prerequisite:

The monitoring of the filter capacitance is activated.

p3678[0...1] Filter monitoring threshold values / Filter monit thr

A_INF_828 (Line transf)	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7991
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [%]	10000.00 [%]	[0] 0.00 [%] [1] 0.00 [%]
Description:	Sets the threshold values for filter monitoring. The voltage threshold value is referred to p0210. The current threshold value is referred to the nominal filter current. Nominal filter current = $2 \times PI \times p0211 \times 3 \times p0221[0] \times p0210 \times \sqrt{2} / \sqrt{3}$		
Index:	[0] = Voltage threshold value [1] = Current threshold value		
Dependency:	See also: r3671, r3672, r7310, r7311 See also: F06855		

Note

The filter monitoring function is de-activated with p3678 = 0.00.

Recommended setting for activation:

Voltage threshold value: 5.0 %

Current threshold value: 500 %

p3679[0...1] Transformer filter monitoring times / Filter monit times

A_INF_828 (Line transf)	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7991
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 40.00 [ms]	Default: [0] 20.00 [ms] [1] 0.50 [ms]

Description: Sets the times for filter monitoring.
 Index 0:
 Smoothing time for the alpha and beta components of the filter voltage.
 Index 1:
 If the set current threshold value is exceeded at least for the time set, a corresponding fault is output.

Index: [0] = Voltage threshold value
 [1] = Current threshold value


Dependency: See also: F06855

p3680 BI: Braking Module internal inhibit / BM int inhib

B_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal source to inhibit the internal Braking Module.
 BI: p3680 = 1 signal:
 The Braking Module is inhibited.
 BI: p3680 = 0 signal:
 The Braking Module is enabled.

Dependency: See also: A06904

 **CAUTION**
 When the Braking Module is inhibited, no energy can be dissipated in the braking resistor.

p3681 BI: Activating Braking Module internal DC link fast discharge / BM intDCdischg act

B_INF_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal source to activate the DC link fast discharge for an internal braking module.
 When the following conditions apply, the DC link fast discharge is started later with delay time (p3682):
 - BI: p3681 = 1 signal.
 - an external line contactor is opened via r0863.1 "energize contactor".
 The DC link fast discharge is interrupted when the following conditions apply:
 - BI: p3681 = 0 signal.
 - ON command for the infeed.

Recommendation: The DC link fast discharge should be activated if there is an external line contactor and is correctly interconnected (r0863.1, p0860). If the DC link fast discharge is not activated together with an external line contactor, then faults could occur when pre-charging (e.g. F30027).

Dependency: See also: p3682
See also: F30027

NOTICE

The parameter is only effective for Basic Line Modules with the internal Braking Module (this is valid for Basic Line Modules with a power rating of less than 100 kW).

p3682 **Braking Module internal DC link fast discharge delay time / BM int DC dischg t**

B_INF_828	Changeable: C1(3), T	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 500 [ms]	Max: 4294967295 [ms]	Default: 1000 [ms]

Description: Sets the delay time for switching in the DC link fast discharge for an internal Braking Module.

Dependency: See also: p3681

NOTICE

The parameter is only effective for Basic Line Modules with the internal Braking Module (this is valid for Basic Line Modules with a power rating of less than 100 kW).

p3683 **Braking Module internal activation threshold brake chopper / BM int act thresh**

B_INF_828	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 110.00 [V]	Max: 780.00 [V]	Default: 760.00 [V]

Description: Sets the activation threshold for the braking chopper.

Note

The activation threshold is only effective if the "Device supply voltage reduced" function (p0212.0 = 1) has been activated!

r3685 **BO: Digital Braking Module: Pre-alarm I2t shutdown / Dig BM A I2t shutd**

B_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: The binector output uses a 1 signal to indicate that 80 % of the highest permissible I2t value has been reached in the Braking Module.

Dependency: See also: A06905

r3686 **BO: Digital Braking Module Fault / Dig BM Fault**

B_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: The binector output uses a 1 signal to indicate an overcurrent fault or an I2t shutdown in the Braking Module.
Dependency: See also: F06906

r3687 BO: Digital Braking Module pre-alarm overtemperature / Dig BM A overtemp

B_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays a fault due to the excessively high temperature.
 1 signal:
 The connected temperature sensor (X21.1, X21.2) signals an overtemperature.

Recommendation: Measure the braking resistor temperature using the temperature sensor.

r3688 BO: Braking Module internal overtemperature shutdown / BM int temp shutd

B_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the shutdown due to the excessively high temperature.
 1 signal:
 The connected temperature sensor (X21.1, X21.2) signals an overtemperature. The highest permissible temperature at the connected temperature sensor has been exceeded and results in a shutdown.

Dependency: See also: F06908

r3689 BO: Digital Braking Module Uce fault / Dig BM Uce fault

B_INF_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays an Uce fault in the internal Braking Module.
 1 signal:
 An Uce fault is present in the internal Braking Module.

Dependency: See also: F06909

p3700 APC configuration / APC config

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 0000 0000 bin

Description: Sets the configuration for APC (Advanced Positioning Control).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
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00	Activating APC	Yes	No	-
01	APC acceleration sensor	Yes	No	-
08	Activating pulse de-coupling/speed weighting	Yes	No	-

Note

For bit 00:

For a 1 signal, the acceleration filter output is added to the speed setpoint.

For a 0 signal, the value 0 is added. This must be used to evaluate the filter frequency characteristics.

For bit 01:

For a 1 signal, as APC actual value, the source of p3750 with high pass filtering is used.

For a 0 signal, as APC actual value, the encoder actual value selected with p3701 is used.

For bit 08:

For bit 0 = 1 and bit 8 = 1 (pulse decoupling/speed weighting activated), the speed from the direct measuring system (p3701) selected for APC, weighted with p3702, and the motor speed is used as actual value for the speed controller.

p3701**APC enc sel / APC enc sel**

SERVO_828 (APC),
SERVO_COMBI (APC)

Changeable: C1(4)

Data type: Integer16

P group: Data sets

Not for motor type: -

Min:

2

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

3

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

2

Description:

Sets the number of the encoder used for for APC (Advanced Positioning Control).

Value:

2: Encoder 2

3: Encoder 3

Note

Encoder 1 is the motor encoder and cannot be used for APC as APC requires a load measuring system.

An encoder used for APC is, regarding its fault messages, treated just like a motor encoder - this means that its fault messages are assigned to the drive.

p3702[0...n]**APC load speed/motor speed weighting / APC n_load/mot wt**

SERVO_828 (APC),
SERVO_COMBI (APC)

Changeable: T, U

Data type: FloatingPoint32

P group: Setpoints

Not for motor type: -

Min:

-10.000

Calculation: -

Dynamic index: DDS, p0180

Unit group: -

Scaling: -

Max:

10.000

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

1.000

Description:

Sets the weighting factor to form the speed actual value from the load speed and motor speed.

p3700.8 = 1 must be set to activate weighting.

Dependency:

See also: p3700, p3701

Note

1.0: only corresponds to the load speed.

0.0: only corresponds to the motor speed.

0.5: corresponds to the average value from the load speed and motor speed.

p3704[0...n] APC filter activation / APC filter act

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U Data type: Unsigned16 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 7012 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin
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Description: Setting to activate the filter for APC (Advanced Positioning Control).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1.1	Yes	No	-
	04	Activate filter 2.1	Yes	No	-
	05	Activate filter 2.2	Yes	No	-
	08	Activate filter 3.1	Yes	No	-
	09	Activate filter 3.2	Yes	No	-

p3705[0...n] APC filter type / APC filter type

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U Data type: Unsigned16 P group: Closed-loop control Not for motor type: REL Min: -	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 7012 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin
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Description: Sets the filter type for the filter for APC (Advanced Positioning Control).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Filter 1.1 type	A. Filter 2nd ord.	Low pass (PT2)	-
	04	Filter 2.1 type	A. Filter 2nd ord.	Low pass (PT2)	-
	05	Filter 2.2 type	A. Filter 2nd ord.	Low pass (PT2)	-
	08	Filter 3.1 type	A. Filter 2nd ord.	Low pass (PT2)	-
	09	Filter 3.2 type	A. Filter 2nd ord.	Low pass (PT2)	-

p3706[0...n] APC sub-sampling filter 2.x / APC sub-samp. 2.x

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U Data type: Unsigned16 P group: Closed-loop control Not for motor type: REL Min: 1	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 64	Access level: 3 Function plan: 7012 Unit selection: - Expert list: 1 Default: 1
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Description: Sets the factor for the sub-sampling in the branch of filter 2.1 and 2.2 for APC (Advanced Positioning Control).

Note

The values are integer multiples of the speed controller clock cycle (p0115[1]).

p3707[0...n] APC sub-sampling filter 3.x / APC sub-samp. 3.x

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U Data type: Unsigned16 P group: Closed-loop control Not for motor type: REL Min: 1	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 64	Access level: 3 Function plan: 7012 Unit selection: - Expert list: 1 Default: 1
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Description: Sets the factor for the sub-sampling in the branch of filter 3.1 and 3.2 for APC (Advanced Positioning Control).

Note

The values are integer multiples of the speed controller clock cycle (p0115[1]).

p3708[0...n] APC speed actual value smoothing time encoder 2 / APC n_act t_sm 2

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 50.00 [ms]	Default: 0.00 [ms]

Description: Sets the smoothing time constant (PT1) for the speed actual value of encoder 2 with APC (Advanced Positioning Control).

Note

The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.

p3709[0...n] APC speed actual value smoothing time encoder 3 / APC n_act t_sm 3

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 4711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 50.00 [ms]	Default: 0.00 [ms]

Description: Sets the smoothing time constant (PT1) for the speed actual value of encoder 3 with APC (Advanced Positioning Control).

Note

The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.

p3711[0...n] APC filter 1.1 denominator natural frequency / APC Filt 1.1 fn_d

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the denominator natural frequency for filter 1.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3712[0...n] APC filter 1.1 denominator damping / APC Filt 1.1 D_d

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.050	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for filter 1.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3713[0...n] **APC filter 1.1 numerator natural frequency / APC Filt 1 fn_n**
 SERVO_828 (APC), **Changeable:** T, U **Calculation:** - **Access level:** 3
 SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
 P group: Closed-loop control **Unit group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.5 [Hz] 16000.0 [Hz] 2000.0 [Hz]

Description: Sets the numerator natural frequency for filter 1.1 (general 2nd Order filter) for APC (Advanced Positioning Control).
Dependency: See also: p3704, p3705

p3714[0...n] **APC filter 1.1 numerator damping / APC Filt 1.1 D_n**
 SERVO_828 (APC), **Changeable:** T, U **Calculation:** - **Access level:** 3
 SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
 P group: Closed-loop control **Unit group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.000 10.000 0.700

Description: Sets the numerator damping for filter 1.1 (general 2nd Order filter) for APC (Advanced Positioning Control).
Dependency: See also: p3704, p3705

p3721[0...n] **APC filter 2.1 denominator natural frequency / APC Filt 2.1 fn_d**
 SERVO_828 (APC), **Changeable:** T, U **Calculation:** - **Access level:** 3
 SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
 P group: Closed-loop control **Unit group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.5 [Hz] 16000.0 [Hz] 2000.0 [Hz]

Description: Sets the denominator natural frequency for filter 2.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).
Dependency: See also: p3704, p3705

p3722[0...n] **APC filter 2.1 denominator damping / APC Filt 2.1 D_d**
 SERVO_828 (APC), **Changeable:** T, U **Calculation:** - **Access level:** 3
 SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
 P group: Closed-loop control **Unit group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.050 10.000 0.700

Description: Sets the denominator damping for filter 2.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).
Dependency: See also: p3704, p3705

p3723[0...n] **APC filter 2.1 numerator natural frequency / APC Filt 2.1 fn_n**
 SERVO_828 (APC), **Changeable:** T, U **Calculation:** - **Access level:** 3
 SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
 P group: Closed-loop control **Unit group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.5 [Hz] 16000.0 [Hz] 2000.0 [Hz]

Description: Sets the numerator natural frequency for filter 2.1 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3724[0...n]	APC filter 2.1 numerator damping / APC Filt 2.1 D_n		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for filter 2.1 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3726[0...n]	APC filter 2.2 denominator natural frequency / APC Filt 2.2 fn_d		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the denominator natural frequency for filter 2.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3727[0...n]	APC filter 2.2 denominator damping / APC Filt 2.2 D_d		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.050	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for filter 2.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3728[0...n]	APC filter 2.2 numerator natural frequency / APC Filt 2.2 fn_n		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for filter 2.2 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3729[0...n]	APC filter 2.2 numerator damping / APC Filt 2.2 D_n		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7029
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for filter 2.2 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3731[0...n]	APC filter 3.1 denominator natural frequency / APC Filt 3.1 fn_d		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the denominator natural frequency for filter 3.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3732[0...n]	APC filter 3.1 denominator damping / APC Filt 3.1 D_d		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.050	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for filter 3.1 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3733[0...n]	APC filter 3.1 numerator natural frequency / APC Filt 3.1 fn_n		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]
Description:	Sets the numerator natural frequency for filter 3.1 (general 2nd Order filter) for APC (Advanced Positioning Control).		
Dependency:	See also: p3704, p3705		

p3734[0...n]	APC filter 3.1 numerator damping / APC Filt 3.1 D_n		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for filter 3.1 (general 2nd Order filter) for APC (Advanced Positioning Control).		

Dependency: See also: p3704, p3705

p3736[0...n] APC filter 3.2 denominator natural frequency / APC Filt 3.2 fn_d

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the denominator natural frequency for filter 3.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3737[0...n] APC filter 3.2 denominator damping / APC Filt 3.2 D_d

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.050	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for filter 3.2 (PT2, general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3738[0...n] APC filter 3.2 numerator natural frequency / APC Filt 3.2 fn_n

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 2000.0 [Hz]

Description: Sets the numerator natural frequency for filter 3.2 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3739[0...n] APC filter 3.2 numerator damping / APC Filt 3.2 D_n

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700

Description: Sets the numerator damping for filter 3.2 (general 2nd Order filter) for APC (Advanced Positioning Control).

Dependency: See also: p3704, p3705

p3750[0...n] **CI: APC acceleration sensor input / APC accel input**
SERVO_828 (APC), **Changeable:** T **Calculation:** - **Access level:** 2
SERVO_COMBI (APC) **Data type:** Unsigned32 / FloatingPoint32 **Dynamic index:** CDS, p0170 **Function plan:** 7012
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** p2007 **Expert list:** 1
Min: **Max:** **Default:**
- - 0

Description: Sets the signal source for the actual value of the acceleration sensor for APC (Advanced Positioning Control).
Dependency: See also: p3700

p3751[0...n] **APC acceleration sensor high pass time constant / APC accel DT1 T**
SERVO_828 (APC), **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 2
SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0.00 [ms] 10000.00 [ms] 100.00 [ms]

Description: Sets the time constant of the high pass filter for the acceleration sensor for APC (Advanced Positioning Control).
Dependency: See also: p3700, p3750

p3760[0...n] **APC load speed controller 1 P gain / APC n_load ctr1 Kp**
SERVO_828 (APC), **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 2
SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
-100.000 100.000 0.000

Description: Sets the proportional gain of the load speed controller 1 for APC (Advanced Positioning Control).
The gain acts on the difference between the speed setpoint and load speed in the branch for filter 2.1 and 2.2.

p3761[0...n] **APC load speed controller 1 rate time / APC n_load ctr1 Tv**
SERVO_828 (APC), **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 2
SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
-500.00 [ms] 500.00 [ms] 0.00 [ms]

Description: Sets the rate time of the load speed controller 1 for APC (Advanced Positioning Control).
The rate time acts on the load acceleration in the branch for filter 2.1 and 2.2.

p3765[0...n] **APC load speed controller 2 P gain / APC n_load ctr2 Kp**
SERVO_828 (APC), **Changeable:** T, U **Calculation:** CALC_MOD_CON **Access level:** 2
SERVO_COMBI (APC) **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7012
P group: Closed-loop control **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
-100.000 100.000 0.000

Description: Sets the proportional gain of the load speed controller 2 for APC (Advanced Positioning Control).
The gain acts on the difference between the speed setpoint and load speed in the branch for filter 3.1 and 3.2.

p3766[0...n]	APC load speed controller 2 rate time / APC n_load ctr2 Tv		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -500.00 [ms]	Max: 500.00 [ms]	Default: 0.00 [ms]
Description:	Sets the rate time of the load speed controller 2 for APC (Advanced Positioning Control). The rate time acts on the load acceleration in the branch for filter 3.1 and 3.2.		

p3767[0...n]	APC differential position high pass time constant / APC s_Dif DT1 T		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7013
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 10000.00 [ms]	Default: 100.00 [ms]
Description:	Sets the time constant of the high pass filter for the differential position gain for APC.		
Dependency:	See also: p3700, p3768		

Note
APC: Advanced Positioning Control

p3768[0...n]	APC differential position gain factor / APC s_dif Kp		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7013
	P group: Closed-loop control	Unit group: 49_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -50000.00 [Nm/rad]	Max: 50000.00 [Nm/rad]	Default: 0.00 [Nm/rad]
Description:	Sets the gain factor Kp for the differential position controller for APC. The gain acts on the torque setpoint (in front of the current setpoint filters). The differential position controller is de-activated with a value = 0.		
Dependency:	See also: p3700, p3767, r3769		

Note
APC: Advanced Positioning Control

r3769	CO: APC differential position torque setpoint / APC s_dif M_set		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5040, 7013
	P group: Setpoints	Unit group: 7_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min: - [Nm]	Max: - [Nm]	Default: - [Nm]
Description:	Display and connector output for the torque setpoint from the differential position controller for APC. This value is added to the torque setpoint of the speed controller (r1480).		
Dependency:	See also: p3700, p3767, p3768		

Note
APC: Advanced Positioning Control

r3770 CO: APC load speed / APC n_load

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: - Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: - [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 3 Function plan: 4711, 7012 Unit selection: p0505 Expert list: 1 Default: - [rpm]
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Description: Display and connector output for the load speed for APC (Advanced Positioning Control).
Dependency: See also: r3771

r3771[0...1] CO: APC speed actual value / APC n_act

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: - Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: - [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 3 Function plan: 4711, 5040, 5042 Unit selection: p0505 Expert list: 1 Default: - [rpm]
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Description: Display and connector output for the speed actual values for APC (Advanced Positioning Control).
 Index 0:
 Displays the smoothed load speed.
 Index 1:
 Displays the load/motor speed actual value weighted with p3702 for p3700.8=1.
Index:
 [0] = Load actual value speed smoothed
 [1] = Load/motor actual speed weighted
Dependency: See also: p1441, r3770

r3772[0...1] APC filter branch 2 display values / APC branch 2 val

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: - Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: - [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 3 Function plan: 7012 Unit selection: p0505 Expert list: 1 Default: - [rpm]
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Description: Displays the speeds in filter branch 2.
Index:
 [0] = Filter 2.1 input value
 [1] = Filter 2.2 output value

r3773[0...1] APC filter branch 3 display values / APC branch 3 val

SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: - Data type: FloatingPoint32 P group: Setpoints Not for motor type: - Min: - [rpm]	Calculation: - Dynamic index: - Unit group: 3_1 Scaling: p2000 Max: - [rpm]	Access level: 3 Function plan: 7012 Unit selection: p0505 Expert list: 1 Default: - [rpm]
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Description: Displays the speeds in filter branch 3.
Index:
 [0] = Filter 3.1 input value
 [1] = Filter 3.2 output value

r3777[0...1]	CO: APC filter branch 1 display values / APC branch 1 val		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7012
	P group: Setpoints	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	Displays the speeds in filter branch 1.		
Index:	[0] = Filter 1.1 input value [1] = Filter 1.1 output value		

p3778[0...n]	APC speed limit / APC n_limit		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [rpm]	210000.00 [rpm]	210000.00 [rpm]
Description:	Sets the speed limit for APC (Advanced Positioning Control).		
Dependency:	See also: p3779		

p3779[0...n]	APC speed limit monitoring time / APC n_limit t		
SERVO_828 (APC), SERVO_COMBI (APC)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 2
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: 7012
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0 [ms]	1000000 [ms]	0 [ms]
Description:	Sets the monitoring time to limit the output for APC (Advanced Positioning Control). This monitoring time is started after the selected limit value (p3778) has been exceeded. A corresponding fault is output if the limit value is not undershot before this time expires.		
Dependency:	See also: p3778 See also: F07425		

p3820[0...n]	Friction characteristic value n0 / Friction n0		
SERVO_828	Changeable: T	Calculation:	Access level: 2
		CALC_MOD_LIM_REF	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [rpm]	210000.00 [rpm]	15.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 1st value pair of the friction characteristic.		
Dependency:	See also: p3830, p3845		

p3821[0...n] SERVO_828	Friction characteristic value n1 / Friction n1		
	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 30.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 2nd value pair of the friction characteristic.		
Dependency:	See also: p3831, p3845		

p3822[0...n] SERVO_828	Friction characteristic value n2 / Friction n2		
	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 60.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 3rd value pair of the friction characteristic.		
Dependency:	See also: p3832, p3845		

p3823[0...n] SERVO_828	Friction characteristic value n3 / Friction n3		
	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 120.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 4th value pair of the friction characteristic.		
Dependency:	See also: p3833, p3845		

p3824[0...n] SERVO_828	Friction characteristic value n4 / Friction n4		
	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 150.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 5th value pair of the friction characteristic.		
Dependency:	See also: p3834, p3845		

p3825[0...n]	Friction characteristic value n5 / Friction n5		
SERVO_828	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 300.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 6th value pair of the friction characteristic.		
Dependency:	See also: p3835, p3845		

p3826[0...n]	Friction characteristic value n6 / Friction n6		
SERVO_828	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 600.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 7th value pair of the friction characteristic.		
Dependency:	See also: p3836, p3845		

p3827[0...n]	Friction characteristic value n7 / Friction n7		
SERVO_828	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 1200.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 8th value pair of the friction characteristic.		
Dependency:	See also: p3837, p3845		

p3828[0...n]	Friction characteristic value n8 / Friction n8		
SERVO_828	Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 1500.00 [rpm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the n coordinate of the 9th value pair of the friction characteristic.		
Dependency:	See also: p3838, p3845		

p3829[0...n] **Friction characteristic value n9 / Friction n9**
SERVO_828

Changeable: T	Calculation: CALC_MOD_LIM_REF	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
P group: Functions	Unit group: 3_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.00 [rpm]	Max: 210000.00 [rpm]	Default: 3000.00 [rpm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the n coordinate of the 10th value pair of the friction characteristic.

Dependency: See also: p3839, p3845

p3830[0...n] **Friction characteristic value M0 / Friction M0**
SERVO_828

Changeable: T	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
P group: Functions	Unit group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 1st value pair of the friction characteristic.

Dependency: See also: p3820, p3845

p3831[0...n] **Friction characteristic value M1 / Friction M1**
SERVO_828

Changeable: T	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
P group: Functions	Unit group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 2nd value pair of the friction characteristic.

Dependency: See also: p3821, p3845

p3832[0...n] **Friction characteristic value M2 / Friction M2**
SERVO_828

Changeable: T	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
P group: Functions	Unit group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 3rd value pair of the friction characteristic.

Dependency: See also: p3822, p3845

p3833[0...n]	Friction characteristic value M3 / Friction M3		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 4th value pair of the friction characteristic.		
Dependency:	See also: p3823, p3845		

p3834[0...n]	Friction characteristic value M4 / Friction M4		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 5th value pair of the friction characteristic.		
Dependency:	See also: p3824, p3845		

p3835[0...n]	Friction characteristic value M5 / Friction M5		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 6th value pair of the friction characteristic.		
Dependency:	See also: p3825, p3845		

p3836[0...n]	Friction characteristic value M6 / Friction M6		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
	P group: Functions	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: -1000000.00 [Nm]	Max: 1000000.00 [Nm]	Default: 0.00 [Nm]
Description:	The friction characteristic is defined by 10 value pairs. This parameter specifies the M coordinate of the 7th value pair of the friction characteristic.		
Dependency:	See also: p3826, p3845		

p3837[0...n] **Friction characteristic value M7 / Friction M7**
SERVO_828 **Changeable:** T **Calculation:** - **Access level:** 2
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7010
P group: Functions **Unit group:** 7_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
-1000000.00 [Nm] 1000000.00 [Nm] 0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 8th value pair of the friction characteristic.

Dependency: See also: p3827, p3845

p3838[0...n] **Friction characteristic value M8 / Friction M8**
SERVO_828 **Changeable:** T **Calculation:** - **Access level:** 2
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7010
P group: Functions **Unit group:** 7_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
-1000000.00 [Nm] 1000000.00 [Nm] 0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 9th value pair of the friction characteristic.

Dependency: See also: p3828, p3845

p3839[0...n] **Friction characteristic value M9 / Friction M9**
SERVO_828 **Changeable:** T **Calculation:** - **Access level:** 2
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** 7010
P group: Functions **Unit group:** 7_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
-1000000.00 [Nm] 1000000.00 [Nm] 0.00 [Nm]

Description: The friction characteristic is defined by 10 value pairs.
This parameter specifies the M coordinate of the 10th value pair of the friction characteristic.

Dependency: See also: p3829, p3845

r3840.0...8 **CO/BO: Friction characteristic status word / Friction ZSW**
SERVO_828 **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 7010
P group: Functions **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Display and BICO output for the status word of the friction characteristic.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Friction characteristic OK	Yes	No	-
01	Friction characteristic record activated	Yes	No	-
02	Friction characteristic record completed	Yes	No	-
03	Friction characteristic record aborted	Yes	No	-
08	Friction characteristic positive direction	Yes	No	-

r3841	CO: Friction characteristic output / Frict outp		
SERVO_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7010
	P group: Functions	Unit group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min: - [Nm]	Max: - [Nm]	Default: - [Nm]
Description:	Display and connector output for the torque of the friction characteristic dependent on the speed.		
Dependency:	See also: p1569, p3842		

p3842	Friction characteristic activation / Frict act		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: 7010
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Setting to activate and de-activate the friction characteristic.		
Value:	0: Friction characteristic de-activated 1: Friction characteristic activated		
Dependency:	See also: p1569, r3841, p3845		

p3845	Friction characteristic record activation / Frict rec act		
SERVO_828	Changeable: T	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Function plan: 7010
	P group: Functions	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0	Max: 3	Default: 0
Description:	Setting for the friction characteristic record. After the next power-on command, the friction characteristic is automatically recorded.		
Value:	0: Friction characteristic record de-activated 1: Friction char record activated for all directions 2: Friction char record activated for positive direction 3: Friction char record activated for negative direction		
Dependency:	When selecting the friction characteristic measurement, the drive data set changeover is suppressed. For linear drives (refer to r0108 bit 12) it is not permissible to carry out the friction characteristic measurement for mechanical systems that limit travel.		

⚠ DANGER

For drives with a mechanical system that limit the distance moved, it must be ensured that during recording, the friction characteristic is not reached. If this is not the case, then it is not permissible that the measurement is carried out.

NOTICE

To permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

Note

When the friction characteristic record is active, it is not possible to save the parameters (p0971, p0977).
 When the friction characteristic record is active (p3845 > 0), it is not possible to change p3820 ... p3829, p3830 ... p3839 and p3842.
 When recording the friction characteristic, in addition to the friction, the motor losses are also determined (e.g. iron losses, eddy current losses and re-magnetizing losses). A differentiation is not made between these individual loss components. We recommend that a motor temperature sensor is used because torque deviations can also be emulated/mapped on the characteristic due to the thermal influence.

p3846[0...n]

Friction characteristic record ramp-up/ramp-down time / Frict rec t_RU/RD

SERVO_828

Changeable: T	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.000 [s]	Max: 999999.000 [s]	Default: 10.000 [s]

Description: Sets the ramp-up/ramp-down time of the ramp-up/ramp-down function generator to automatically record the friction characteristic.

The drive is accelerated from standstill (setpoint = 0) up to the maximum speed/velocity (p1082) in this time.

Dependency: See also: p3845

p3847[0...n]

Friction characteristic record warm-up time / Frict rec t_warm

SERVO_828

Changeable: T	Calculation: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 7010
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min: 0.000 [s]	Max: 3600.000 [s]	Default: 0.000 [s]

Description: Sets the warm-up time.
 For an automatic trace (record) to start, the highest selected speed (p3829) is approached and this time is held. After this, the measurement is started with the highest speed.

Dependency: See also: p3829, p3845

p3860

Number of Braking Modules connected in parallel / BM qty par_cct

A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)

Changeable: C2(2)	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: 9951
P group: Converter	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1	Max: 8	Default: 1

Description: Sets the number of Braking Modules connected in parallel in a DC link.

Note

The parameter can only be written to if the infeed is in the commissioning mode (p0010 = 2).

r3861.0...7

A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)

BO: Braking Module inhibit/acknowledgment / BM inhib/ackn

Changeable: -
Data type: Unsigned32
P group: Commands
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 3
Function plan: 9951
Unit selection: -
Expert list: 1
Default:
 -

Description:

Signal to energize terminal X21.1 "inhibit/acknowledgment" on the Braking Module.

This binector output is used as signal source to interconnect to a digital output.

For "booksize" formats the digital output must be connected to terminal X21.1 and for "chassis" formats the digital output must be connected to terminal X21.3 of the particular Braking Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Inhibit/acknowledge Braking Module 1	High	Low	-
01	Inhibit/acknowledge Braking Module 2	High	Low	-
02	Inhibit/acknowledge Braking Module 3	High	Low	-
03	Inhibit/acknowledge Braking Module 4	High	Low	-
04	Inhibit/acknowledge Braking Module 5	High	Low	-
05	Inhibit/acknowledge Braking Module 6	High	Low	-
06	Inhibit/acknowledge Braking Module 7	High	Low	-
07	Inhibit/acknowledge Braking Module 8	High	Low	-

⚠ WARNING

Check that binector outputs BO: r3861.n are connected correctly and that the appropriate digital outputs are wired correctly.

If the interconnection/wiring is incorrect, the software could execute a different (incorrect) function via binector outputs BO: r3861.n if the Braking Module develops a fault.

p3862

A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)

Braking Module DC link fast discharge delay time / BM DC-dischg t_del

Changeable: C1(3), T
Data type: Unsigned32
P group: Communications
Not for motor type: -
Min:
 500 [ms]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 4294967295 [ms]

Access level: 3
Function plan: 9951
Unit selection: -
Expert list: 1
Default:
 1000 [ms]

Description:

Sets the delay time for switching in the DC link fast discharge.

Dependency:

See also: p3863, r3864

Note

The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3863

A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)

BI: Activating Braking Module DC link fast discharge / BM DC-dischg act

Changeable: T
Data type: Unsigned32 / Binary
P group: -
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 3
Function plan: 9951
Unit selection: -
Expert list: 1
Default:
 0

Description: Sets the signal source to activate the DC link fast discharge.
 The DC link fast discharge is started later with delay time (p3862) when the following conditions apply:
 - BI: p3863 = 1 signal.
 - an external line contactor is opened via r0863.1 "energize contactor".
 The DC link fast discharge is interrupted when the following conditions apply:
 - BI: p3863 = 0 signal.
 - ON command for the infeed.

Recommendation: The DC link fast discharge should be activated if there is an external line contactor and is correctly interconnected (r0863.1, p0860). If the DC link fast discharge is not activated together with an external line contactor, then faults could occur when pre-charging (e.g. F30027).

Dependency: See also: r3864
 See also: F30027

Note
 The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

r3864.0...7

BO: Braking Module DC link fast discharge / BM DC link dischg

A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 9951
P group: Commands	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Signal to control (energize) terminal X21.2 "DC link fast discharge" on the Braking Module.
 This binector output is used as signal source to interconnect to a digital output. The digital output must be connected to terminal X21.2 of the particular Braking Module.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fast discharge Braking Module 1	High	Low	-
	01	Fast discharge Braking Module 2	High	Low	-
	02	Fast discharge Braking Module 3	High	Low	-
	03	Fast discharge Braking Module 4	High	Low	-
	04	Fast discharge Braking Module 5	High	Low	-
	05	Fast discharge Braking Module 6	High	Low	-
	06	Fast discharge Braking Module 7	High	Low	-
	07	Fast discharge Braking Module 8	High	Low	-

Dependency: See also: p3863
 See also: F30027

⚠ WARNING
 It must be carefully ensured that the binector outputs BO: p3864.n are correctly interconnected and also that the appropriate digital outputs are correctly connected up.
 If the interconnection/connection is incorrect, in the case of an active DC link fast discharge, the software could execute another function (incorrect function) via binector outputs BO: p3864.n or could also permanently control the DC link fast discharge even if the line contactor is closed.

Note
 The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3865[0...7]	BI: Braking Module pre-warning I*t shutdown / BM I*t shutdown				
A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)	Changeable: T	Calculation: -	Access level: 3		
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 9951		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0		
Description:	Sets the signal source for the message "pre-alarm I*t shutdown" of the Braking Module. BI: p3865[0...7] = 1 signal --> no pre-alarm, I*t shutdown BI: p3865[0...7] = 0 signal --> pre-alarm I*t shutdown (A06901)				
Dependency:	See also: A06901				
	Note				
	For the Braking Module, this message is output via the following terminal: - X21.4 for the "Booksize" format This function is not supported for the "chassis" format.				
p3866[0...7]	BI: Braking Module fault / BM fault				
A_INF_828 (Brk Mod ext), B_INF_828 (Brk Mod ext), S_INF_828 (Brk Mod ext), S_INF_COMBI (Brk Mod ext)	Changeable: T	Calculation: -	Access level: 3		
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 9951		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0		
Description:	Sets the signal source for the "Fault" message of the Braking Module. BI: p3866[0...7] = 1 signal --> No fault BI: p3866[0...7] = 0 signal --> fault (A06900) For a 0 signal, an acknowledgment via BO: r3861 is automatically carried out at certain time intervals.				
Dependency:	See also: A06900				
	Note				
	For the Braking Module, this message is output via the following terminal: - X21.4 for the "Booksize" format - X21.5 for the "Chassis" format				
p3870	Long stator configuration / Long stator config				
SERVO_828	Changeable: T, U	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Sets the configuration when operating a long stator motor.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate long stator help functions	Active	Inactive	-
	01	Suppress Gx_ZSW.14	Active	Inactive	-
Dependency:	See also: p3871, p3872, p3873, p3874, r3875, p3876, p3878, p3879				

NOTICE

The following restrictions apply to this function:

- it is not permissible to change over the drive data set.
- the encoder/drive may not be parked using a PROFIBUS telegram.
- a maximum of 4 drives may be connected to the Control Unit.
- it is not permissible to commutate with the zero mark (p0404).

Note

For bit 00:

All of the help functions for long stator motors can be enabled/disabled using this bit.

For bit 01:

When the bit is set, bit 14 (parking encoder active) is set to 0 in the encoder status word GX_ZSW independent of whether the encoder is parked or not.

p3871 BI: Set long stator signal source commutation angle (p3872) / Set s_src com ang

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source to set the commutation angle available via connector input p3872.

Dependency: See also: p3870, p3872, p3873, p3874, r3875, p3876, p3878, p3879

DANGER

Setting an incorrect commutation angle can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine!

Note

Setting takes place for a 0/1 signal edge.

p3872 CI: Long stator signal source commutation angle / S s com angle

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2005	Expert list: 1
Min:	Max:	Default:
-	-	3878[0]

Description: Sets the signal source for the commutation angle.

This angle is set for a 0/1 signal edge via BI: p3871.

Dependency: See also: p3870, p3871, p3873, r3875, p3876, p3878, p3879

DANGER

Setting an incorrect commutation angle can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine!

p3873 BI: Long stator sig. source changeover to cl.-loop ctrl w/ enc. / S s ctrl w/ enc

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
P group: Functions	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0

Description: Sets the signal source to change over to closed-loop control with encoder.

Dependency: See also: p3870, p3871, p3872, p3874, r3875, p3876, p3878, p3879

⚠ DANGER
Setting an incorrect commutation angle can result in instability in the closed-loop control and in turn injure personnel or cause damage to the machine!

Note

BI: p3873 = 1 signal --> closed-loop control with encoder

BI: p3873 = 0 signal --> encoderless closed-loop control

For a 0/1 edge, the commutation angle is set from CI: p3874.

p3874

SERVO_828

CI: Long stator signal source commutation angle oper. with encoder / S s com ang enc

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: p2005

Expert list: 1

Min:

Max:

Default:

-

-

3879[0]

Description: Sets the signal source for the commutation angle for operation with encoder.

Dependency: See also: p3870, p3871, p3872, p3873, r3875, p3876, p3878, p3879

Note

This angle is set for a 0/1 signal edge via BI: p3873.

r3875.0...1

SERVO_828

CO/BO: Long stator status word / Long stator ZSW

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description: Displays the status word for long stator motors.

Bit	Signal name	1 signal	0 signal	FP
00	Sensor Module is unparked	Yes	No	-
01	Closed-loop speed control with encoder requested	Active	Inactive	-

Dependency: See also: p3870, p3871, p3872, p3873, p3874, p3876, p3878, p3879

Note

The display is updated with a sampling time of 1 ms.

For bit 00 = 1:

The encoder is parked. Contrary to r0481.14, parking is also displayed here if the suppression of the parking bit is active in r0481.14 (p3870.1 = 1).

For bit 01 = 1:

The long-stator functions requested closed-loop speed control with encoder. In r1407.2, it is indicated as to whether an encoder is actually used for the closed-loop control.

p3876	BI: Unpark long stator signal source 1 encoder / S s 1 enc unpark		
SERVO_828	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source 1 to unpark the encoder.

Dependency: See also: p3870, p3871, p3872, p3873, p3874, r3875, p3878, p3879

Note

BI: p3876 = 1 signal --> encoder is unparked

BI: p3876 = 0 signal --> encoder is parked

p3878	CO: Long stator commutation angle 1 / Com_angle 1		
SERVO_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min:	Max:	Default:
	-180 [°]	180 [°]	0 [°]

Description: Sets the commutation angle 1 for long stator motors.

Dependency: See also: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3879

p3879	CO: Long stator commutation angle 2 / Com_angle 2		
SERVO_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min:	Max:	Default:
	-180 [°]	180 [°]	0 [°]

Description: Sets the commutation angle 2 for long stator motors.

Dependency: See also: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3878

p3900	Completion of quick commissioning / Compl quick_comm		
HLA_828	Changeable: C2(1)	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	3	0

Description: Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning.

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 p0700, p1000 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 p0700, p1000 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 = 1F.

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.

p3900

SERVO_828,
SERVO_COMBI

Completion of quick commissioning / Compl quick_comm

Changeable: C2(1)

Calculation: -

Access level: 1

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

3

0

Description: Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning.

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 p0700, p1000 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 p0700, p1000 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 motors p0320, p0352, p0353, p0604, p0605, p0626 ... p0628
 synchronous motor p0326, p0327, p0352, p0353, p0391 ... p0393, p0604, p0605.

p3900

Completion of quick commissioning / Compl quick_comm

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI

Changeable: C2(1)	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 3	Default: 0

Description:

Exits the quick commissioning (p0010 = 1) with automatic calculation of all of the parameters that depend on the entries made during the 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 p0700 are re-established and all of the dependent filter and closed-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 p0700 and the calculations corresponding to p0340 = 1.
 p3900 = 3 only includes the end of quick commissioning.

Value:

- 0: No quick parameterization
- 1: Quick parameterization after parameter reset
- 2: Quick param. (only) for controller par. and reset for BICO par
- 3: Completion of quick commissioning

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.

p3901[0...n]

Power unit EEPROM Vdc offset calibration / PU EEPROM Vdc offs

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI


Changeable: C1, C2(1), T	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
P group: All groups	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -40.0 [V]	Max: 40.0 [V]	Default: 0.0 [V]

Description:

Differential voltage for calibrating the offset for DC-link voltage measurement.

Dependency:

See also: r0192, p0212

 **CAUTION**
 Incorrect use of the calibration can have a negative impact on the closed-loop control.
 The parameter influences the upper and lower voltage detection.

Note

Parameter entries are directly saved in the DRIVE-CLiQ component involved.
 The parameter is only effective in the case of booksize power units, if r0192.22 = 1 and p0212.0 = 1.

r3925[0...n]	Identification final display / Ident final_disp		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the commissioning steps that have been carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor/control parameters calculated (p0340 = 1, p3900 > 0)	Yes	No	-
	02	Motor data identification carried out at standstill (p1910 = 1)	Yes	No	-
	03	Rotating measurement carried out (p1960 = 1, 2)	Yes	No	-
	04	Motor encoder adjustment carried out (p1960 = 1, p1990 = 1, Yes 3)	Yes	No	-
	05	Motor encoder manually adjusted	Yes	No	-
	15	Motor equivalent circuit diagram parameters changed	Yes	No	-

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.

r3927[0...n]	Motor data identification induction motor data determined / MotID ASM dat det		
SERVO_828	Changeable: -	Calculation: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -
	P group: Motor identification	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the data of an induction motor determined and accepted from the stationary motor data identification or rotating measurement.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p0350 accepted	Yes	No	-
	01	p0354 accepted	Yes	No	-
	02	p0356 accepted	Yes	No	-
	03	p0358 accepted	Yes	No	-
	04	p0360 accepted	Yes	No	-
	05	p0320 accepted	Yes	No	-
	06	p0410 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	14	p1590 accepted	Yes	No	-
	15	p1592 accepted	Yes	No	-
	22	p0341 accepted	Yes	No	-
	24	p0348 accepted	Yes	No	-
	25	p1752 accepted	Yes	No	-

Dependency: See also: r3925

r3928[0...n] Motor data identification synchronous motor data determined / MotId PEM dat det

SERVO_828
Changeable: - **Calculation:** CALC_MOD_ALL **Access level:** 3
Data type: Unsigned32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: Motor identification **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Successfully completed component of the last rotating measurement carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p0350 accepted	Yes	No	-
	02	p0356 accepted	Yes	No	-
	06	p0410 accepted	Yes	No	-
	07	p0431 accepted	Yes	No	-
	08	p1952 accepted	Yes	No	-
	09	p1953 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	18	p0316 accepted	Yes	No	-
	19	p0317 accepted	Yes	No	-
	20	p0327 accepted	Yes	No	-
	21	p0328 accepted	Yes	No	-
	22	p0341 accepted	Yes	No	-
	23	kT characteristic parameter accepted	Yes	No	-
	24	p0348 accepted	Yes	No	-

Dependency: See also: r3925

p3950 Service parameter / Serv par

CU_I_828,
 CU_I_COMBI,
 CU_NX_828
Changeable: C1, T, U **Calculation:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Function plan:** -
P group: All groups **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: For service personnel only.

r3974 Drive unit status word / Drv_unit ZSW

CU_I_828,
 CU_I_COMBI,
 CU_NX_828
Changeable: - **Calculation:** - **Access level:** 1
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Displays the status word for the drive unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Software reset active	Yes	No	-
	01	Writing of parameters disabled as parameter save in progress	Yes	No	-
	02	Writing of parameters disabled as macro is running	Yes	No	-

r3977	BICO counter topology / BICO counter topo		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the BICO interconnections that have been parameterized in the complete (overall) topology. The counter is incremented by one for each modified BICO interconnection.		
Dependency:	See also: r3978, r3979		

r3978	BICO CounterDevice / BICO CounterDevice		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the counter reading for modified BICO interconnections on this device. The counter is incremented by one for each modified BICO interconnection.		

r3979	BICO counter drive object / BICO counter DO		
A_INF_828, B_INF_828, CU_LINK, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the counter reading for modified BICO interconnections on this drive object. The counter is incremented by one for each modified BICO interconnection.		

p3981	Faults acknowledge drive object / Faults ackn DO		
All objects	Changeable: T, U Data type: Unsigned8 P group: Messages Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 2 Function plan: 8060 Unit selection: - Expert list: 1 Default: 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 acknowledgment, the parameter is automatically reset to 0.

p3985	Master control mode selection / PcCtrl mode select		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Integer16 P group: Setpoints Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the mode to change over the master control / LOCAL mode.		
Value:	0: Change master control for STW1.0 = 0 1: Change master control in operation		

 **DANGER**
When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.

r3986	Parameter count / Parameter No.		
All objects	Changeable: - Data type: Unsigned16 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the number of parameters for this drive unit. The number comprises the device-specific and the drive-specific parameters.		
Dependency:	See also: r0980, r0981, r0989		

r3988[0...1]	Boot state / Boot_state		
CU_I_828, CU_I_COMBI	Changeable: - Data type: Integer16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10800	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Index 0: Displays the boot state. Index 1: Displays the partial boot state		
Value:	0: Not active 1: Fatal fault 10: Fault 20: Reset all parameters 30: Drive object modified 40: Download using commissioning software 50: Parameter download using commissioning software 90: Reset Control Unit and delete drive objects 100: Start initialization 101: Wait for topology input 110: Instantiate Control Unit basis 111: Insert drive object 112: Remove drive object		

113:	Change drive object number
114:	Change component number
115:	Parameter download using commissioning software
117:	Remove component
150:	Wait until actual topology determined
160:	Evaluate topology
170:	Instantiate Control Unit reset
180:	Initialization YDB configuration information
190:	FW update for CU LINK slaves
200:	First commissioning
210:	Create drive packages
250:	Wait for topology acknowledge
325:	Wait for input of drive type
350:	Determine drive type
360:	Write into topology-dependent parameters
370:	Wait until p0009 = 0 is set
380:	Check topology
550:	Call conversion functions for parameter
625:	Wait non-cyclic starting DRIVE-CLiQ
650:	Start cyclic operation
660:	Evaluate drive commissioning status
670:	Autom. FW update DRIVE-CLiQ components
680:	Wait for CU LINK slaves
690:	Wait non-cyclic starting DRIVE-CLiQ
700:	Save parameters
725:	Wait until DRIVE-CLiQ cyclic
740:	Check the ability to operate
745:	Start of the time slices
750:	Interrupt enable
800:	Initialization finished
10050:	Wait for synchronization
10100:	Wait for CU LINK slaves
10150:	Wait until actual topology determined
10200:	Evaluation component status
10250:	Call conversion functions for parameter
10300:	Preparation cyclic operation
10350:	Autom. FW update DRIVE-CLiQ components
10400:	Wait for slave properties
10450:	Check CX/NX status
10500:	Wait until DRIVE-CLiQ cyclic
10550:	Carry out warm start
10600:	Evaluate, encoder status
10800:	Partial boot completed

Index:

[0] = System

[1] = Partial boot

r3988[0...1]	Boot state / Boot_state		
CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10800	-
Description:	Index 0: Displays the boot state. Index 1: Displays the partial boot state		
Value:	0: Not active 1: Fatal fault 10: Fault 20: Reset all parameters 30: Drive object modified 40: Download using commissioning software 50: Parameter download using commissioning software 90: Reset Control Unit and delete drive objects 100: Start initialization 101: Wait for topology input 110: Instantiate Control Unit basis 111: Insert drive object 112: Remove drive object 113: Change drive object number 114: Change component number 115: Parameter download using commissioning software 117: Remove component 150: Wait until actual topology determined 160: Evaluate topology 170: Instantiate Control Unit reset 180: Initialization YDB configuration information 200: First commissioning 210: Create drive packages 250: Wait for topology acknowledge 325: Wait for input of drive type 350: Determine drive type 360: Write into topology-dependent parameters 370: Wait until p0009 = 0 is set 380: Check topology 550: Call conversion functions for parameter 625: Wait non-cyclic starting DRIVE-CLiQ 650: Start cyclic operation 660: Evaluate drive commissioning status 670: Autom. FW update DRIVE-CLiQ components 680: Wait for CU LINK slaves 690: Wait non-cyclic starting DRIVE-CLiQ 700: Save parameters 725: Wait until DRIVE-CLiQ cyclic		

740:	Check the ability to operate
745:	Start of the time slices
750:	Interrupt enable
800:	Initialization finished
10050:	Wait for synchronization
10100:	Wait for CU LINK slaves
10150:	Wait until actual topology determined
10200:	Evaluation component status
10250:	Call conversion functions for parameter
10300:	Preparation cyclic operation
10350:	Autom. FW update DRIVE-CLiQ components
10400:	Wait for slave properties
10450:	Check CX/NX status
10500:	Wait until DRIVE-CLiQ cyclic
10550:	Carry out warm start
10600:	Evaluate, encoder status
10800:	Partial boot completed

Index:
 [0] = System
 [1] = Partial boot

r3996[0...1]**Parameter write inhibit status / Par_write inhib st**

All objects

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays whether writing to parameters is inhibited.
 r3996[0] = 0:
 Parameter write not inhibited.
 0 < r3996[0] < 100:
 Parameter write inhibited. The value shows how the calculations are progressing.

Index:

[0] = Progress calculations
 [1] = Cause

Note

For index 1:
 Only for internal Siemens troubleshooting.

r3998**First device commissioning / First dev_comm**

HLA_828

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	65535	-

Description:

Displays whether the device must be commissioned for the first time.
 0 = Yes
 2 = No

r3998[0...n] **First drive commissioning / First drv_comm**
 SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** Unsigned16 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0 65535 -
Description: Displays whether the drive still has to be commissioned for the first time.
 0 = Yes
 2 = No

r3998 **First infeed commissioning / First inf_comm**
 A_INF_828, **Changeable:** - **Calculation:** - **Access level:** 3
 B_INF_828, **Data type:** Unsigned16 **Dynamic index:** - **Function plan:** -
 S_INF_828, **P group:** - **Unit group:** - **Unit selection:** -
 S_INF_COMBI **Not for motor type:** - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0 65535 -
Description: Displays whether the infeed must be commissioned for the first time.
 0 = Yes
 2 = No

r4021 **Digital inputs terminal actual value / DI actual value**
 SERVO_828 (Dig IO) **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2201
P group: Commands **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -
Description: Displays the actual value at the digital inputs.
Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 decentral (X3.2)	High	Low	2201
01	DI/DO 1 decentral (X3.4)	High	Low	2201

Note
 If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.
 DI/DO: Bidirectional Digital Input/Output

r4022.0...1 **CO/BO: Digital inputs status / DI status**
 SERVO_828 (Dig IO) **Changeable:** - **Calculation:** - **Access level:** 1
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2201
P group: Commands **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -
Description: Displays the status of the digital inputs.
Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 decentral (X3.2)	High	Low	2201
01	DI/DO 1 decentral (X3.4)	High	Low	2201

Dependency: See also: r4023

Note

If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.
DI/DO: Bidirectional Digital Input/Output

r4023.0...1**BO: Digital inputs status inverted / DI status inv**

SERVO_828 (Dig IO)

Changeable: -**Data type:** Unsigned32**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 1**Function plan:** 2201**Unit selection:** -**Expert list:** 1**Default:**

-

Description:

Displays the inverted status of the digital inputs.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 decentral (X3.2)	High	Low	2201
01	DI/DO 1 decentral (X3.4)	High	Low	2201

Dependency:

See also: r4022

Note

If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.
DI/DO: Bidirectional Digital Input/Output

p4028**Set input or output / DI or DO**

SERVO_828 (Dig IO)

Changeable: T**Data type:** Unsigned32**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 1**Function plan:** 2201**Unit selection:** -**Expert list:** 1**Default:**

0000 bin

Description:

Sets the bidirectional digital inputs/outputs as an input or output.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 decentral (X3.2)	Output	Input	2201
01	DI/DO 1 decentral (X3.4)	Output	Input	2201

Note

DI/DO: Bidirectional Digital Input/Output

p4038**BI: Signal source for terminal DI/DO 0 decentral / S_s DI/DO 0 dec**

SERVO_828 (Dig IO)

Changeable: T, U**Data type:** Unsigned32 / Binary**P group:** Commands**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** -**Max:**

-

Access level: 1**Function plan:** 2201**Unit selection:** -**Expert list:** 1**Default:**

0

Description:

Sets the signal source for the decentral terminal DI/DO 0 (X3.2).

Note

Prerequisite: The DI/DO must be set as an output (p4028.0 = 1).
DI/DO: Bidirectional Digital Input/Output

p4039	BI: Signal source for terminal DI/DO 1 decentral / S_s DI/DO 1 dec		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2201
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the decentral terminal DI/DO 1 (X3.4).

Note

Prerequisite: The DI/DO must be set as an output (p4028.1 = 1).
DI/DO: Bidirectional Digital Input/Output

r4047	Digital outputs status / DO status		
SERVO_828 (Dig IO)	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: 2201
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of digital outputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 decentral (X3.2)	High	Low	2201
	01	DI/DO 1 decentral (X3.4)	High	Low	2201

Note

Inversion using p4048 has been taken into account.
DI/DO: Bidirectional Digital Input/Output

p4048	Invert digital outputs / DO inv		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: 2201
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 bin

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 decentral (X3.2)	Inverted	Not inverted	2201
	01	DI/DO 1 decentral (X3.4)	Inverted	Not inverted	2201

Note

DI/DO: Bidirectional Digital Input/Output

p4095	S120M digital inputs simulation mode / S120M DI sim_mode		
SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 bin

Description: Sets the simulation mode for digital inputs of the S120M.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 decentral (X3.2)	Simulation	Terminal eval	-
	01	DI/DO 1 decentral (X3.4)	Simulation	Terminal eval	-

Dependency: The setpoint for the input signals is specified using p4096.
See also: p4096

Note

This parameter is not saved when data is backed-up (p0971, p0977).
DI: Digital Input

p4096 S120M digital inputs simulation mode setpoint / S120M DI sim setp

SERVO_828 (Dig IO)	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0000 bin

Description: Sets the setpoint for the input signals in the digital input simulation mode of the S120M.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 decentral (X3.2)	High	Low	2201
	01	DI/DO 1 decentral (X3.4)	High	Low	2201

Dependency: The simulation of a digital input is selected using p4095.
See also: p4095

Note

This parameter is not saved when data is backed-up (p0971, p0977).
DI: Digital Input

p4099 Inputs/outputs sampling time / I/O t_sampl

SERVO_828 (Dig IO)	Changeable: C1(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 125.00 [µs]	Max: 5000.00 [µs]	Default: 4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs.

Dependency: The parameter can only be modified for p0009 = 3, 29.
The sampling times can only be set as an integer multiple of the SERVO clock cycle (p0115).
See also: p0009

Note

The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).

p4100 Spindle supplementary temperature sensor type / Supp_temp sens typ

SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 6	Default: 0

Description: Sets the sensor type to evaluate the spindle supplementary temperature.

Value: 0: Evaluation disabled
 2: KTY84
 6: PT1000

Dependency: See also: p4102, p4103, r4104, r4105, r4107

p4100[0...3] TM120 temperature evaluation, sensor type / TM120 sensor type

TM120	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9605, 9606
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 6	Default: 1

Description: Sets the sensor type for temperature evaluation via Terminal Module 120 (TM120). This means that the temperature sensor type is selected and the evaluation is switched in.

Value: 0: Evaluation disabled
 1: PTC thermistor
 2: KTY84
 4: Bimetallic NC contact
 6: PT1000

Index: [0] = Temperature channel 0
 [1] = Temperature channel 1
 [2] = Temperature channel 2
 [3] = Temperature channel 3

NOTICE

For p4102[0...7] = 251 °C, evaluation of the corresponding threshold is deactivated.
 For sensor type "PTC thermistor" (p4100[0...3] = 1), the following applies:
 To activate the corresponding alarm or fault, p4102[0...7] must be set <= 250 °C.

Note

The temperature sensors are connected to the following terminals:
 X521.2(+) and X521.1(-) = channel 0
 X521.4(+) and X521.3(-) = channel 1
 X521.6(+) and X521.5(-) = channel 2
 X521.8(+) and X521.7(-) = channel 3

p4100[0...11] TM150 sensor type / TM150 sensor type

TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 6	Default: 5

Description: Sets the sensor type for Terminal Module 150 (TM150). This means that the temperature sensor type is selected and the evaluation is switched in.

Value: 0: Evaluation disabled
 1: PTC thermistor
 2: KTY84
 4: Bimetallic NC contact
 5: PT100
 6: PT1000

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

NOTICE

For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.
 For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:
 To activate the corresponding alarm or fault, p4102[0...23] must be set ≤ 250 °C.

Note

The temperature sensors are connected to the following terminals:
 X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
 X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
 X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
 X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
 X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
 X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
 Details on the wiring are included in the parameter description for p4108.

r4101[0...3]**TM120 sensor resistance / TM120 R_sensor**

TM120

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Function plan:** 9605, 9606**P group:** Terminals**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** PERCENT**Expert list:** 1**Min:****Max:****Default:**

- [ohm]

- [ohm]

- [ohm]

Description:

Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Index:

[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3

Note

The maximum measurable resistance value is approx. 1720 Ohm.
 The temperature sensors are connected to the following terminals:
 X521.2(+) and X521.1(-) = channel 0
 X521.4(+) and X521.3(-) = channel 1
 X521.6(+) and X521.5(-) = channel 2
 X521.8(+) and X521.7(-) = channel 3

r4101[0...11]	TM150 sensor resistance / TM150 R_sensor		
TM150	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9626, 9627
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [ohm]	- [ohm]	- [ohm]
Description:	Displays the actual resistance value of the temperature sensor connected at the Terminal Module.		
Index:	[0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 [9] = Temperature channel 9 [10] = Temperature channel 10 [11] = Temperature channel 11		

Note

The maximum measurable resistance value is approx. 2500 Ohm.
 For 1x2 and 2x2 wire evaluation:
 The actual sensor resistance is displayed in this parameter(i.e. the wire resistance (p4110) is taken into account).
 The temperature sensors are connected to the following terminals:
 X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
 X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
 X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
 X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
 X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
 X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
 Details on the wiring are included in the parameter description for p4108.

p4102[0...1]	Spindle supplementary temperature fault threshold/alarm thresh. / Suppl_temp F/A_thr		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-300.0 [°C]	9999.0 [°C]	[0] 120.0 [°C] [1] 155.0 [°C]
Description:	Sets the fault threshold/alarm threshold for the temperature evaluation of the spindle. Temperature actual value r4105 > p4102[0] --> alarm A07017 is initiated. Temperature actual value r4105 > p4102[1] --> fault F07018 is initiated.		
Index:	[0] = Alarm threshold [1] = Fault threshold		
Dependency:	See also: p4100, r4104, r4105 See also: A07017, F07018		

Note

For A07017 the following applies:

- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[0] - hysteresis).

For F07018 the following applies:

- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[1] - hysteresis) and the fault has been acknowledged.

- The hysteresis is 2 K and cannot be changed by the user.

p4102[0...7]	TM120 fault threshold/alarm threshold / TM120 F/A_thresh		
TM120	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9605, 9606
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -48 [°C]	Max: 251 [°C]	Default: 251 [°C]
Description:	Sets the fault threshold/alarm threshold for Terminal Module 120 (TM120). A35211 is initiated, if the temperature actual value r4105[0] > p4102[0] F35207 is initiated if the temperature actual value r4105[0] > p4102[1] or timer p4103[0] has expired A35212 is initiated, if the temperature actual value r4105[1] > p4102[2] F35208 is initiated if the temperature actual value r4105[1] > p4102[3] or timer p4103[1] has expired A35213 is initiated, if the temperature actual value r4105[2] > p4102[4] F35209 is initiated if the temperature actual value r4105[2] > p4102[5] or timer p4103[2] has expired A35214 is initiated, if the temperature actual value r4105[3] > p4102[6] F35210 is initiated if the temperature actual value r4105[3] > p4102[7] or timer p4103[3] has expired For alarms A35211, A35212, A35213, A35214 the following applies: - Remains until the temperature actual value (r4105[0...3]) reaches or falls below the value (p4102[0, 2, 4, 6] - hysteresis). For fault F35207, F35208, F35209, F35210 the following applies: - Remains until the temperature actual value (r4105[0...3]) reaches or falls below the value (p4102[1, 3, 5, 7] - hysteresis) and the fault has been acknowledged. - The hysteresis value is 5 K and cannot be changed.		
Index:	[0] = Channel 0 alarm threshold (A35211) [1] = Channel 0 fault threshold (F35207) [2] = Channel 1 alarm threshold (A35212) [3] = Channel 1 fault threshold (F35208) [4] = Channel 2 alarm threshold (A35213) [5] = Channel 2 fault threshold (F35209) [6] = Channel 3 alarm threshold (A35214) [7] = Channel 3 fault threshold (F35210)		
Dependency:	See also: p4103		

NOTICE

Fault F35207 ... F35210 only causes the drive to shut down if there is at least one BICO interconnection between the drive and TM120.

For p4102[0...7] = 251 °C, evaluation of the corresponding threshold is deactivated.

For sensor type "PTC thermistor" (p4100[0...3] = 1), the following applies:

To activate the corresponding alarm or fault, p4102[0...7] must be set ≤ 250 °C.

Note

The temperature sensor is connected to the following terminals:

X521.2(+) and X521.1(-) = channel 0

X521.4(+) and X521.3(-) = channel 1

X521.6(+) and X521.5(-) = channel 2

X521.8(+) and X521.7(-) = channel 3

p4102[0...23]	TM150 fault threshold/alarm threshold / TM150 F/A_thresh		
TM150	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-99 [°C]	251 [°C]	251 [°C]
Description:	<p>Sets the fault threshold/alarm threshold for Terminal Module 150 (TM150). For alarms (even indices [0, 2, 4 ... 22]), the following applies:</p> <ul style="list-style-type: none"> - The corresponding alarm is initiated, if the temperature actual value associated with a temperature channel exceeds the associated alarm threshold (r4105[x] > p4102[2x]). In addition, the timer is started (p4103[x]). - The alarm remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x] - hysteresis (p4118[x]). <p>For faults (uneven indices [1, 3, 5 ... 23]), the following applies:</p> <ul style="list-style-type: none"> - The corresponding fault is initiated, if the temperature actual value associated with a temperature channel exceeds the associated fault threshold (r4105[x] > p4102[2x+1] or the associated timer (p4103[x]) has expired. - The fault remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1] - hysteresis (p4118[x]) and the fault has been acknowledged. 		
Index:	<p>[0] = Channel 0 alarm threshold (A35211) [1] = Channel 0 fault threshold (F35207) [2] = Channel 1 alarm threshold (A35212) [3] = Channel 1 fault threshold (F35208) [4] = Channel 2 alarm threshold (A35213) [5] = Channel 2 fault threshold (F35209) [6] = Channel 3 alarm threshold (A35214) [7] = Channel 3 fault threshold (F35210) [8] = Channel 4 alarm threshold (A35410) [9] = Channel 4 fault threshold (F35400) [10] = Channel 5 alarm threshold (A35411) [11] = Channel 5 fault threshold (F35401) [12] = Channel 6 alarm threshold (A35412) [13] = Channel 6 fault threshold (F35402) [14] = Channel 7 alarm threshold (A35413) [15] = Channel 7 fault threshold (F35403) [16] = Channel 8 alarm threshold (A35414) [17] = Channel 8 fault threshold (F35404) [18] = Channel 9 alarm threshold (A35415) [19] = Channel 9 fault threshold (F35405) [20] = Channel 10 alarm threshold (A35416) [21] = Channel 10 fault threshold (F35406) [22] = Channel 11 alarm threshold (A35417) [23] = Channel 11 fault threshold (F35407)</p>		
Dependency:	See also: p4103, r4104, r4105, p4118		
<p>NOTICE</p> <p>Faults F35207 ... F35210 and F35400 ... F35407 only result in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150. For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated. For sensor type "PTC thermistor" (p4100[0...11] = 1), the following applies: To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.</p>			
<p>Note</p> <p>The hysteresis can be set in p4118[0...11].</p>			

p4103	Spindle supplementary temperature delay time / Suppl_temp t_delay		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [s]	Max: 600.000 [s]	Default: 0.000 [s]
Description:	Sets the delay time for the output of the fault for the temperature evaluation of the spindle. The timer is started when the alarm threshold (p4102[0]) is exceeded. If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F07018 is output. The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below. If the fault threshold (p4102[1]) is exceeded before the delay time has expired, then fault F07018 is immediately output.		
Dependency:	See also: p4100, r4104, r4105		
	Note With p4103 = 0 s, the timer is deactivated and only the fault threshold is effective.		

p4103[0...3]	TM120 temperature evaluation delay time / TM120 temp t_delay		
TM120	Changeable: T, U	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9605, 9606
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [ms]	Max: 600000.000 [ms]	Default: 0.000 [ms]
Description:	Sets the delay time for the output of the fault for the temperature evaluation of Terminal Module 120 (TM120). The timer is started when the alarm threshold (p4102[0, 2, 4, 6]) is exceeded. If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F35207 ... F53210 is output. The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below. For sensor type "KTY84" "PT1000" (p4100[0...3] = 2, 6), the following applies: If the fault threshold (p4102[1, 3, 5, 7]) is exceeded before the delay time has expired, then fault F35207 ... F35210 is immediately output. For sensor type "PTC thermistor" (p4100[0...3] = 1), the following applies: - Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.		
Index:	[0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3		
Dependency:	See also: r4104		
	⚠ WARNING Fault F35207 ... F35210 only causes the drive to shut down if there is at least one BICO interconnection between the drive and TM120.		
	Note With p4103 = 0 ms, the timer is de-activated and only the fault threshold is effective.		

p4103[0...11] TM150 delay time / TM150 t_delay


TM150

Changeable: T, U	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: -	Function plan: 9626, 9627
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0 [s]	Max: 600.0 [s]	Default: 0.0 [s]

Description: Sets the delay time for the output of the fault for the Terminal Module 150 (TM150). The timer is started when the alarm threshold (e.g. p4102[0]) is exceeded. If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then the corresponding fault is output. The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below. For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- If the fault threshold (e.g. p4102[1]) is exceeded before the delay time has expired, then the corresponding fault is immediately output.
For sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:
- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

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

Dependency: See also: p4102, r4104, r4105, p4118

 WARNING
The fault F35207 ... F35210 and F35400 ... 35407 only results in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150.

Note
For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- The corresponding fault can only be initiated via the fault threshold (output of the timer is always a logical 0).
For p4103 = 0 s and sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:
- The corresponding alarm and fault are simultaneously output (delay time = 0 s).

r4104.0...2 BO: Spindle supplementary temperature status / Suppl_temp status

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Terminals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Display and binector output for the status when evaluating the supplementary temperature of the spindle.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature alarm threshold exceeded	Yes	No	-
	01	Temperature fault threshold exceeded	Yes	No	-

	02	Sensor fault (wire breakage, short-circuit, ...)	Yes	No	-
Dependency:	See also: p4100, p4102, r4105				
	See also: A07017, F07018				

r4104.0...7 BO: TM120 temperature evaluation status / TM120 temp status

TM120	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Function plan: 9605, 9606
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and binector output for the status for the Terminal Module 120 (TM120).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Channel 0 alarm present	Yes	No	9605
	01	Channel 0 fault present	Yes	No	9605
	02	Channel 1 alarm present	Yes	No	9605
	03	Channel 1 fault present	Yes	No	9605
	04	Channel 2 alarm present	Yes	No	9606
	05	Channel 2 fault present	Yes	No	9606
	06	Channel 3 alarm present	Yes	No	9606
	07	Channel 3 fault present	Yes	No	9606

Dependency: See also: p4102

r4104.0...23 BO: TM150 temperature evaluation status / TM150 temp status

TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: 9626, 9627
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and binector output for the status for the Terminal Module 150 (TM150).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Channel 0 alarm present	Yes	No	9626
	01	Channel 0 fault present	Yes	No	9626
	02	Channel 1 alarm present	Yes	No	9626
	03	Channel 1 fault present	Yes	No	9626
	04	Channel 2 alarm present	Yes	No	9626
	05	Channel 2 fault present	Yes	No	9626
	06	Channel 3 alarm present	Yes	No	9626
	07	Channel 3 fault present	Yes	No	9626
	08	Channel 4 alarm present	Yes	No	9626
	09	Channel 4 fault present	Yes	No	9626
	10	Channel 5 alarm present	Yes	No	9626
	11	Channel 5 fault present	Yes	No	9626
	12	Channel 6 alarm present	Yes	No	9627
	13	Channel 6 fault present	Yes	No	9627
	14	Channel 7 alarm present	Yes	No	9627
	15	Channel 7 fault present	Yes	No	9627
	16	Channel 8 alarm present	Yes	No	9627

17	Channel 8 fault present	Yes	No	9627
18	Channel 9 alarm present	Yes	No	9627
19	Channel 9 fault present	Yes	No	9627
20	Channel 10 alarm present	Yes	No	9627
21	Channel 10 fault present	Yes	No	9627
22	Channel 11 alarm present	Yes	No	9627
23	Channel 11 fault present	Yes	No	9627

Dependency: See also: p4102, p4103, r4105, p4118

r4105

CO: Spindle supplementary temperature actual value / Suppl_temp act val

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Changeable: -	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Terminals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2006	Expert list: 1
Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the actual value when evaluating the spindle supplementary temperature.

Dependency: See also: p4100, r4104

Note

r4105 = -200 °C is displayed in the following cases:
 - the temperature display is not valid (temperature sensor fault, also see r4104.2).
 - no sensor selected or sensor not available (p4100 = 0).

r4105[0...3]

CO: TM120 temperature actual value / TM120 temp_act val

TM120

Changeable: -	Calculation: -	Access level: 1
Data type: FloatingPoint32	Dynamic index: -	Function plan: 8016, 9605, 9606
P group: Terminals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: p2006	Expert list: 1
Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the temperature actual value for the Terminal Module 120 (TM120)

Index:
 [0] = Temperature channel 0
 [1] = Temperature channel 1
 [2] = Temperature channel 2
 [3] = Temperature channel 3

Dependency: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100 = 1, 4), the following applies:
 - below the nominal response temperature, r4105 = -50 °C.
 - above the nominal response temperature, r4105 = 250 °C.
 For sensor type "KTY84" "PT1000" (p4100 = 2, 6), the following applies:
 - the displayed value corresponds to the temperature actual value.
 See also: p4100

Note

r4105[0...3] = -300 °C is displayed in the following cases:
 - temperature actual value invalid (F35920 ... F35923 output).
 - no sensor selected (p4100[0...3] = 0).
 The temperature sensor is connected to the following terminals:
 X521.2(+), X521.1(-) = channel 0
 X521.4(+), X521.3(-) = channel 1
 X521.6(+), X521.5(-) = channel 2
 X521.8(+), X521.7(-) = channel 3

r4105[0...11]	CO: TM150 temperature actual value / TM150 temp_act val		
TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9626, 9627
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays the temperature actual value for the Terminal Module 150 (TM150)		
Index:	[0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 [9] = Temperature channel 9 [10] = Temperature channel 10 [11] = Temperature channel 11		
Dependency:	For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies: - below the nominal response temperature, r4105[0...11] = -50 °C. - above the nominal response temperature, r4105[0...11] = 250 °C. For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies: - the displayed value corresponds to the temperature actual value. See also: p4100, p4111, r4112, r4113, r4114		
	Note r4105[0...11] = -300 °C is displayed in the following cases: - temperature actual value invalid (F35920 ... F35931 output). - no sensor selected (p4100[0...11] = 0). The temperature actual values can be grouped using p4111[0...2] and the maximum value, minimum value as well as the average value for each group evaluated (r4112[0...2], r4113[0...2], r4114[0...2]).		

r4107	Spindle supplementary temperature sensor use / Supp_temp_sens_use		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: -	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 6	Default: -
Description:	Displays the installation location of the sensor to evaluate the spindle supplementary temperature.		
Value:	0: None 1: Temperature S6 2: Bearing temperature front 3: Bearing temperature rear 4: Housing temperature front 5: Housing temperature rear 6: Cooling medium temperature intake		
Dependency:	See also: p4100		

Note

The installation location of the temperature sensor is specified by the manufacturer.

p4108[0...5]	TM150 terminal block measuring method / TM150 meas method		
TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9625, 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 3	Default: 1
Description:	Sets the measuring method for the terminal block X531 ... X536 for the Terminal Module 150 (TM150). For p4108[0...5] = 0 (1x2 wire evaluation): - the temperature sensor is connected at terminals 1(+) and 2(-). For p4108[0...5] = 1 (2x2 wire evaluation): - The first temperature sensor is connected at terminals 1(+) and 2(-). - The second temperature sensor is connected at terminals 3(+) and 4(-). For p4108[0...5] = 2 (3 wire evaluation): - the temperature sensor is connected at terminals 3(+) and 4(-). - the measuring conductor is connected at terminal 1(+). - terminals 2(-) and 4(-) must be jumpered. For p4108[0...5] = 3 (4 wire evaluation): - the temperature sensor is connected at terminals 3(+) and 4(-). - the measuring conductor is connected at terminals 1(+) and 2(-).		
Value:	0: 1x2 wire evaluation 1: 2x2 wire evaluation 2: 3 wire evaluation 3: 4 wire evaluation		
Index:	[0] = X531 [1] = X532 [2] = X533 [3] = X534 [4] = X535 [5] = X536		

Note

The temperature sensors are connected to the following terminals:
 X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
 X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
 X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
 X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
 X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
 X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
 For p4108[0...5] = 0, 2, 3 (1x2, 3, 4 wire evaluation):
 The temperature channel belonging to the terminal block with the higher number is automatically deactivated (e.g. for X531 with 3-wire evaluation, channel 6 is deactivated).

p4109[0...11]	TM150 wire resistance measurement / TM150 R_wire meas		
TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	<p>Setting to start the measurement of the wire resistance for a channel for the Terminal Module 150 (TM150). For a 2 wire evaluation, the total wire resistance is measured and saved. During the temperature evaluation, the temperature actual value is automatically calibrated using the measured wire resistance.</p> <p>Procedure:</p> <ol style="list-style-type: none"> 1. Select the measuring method (1x2/2x2) for the corresponding terminal block (p4108[0...5] = 0, 1). 2. Set the required sensor type for the corresponding channel (p4100[x] = 1 ... 6, x = 0...5 or 0...11). 3. Jumper the sensor to be connected (short-circuit the sensor conductor close to the sensor). 4. Connect the sensor conductors to the appropriate terminals 1(+), 2(-) or 3(+), 4(-). 5. For the corresponding channel, start the measurement of the wire resistance (p4109[x] = 1). 6. After p4109[x] = 0, check the measured resistance value in p4110[x]. 7. Remove the jumper across the temperature sensor. 		
Value:	<p>0: Inactive 1: Start</p>		
Index:	<p>[0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 [9] = Temperature channel 9 [10] = Temperature channel 10 [11] = Temperature channel 11</p>		
Dependency:	See also: p4100, p4108, p4110		
<p>NOTICE</p> <p>Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).</p>			
<p>Note</p> <p>The wire resistance value can be also directly entered into p4110[0...11]. The automatic conductor calibration for 1x2 and 2x2 wire evaluation is always performed with the value in p4110[0...11].</p>			

p4110[0...11]	TM150 wire resistance value / TM150 R_wire value		
TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ohm]	Max: 3000.00 [ohm]	Default: 0.00 [ohm]
Description:	<p>Sets and displays the wire resistance for Terminal Module 150 (TM150). The value is used for the automatic conductor calibration. The value is automatically set by starting the wire resistance measurement (p4109[0...11]) of the corresponding channel.</p>		

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

Dependency: See also: p4109

NOTICE

Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).

Note

Automatic conductor calibration is deactivated using p4110[0...11] = 0.

p4111[0...2] TM150 group channel assignment / TM150 grp channel

<p>TM150</p>	<p>Changeable: T Data type: Unsigned16 P group: - Not for motor type: - Min: -</p>	<p>Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -</p>	<p>Access level: 1 Function plan: 9625 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin</p>
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Description: Assigns the temperature channels to groups for the Terminal Module 150 (TM150)
 For each group, the following calculated values are provided from the temperature actual values (r4105[0...11]):
 - Maximum value (r4112[0...2])
 - Minimum value (r4113[0...2])
 - average value (r4114[0...2])

Index:
 [0] = Group 0
 [1] = Group 1
 [2] = Group 2

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature channel 0	Yes	No	-
	01	Temperature channel 1	Yes	No	-
	02	Temperature channel 2	Yes	No	-
	03	Temperature channel 3	Yes	No	-
	04	Temperature channel 4	Yes	No	-
	05	Temperature channel 5	Yes	No	-
	06	Temperature channel 6	Yes	No	-
	07	Temperature channel 7	Yes	No	-
	08	Temperature channel 8	Yes	No	-
	09	Temperature channel 9	Yes	No	-
	10	Temperature channel 10	Yes	No	-
	11	Temperature channel 11	Yes	No	-

Dependency: See also: r4105, r4112, r4113, r4114

NOTICE

When forming groups, it must be ensured that in one particular group, only temperature channels with the following sensor types are included:

- "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6), real temperature actual value
or alternatively

- "PTC thermistor", "bimetallic NC contact" (p4100[0...11] = 1, 4), fictitious temperature actual value (-50 °C, 250 °C)
If these sensor types are combined within one group, then the calculated values for maximum, minimum and average value will be falsified.

Note

Active and inactive temperature channels can be included in one group. However, when calculating the values (r4112, r4113, r4114) only the active temperature channels with valid actual value are taken into account (r4105[0...11] not equal to -300 °C).

r4112[0...2] CO: TM150 group temperature actual value maximum value / TM150 grp temp max

TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9625
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]

Description: Display and connector output for the maximum value of each group for the Terminal Module 150 (TM150). This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:

- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index:
[0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: See also: r4105, p4111, r4113, r4114

r4113[0...2] CO: TM150 group temperature actual value minimum value / TM150 grp temp min

TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9625
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]

Description: Display and connector output for the minimum value of each group for the Terminal Module 150 (TM150). This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:

- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index:
[0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: See also: r4105, p4111, r4112, r4114

r4114[0...2]	CO: TM150 group temperature average actual value / TM150 grp temp av		
TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 9625
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]
Description:	Display and connector output for the average value of each group for the Terminal Module 150 (TM150). This value is calculated from the actual temperature values (r4105[0...11]) of each group.		
Recommendation:	The following connector inputs can use these connector outputs for interconnection:		
	- CI: p0603		
	- CI: p0608[0...3]		
	- CI: p0609[0...3]		
	- CI: p2051		
Index:	[0] = Group 0		
	[1] = Group 1		
	[2] = Group 2		
Dependency:	See also: r4105, p4111, r4112, r4113		
	Note		
	If one group is assigned sensor type "PTC" or "bimetal NC contact", then the average value -300 °C is output.		

p4117[0...2]	TM150 group sensor error effect / TM150 error effect		
TM150	Changeable: T, U	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9625
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Sets the effect for an error of a sensor of a group for Terminal Module TM150 (TM150). For p4117 = 0, the following applies: The defective temperature sensor assigned to a group is not take into account when forming the group. For p4117 = 1, the following applies: For a sensor error, for the maximum value, minimum value and average value of the corresponding group, a value of -300 °C is output.		
Value:	0: Skip sensor		
	1: Output value = -300 °C		
Index:	[0] = Group 0		
	[1] = Group 1		
	[2] = Group 2		
Dependency:	See also: r4105, p4111, r4112, r4113, r4114		

p4118[0...11]	TM150 fault threshold/alarm threshold hysteresis / TM150 thresh hyst		
TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0 [K]	50 [K]	5 [K]
Description:	Sets the hysteresis for the fault threshold/alarm threshold (p4102[0...23]) for the Terminal Module 150 (TM150).		

Index:	[0] = Temperature channel 0 [1] = Temperature channel 1 [2] = Temperature channel 2 [3] = Temperature channel 3 [4] = Temperature channel 4 [5] = Temperature channel 5 [6] = Temperature channel 6 [7] = Temperature channel 7 [8] = Temperature channel 8 [9] = Temperature channel 9 [10] = Temperature channel 10 [11] = Temperature channel 11
Dependency:	See also: p4102, p4103, r4104, r4105

Note

The following applies for a corresponding alarm:

- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x] - hysteresis (p4118[x]).

The following applies for a corresponding fault:

- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1]) - hysteresis (p4118[x]) and the fault has been acknowledged.

p4119[0...11] TM150 activate/deactivate smoothing / TM150 smooth act

TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0

Description: Setting to activate/deactivate the filter to smooth the temperature signal for the Terminal Module 150 (TM150). The smoothing is realized with a 1st order lowpass filter. The effective smoothing time constant depends on the number of channels that are simultaneously active and is displayed in r4120.

Value:
0: Filter deactivated
1: Filter activated

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

Dependency: See also: r4120

r4120	TM150 temperature filter time constant / TM150 temp_filt T		
TM150	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]
Description:	Displays the smoothing time constant for the temperature filter for Terminal Module 150 (TM150).		
Dependency:	See also: r4105, p4111, r4112, r4113		
	Note		
	The time constant lies in the range from 80 to 1000 ms and depends on the number of channels that are simultaneously active.		

p4121	TM150 filter rated line frequency / TM150 filt f_line		
TM150	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: 9626, 9627
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Sets the rated line frequency for the filter to skip the line frequency for Terminal Module 150 (TM150).		
Value:	0: 50 Hz		
	1: 60 Hz		

p4600[0...n]	Motor temperature sensor 1 sensor type / Temp_sens 1 type		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	60	0
Description:	Sets the sensor type of the first temperature sensor for the motor temperature monitoring.		
Value:	0: No sensor		
	10: PTC fault		
	11: PTC alarm		
	12: PTC alarm & timer		
	20: KTY84		
	30: Bimetallic NC contact fault		
	31: Bimetallic NC contact alarm		
	32: Bimetallic NC contact alarm & timer		
	60: PT1000		
Dependency:	See also: r0458, p0600, p0601		
	Note		
	This parameter is effective only when p0601 = 10.		
	PTC thermistor: Tripping resistance = 1650 Ohm		
	Information on using temperature sensors is provided in the following literature:		
	- hardware description of the appropriate components		
	- SINAMICS S120 Commissioning Manual		

p4601[0...n]	Motor temperature sensor 2 sensor type / Temp_sens 2 type		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	60	0

Description: Sets the sensor type of the second temperature sensor for the motor temperature monitoring.

Value:

0:	No sensor
10:	PTC fault
11:	PTC alarm
12:	PTC alarm & timer
20:	KTY84
30:	Bimetallic NC contact fault
31:	Bimetallic NC contact alarm
32:	Bimetallic NC contact alarm & timer
60:	PT1000

Dependency: See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 10.

Terminals for KTY84/PT1000: X200.1, X200.2

PTC thermistor: Tripping resistance = 1650 Ohm

Information on using temperature sensors is provided in the following literature:

- hardware description of the appropriate components

- SINAMICS S120 Commissioning Manual

p4602[0...n]	Motor temperature sensor 3 sensor type / Temp_sens 3 type		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	60	0

Description: Sets the sensor type of the third temperature sensor for the motor temperature monitoring.

Value:

0:	No sensor
10:	PTC fault
11:	PTC alarm
12:	PTC alarm & timer
20:	KTY84
30:	Bimetallic NC contact fault
31:	Bimetallic NC contact alarm
32:	Bimetallic NC contact alarm & timer
60:	PT1000

Dependency: See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 10.
 Terminals for PTC triplet and bimetallic: X200.3, X200.4
 PTC thermistor: Tripping resistance = 1650 Ohm
 Information on using temperature sensors is provided in the following literature:
 - hardware description of the appropriate components
 - SINAMICS S120 Commissioning Manual

p4603[0...n]

SERVO_828,
 SERVO_COMBI

Motor temperature sensor 4 sensor type / Temp_sens 4 type

Changeable: C2(3), T, U	Calculation: -	Access level: 2
Data type: Integer16	Dynamic index: EDS, p0140	Function plan: 8016
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	60	0

Description:

Sets the sensor type of the fourth temperature sensor for the motor temperature monitoring.

Value:

- 0: No sensor
- 10: PTC fault
- 11: PTC alarm
- 12: PTC alarm & timer
- 20: KTY84
- 30: Bimetallic NC contact fault
- 31: Bimetallic NC contact alarm
- 32: Bimetallic NC contact alarm & timer
- 60: PT1000

Dependency:

See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 10.
 Terminals for PTC triplet: X200.5, X200.6
 PTC thermistor: Tripping resistance = 1650 Ohm
 Information on using temperature sensors is provided in the following literature:
 - hardware description of the appropriate components
 - SINAMICS S120 Commissioning Manual

p4610[0...n]

SERVO_828,
 SERVO_COMBI

Motor temperature sensor 1 sensor type MDS / Temp sens1 typ MDS

Changeable: C2(3), T, U	Calculation: -	Access level: 2
Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	32	10

Description:

Sets the sensor type of the first temperature sensor for the motor temperature monitoring.

Value:

- 0: No sensor
- 10: PTC fault
- 11: PTC alarm
- 12: PTC alarm & timer
- 20: KTY84, PT100, PT1000
- 30: Bimetallic NC contact fault
- 31: Bimetallic NC contact alarm
- 32: Bimetallic NC contact alarm & timer

Dependency: See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 11.
 PTC thermistor: Tripping resistance = 1650 Ohm
 Information on using temperature sensors is provided in the following literature:
 - hardware description of the appropriate components
 - SINAMICS S120 Commissioning Manual

p4611[0...n]	Motor temperature sensor 2 sensor type MDS / Temp sens2 typ MDS		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	32	10

Description: Sets the sensor type of the second temperature sensor for the motor temperature monitoring.

Value:

0:	No sensor
10:	PTC fault
11:	PTC alarm
12:	PTC alarm & timer
20:	KTY84, PT100, PT1000
30:	Bimetallic NC contact fault
31:	Bimetallic NC contact alarm
32:	Bimetallic NC contact alarm & timer

Dependency: See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 11.
 PTC thermistor: Tripping resistance = 1650 Ohm
 Information on using temperature sensors is provided in the following literature:
 - hardware description of the appropriate components
 - SINAMICS S120 Commissioning Manual

p4612[0...n]	Motor temperature sensor 3 sensor type MDS / Temp sens3 typ MDS		
SERVO_828, SERVO_COMBI	Changeable: C2(3), T, U	Calculation: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016
	P group: Motor	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	32	10

Description: Sets the sensor type of the third temperature sensor for the motor temperature monitoring.

Value:

0:	No sensor
10:	PTC fault
11:	PTC alarm
12:	PTC alarm & timer
20:	KTY84, PT100, PT1000
30:	Bimetallic NC contact fault
31:	Bimetallic NC contact alarm
32:	Bimetallic NC contact alarm & timer

Dependency: See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 11.
 PTC thermistor: Tripping resistance = 1650 Ohm
 Information on using temperature sensors is provided in the following literature:
 - hardware description of the appropriate components
 - SINAMICS S120 Commissioning Manual

p4613[0...n]

SERVO_828,
 SERVO_COMBI

Motor temperature sensor 4 sensor type MDS / Temp sens4 typ MDS

Changeable: C2(3), T, U	Calculation: -	Access level: 2
Data type: Integer16	Dynamic index: MDS, p0130	Function plan: 8016
P group: Motor	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	32	10

Description:

Sets the sensor type of the fourth temperature sensor for the motor temperature monitoring.

Value:

- 0: No sensor
- 10: PTC fault
- 11: PTC alarm
- 12: PTC alarm & timer
- 20: KTY84, PT100, PT1000
- 30: Bimetallic NC contact fault
- 31: Bimetallic NC contact alarm
- 32: Bimetallic NC contact alarm & timer

Dependency:

See also: r0458, p0600, p0601

Note

This parameter is effective only when p0601 = 11.
 PTC thermistor: Tripping resistance = 1650 Ohm
 Information on using temperature sensors is provided in the following literature:
 - hardware description of the appropriate components
 - SINAMICS S120 Commissioning Manual

r4620[0...3]

SERVO_828

Motor temperature measured / Mot_temp meas

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
Not for motor type: -	Scaling: p2006	Expert list: 1
Min:	Max:	Default:
- [°C]	- [°C]	- [°C]

Description:

Displays the actual temperature in the motor measured through temperature channels 1 ... 4.

Index:

- [0] = Temperature channel 1
- [1] = Temperature channel 2
- [2] = Temperature channel 3
- [3] = Temperature channel 4

Note

For a value not equal to -200.0 °C, the following applies:

- this temperature display is valid.
- A KTY/PT1000 temperature sensor is connected.

For a value 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.
- the temperature sensor evaluation is de-activated (p0600 = 0 or p0601 = 0).
- the sensor channel is de-activated (p460x = 0 or p461x = 0).

r4640[0...95]	Encoder diagnostics state machine / Enc diag stat_ma		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Encoder Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the encoder diagnostics for the PROFIdrive interface.		
p4641[0...2]	OEM encoder diagnostic signal selection / OEM enc diag sel		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned16 P group: Encoder Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 65535	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Trace functionality for OEM encoder manufacturers.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
p4650	Encoder functional reserve component number / Enc fct_res num		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Unsigned16 P group: Displays, signals Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 399	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the component number (p0141) of the encoder whose functional reserve is to be displayed (r4651).		
Dependency:	See also: r4651		
r4651[0...3]	Encoder functional reserve / Enc fct_reserve		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [%]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [%]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: - [%]

Description: Displays the functional reserve of the encoder selected via p4650.
 0 ... 25 %:
 The function limit has been reached. A service is recommended.
 26 ... 100 %:
 The encoder is working in the specified range.

Index: [0] = Function reserve 1
 [1] = Function reserve 2
 [2] = Function reserve 3
 [3] = Function reserve 4

Dependency: See also: p4650

Note

Value = 999 means:
 - the component specified in p4650 is not connected
 - the encoder does not support the display of the functional reserve

p4652[0...2]

HLA_828,
 SERVO_828,
 SERVO_COMBI

XIST1_ERW reset mode / XIST1_ERW res mode

Changeable: C1(3)
Data type: Integer16
P group: -
Not for motor type: -
Min:
 0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 3

Access level: 3
Function plan: 4750
Unit selection: -
Expert list: 1
Default:
 0

Description: Sets the mode to reset the actual value in XIST_ERW (CO: r4653).

Value: 0: Inactive
 1: Reset with zero mark
 2: Reset with BICO
 3: Reset with selected zero mark

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

Dependency: See also: r4653, r4654, p4655

Note

For a value = 1:
 The value in XIST1_ERW is reset when passing every zero mark.
 For a value = 2:
 The value in XIST1_ERW is reset with a 0/1 edge via binector input p4655.
 For a value = 3:
 The value in XIST1_ERW is reset after a 0/1 edge via binector input p4655 when passing the next zero mark.

r4653[0...2]

HLA_828,
 SERVO_828,
 SERVO_COMBI

CO: XIST1_ERW actual value / XIST1_ERW actual

Changeable: -
Data type: Unsigned32
P group: Encoder
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 3
Function plan: 4750
Unit selection: -
Expert list: 1
Default:
 -

Description: Display and connector output for the actual value XIST1_ERW.

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

Dependency: See also: p4652, r4654, p4655

r4654.0...16	CO/BO: XIST1_ERW status / XIST1_ERW stat			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Function plan: 4750	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	-	
Description:	Display and binector output to reset XIST1_ERW.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Encoder 1 XIST1_ERW reset	High	Low
	08	Encoder 2 XIST1_ERW reset	High	Low
	16	Encoder 3 XIST1_ERW reset	High	Low
				FP
				-
				-
				-
Dependency:	See also: p4652, r4653, p4655			
	Note			
	The reset of XIST1_ERW is initiated via binector input p4655.			
	Binector output r4654 is reset with a 0 signal from binector input p4655.			

p4655[0...2]	BI: XIST1_ERW reset signal source / XIST1_ERW resS_src			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 4750	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0	
Description:	Sets the signal source to reset XIST1_ERW (CO: r4653).			
Index:	[0] = Encoder 1			
	[1] = Encoder 2			
	[2] = Encoder 3			
Dependency:	See also: p4652, r4653, r4654			
	Note			
	The reset of XIST1_ERW depends on the selected mode (p4652).			

p4660[0...2]	Sensor Module filter bandwidth / SM Filt_bandw			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4)	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -	
	P group: Encoder	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0.00 [kHz]	20000.00 [kHz]	0.00 [kHz]	
Description:	Sets the filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).			
	The value set on the Sensor Module is displayed in r4661.			
	The Sensor Module hardware only supports the following values:			
	- 0: The Sensor Module's default is used.			
	- 50 kHz			
	- 170 kHz			
	- 500 kHz			
	- Unlimited: Only the bandwidth of the operational amplifier is effective.			

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

Dependency: See also: r4661

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

r4661[0...2]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Sensor Module filter bandwidth display / SM Filt_bandw disp

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [kHz]	Max: - [kHz]	Default: - [kHz]

Description: Display of the effective filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).
 The bandwidth of the filter is set using p4660.

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

Dependency: See also: p4660

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

p4662[0...n]

HLA_828,
 SERVO_828,
 SERVO_COMBI

Encoder characteristic type / Enc char_type

Changeable: C2(4)	Calculation: -	Access level: 4
Data type: Integer16	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 1	Default: 0

Description: Sets the characteristic type.
 For non-linear sensors, the interrelationship between the signal voltage and the position can be defined using a third degree polynomial.

Value: 0: Characteristic inactive
 1: Characteristic polynomial third degree

Dependency: See also: p4663, p4664, p4665, p4666

Note
 For a value = 1:
 A third degree polynomial is defined as follows:
 $F(x) = K3 * x^3 + K2 * x^2 + K1 * x + K0$
 Coefficients K0 ... K3 should be defined and entered into p4663 ... p4666.
 The sensor range is emulated to $x = -0.5 \dots +0.5$.

p4663[0...n]	Encoder characteristic K0 / Enc char K0		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Setting for coefficient K0 to calculate the characteristic (p4662).		
Dependency:	See also: p4662, p4664, p4665, p4666		
p4664[0...n]	Encoder characteristic K1 / Enc char K1		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Setting for coefficient K1 to calculate the characteristic (p4662).		
Dependency:	See also: p4662, p4663, p4665, p4666		
p4665[0...n]	Encoder characteristic K2 / Enc char K2		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Setting for coefficient K2 to calculate the characteristic (p4662).		
Dependency:	See also: p4662, p4663, p4664, p4666		
p4666[0...n]	Encoder characteristic K3 / Enc char K3		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Setting for coefficient K3 to calculate the characteristic (p4662).		
Dependency:	See also: p4662, p4663, p4664, p4665		
p4670[0...n]	Analog sensor configuration / Ana_sens config		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: Unsigned32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 0000 0000 0000 0000 bin
Description:	Sets the configuration for evaluation on the analog sensor.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	06	Set velocity to 0	Yes	No	-
	08	Pos val range	0.0 / 1.0 pulse	-0.5 / +0.5 pulse	-
	09	Fault/alarm messages	Alarm	Fault	-
	10	Channel B act	Yes	No	-
	11	Channel A act	Yes	No	-
	13	Commutation angle constant	Yes	No	-
	14	Suppress faults	Yes	No	-
	31	Extrapolation	ON	OFF	-

NOTICE

For bit 06:
Setting the bit sets the velocity actual value (r0061) permanently to 0.

For bit 13:
Setting the bit sets the commutation angle permanently to the commutation angle offset (p0431).

Note

For bit 09:

A setting of bit = 0 will trigger a fault for the relevant channel if the actual value is invalid.

A setting of bit = 1 will trigger an alarm for the relevant channel if the actual value is invalid.

For bit 10, 11:

If both channels are activated, the actual value is generated from the mean value of both channels. If a channel fails (actual value invalid), it is not included when the mean value is generated.

For bit 14:

The bit is only evaluated for encoder 1. Otherwise no effect.

p4671[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Analog sensor input / Ana_sens inp

Changeable: C2(4)

Data type: Integer16

P group: Encoder

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: EDS, p0140

Unit group: -

Scaling: -

Max:

3

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the input circuit for the analog sensor.

Value:

- 0: Differential
- 1: Single-ended A, B
- 2: Single-ended A*, B*
- 3: Single-ended A, B sensitive

Note

p4671 = 0:

The two signals on a track are evaluated differentially.

p4671 = 1:

Only the non-inverted signal on a track is evaluated.

p4671 = 2:

Only the inverted signal on a track is evaluated.

p4671 = 3:

Only the non-inverted signal on a track (high resolution) is evaluated.

p4672[0...n]	Analog sensor channel A voltage at actual value zero / Ana_sens A U at 0		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.0000 [V]	Max: 10.0000 [V]	Default: 0.0000 [V]
Description:	Sets the voltage when the connected sensor is at actual value zero. At this voltage channel A supplies an actual value of zero.		

p4673[0...n]	Analog sensor channel A voltage per encoder period / Ana_sens A U/per		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.0000 [V]	Max: 10.0000 [V]	Default: 6.0000 [V]
Description:	Sets the output voltage range to be mapped for the connected analog sensor. The voltage range is determined by the following parameters: - p4672 (voltage at actual value 0) - p4673 (voltage per encoder period)		

Note

The minimum actual value which can be mapped is equal to p4672 - p4673/2.
The maximum actual value which can be mapped is equal to p4672 + p4673/2.

p4674[0...n]	Analog sensor channel B voltage at actual value zero / Ana_sens B U at 0		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.0000 [V]	Max: 10.0000 [V]	Default: 0.0000 [V]
Description:	Sets the voltage when the connected sensor is at actual value zero. At this voltage channel B supplies an actual value of zero.		

p4675[0...n]	Analog sensor channel B voltage per encoder period / Ana_sens B U/per		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -10.0000 [V]	Max: 10.0000 [V]	Default: 6.0000 [V]
Description:	Sets the output voltage range to be mapped for the connected analog sensor. The voltage range is determined by the following parameters: - p4674 (voltage at actual value 0) - p4675 (voltage per encoder period)		

Note

The minimum actual value which can be mapped is equal to p4674 - p4675/2.
The maximum actual value which can be mapped is equal to p4674 + p4675/2.

p4676[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Analog sensor range limit threshold / Ana_sens lim thr

Changeable: T, U	Calculation: -	Access level: 4
Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0 [%]	Max: 100.0 [%]	Default: 100.0 [%]

Description: Sets the threshold for limit monitoring of the absolute actual value on the analog sensor.
If this threshold is overshot by the actual value of a channel, a corresponding fault/alarm (p4670.9) is output.

Dependency: See also: p4673, p4675

p4677[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Analog sensor LVDT configuration / Ana_sens LVDT conf

Changeable: C2(4)	Calculation: -	Access level: 4
Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0000 bin

Description: Sets the configuration for LVDT mode on the analog sensor.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	LVDT ON	Yes	No	-
	01	Track B excitation	Yes	No	-
	02	Fixed value amplitude	Yes	No	-
	03	Fixed value amplitude and phase	Yes	No	-

p4678[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Analog sensor LVDT ratio / An_sens LVDT ratio

Changeable: C2(4)	Calculation: -	Access level: 4
Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [%]	Max: 200.00 [%]	Default: 50.00 [%]

Description: Sets the ratio for the LVDT sensor.

p4679[0...n]

HLA_828,
SERVO_828,
SERVO_COMBI

Analog sensor LVDT phase / An_sens LVDT ph

Changeable: C2(4), T	Calculation: -	Access level: 4
Data type: FloatingPoint32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -360.00 [°]	Max: 360.00 [°]	Default: 0.00 [°]

Description: Sets the phase for the LVDT sensor.

p4680[0...n]	Zero mark monitoring tolerance permissible / ZM_monit tol perm		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: Unsigned32 P group: Encoder Not for motor type: - Min: 0	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: 1000	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 4
Description:	Sets the permissible tolerance in encoder pulses for the zero mark distance in the context of zero mark monitoring. Causes fault F3x100 to appear less frequently.		
Dependency:	See also: F31100		
p4681[0...n]	Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: Unsigned32 P group: Encoder Not for motor type: - Min: 0	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: 1000	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 2
Description:	Sets the positive tolerance window in encoder pulses for limit 1 for the zero mark monitoring. If the deviation is less than this limit, then the pulse number is not corrected. If it is higher than this limit, fault F3x131 is triggered. If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). The accumulator can be de-activated using p0437.7.		
Dependency:	See also: p0437, p4688 See also: F31131		
	Note This monitoring is activated by setting p0437.2 = 1 (position actual value correction). The positive limit describes additional pulses due to EMC.		
p4682[0...n]	Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: Integer32 P group: Encoder Not for motor type: - Min: -1001	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: 0	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -1001
Description:	Sets the negative tolerance window in encoder pulses for limit 1 for the zero mark monitoring. If the deviation is less than this limit, the PPR is not corrected. If it is higher than this limit, fault F3x131 is triggered. If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688). The accumulator can be de-activated using p0437.7.		
Dependency:	See also: p0437, p4681, p4688 See also: F31131		
	Note This monitoring is activated by setting p0437.2 = 1 (position actual value correction). For a set value = -1001, the negated value of p4681 is effective. The negative limit describes the pulses lost due to a covered glass panel in the incremental encoder.		

p4683[0...n] Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	100000	0

Description: Sets the positive tolerance window in encoder pulses for limit 2 for the zero mark monitoring.
If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency: See also: p0437, p4681, p4682, p4688
See also: F31131, A31422

Note

Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).

p4684[0...n] Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Integer32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-100001	0	-100001

Description: Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.
If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency: See also: p0437, p4683, p4688
See also: F31131, A31422

Note

Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).
For a set value = -100001, the negated value of p4683 is effective.

p4685[0...n] Speed actual value mean value generation / n_act mean val

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(4)	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: EDS, p0140	Function plan: -
P group: Encoder	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	20	0

Description: Sets the number of current controller clock cycles for mean value generation of the speed actual value.

Note

Value = 0, 1: No mean value generation.
Higher values also mean higher dead times for the speed actual value.

p4686[0...n]	Zero mark minimum length / ZM min length		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(4) Data type: Unsigned32 P group: Encoder Not for motor type: - Min: 0	Calculation: - Dynamic index: EDS, p0140 Unit group: - Scaling: - Max: 10	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 1
Description:	Sets the minimum length for the zero mark in 1/4 encoder pulses.		
Dependency:	See also: p0425, p0437		
	Note The value for the minimum length of the zero mark must be set less than p0425. The parameter is activated using p0437.1 = 1 (zero mark edge detection).		
p4688[0...2]	CO: Zero mark monitoring differential pulse count / ZM diff_pulse qty		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T Data type: Integer32 P group: - Not for motor type: - Min: -2147483648	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2147483647	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Displays the number of differential pulses for the zero mark monitoring that have accumulated. If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688).		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	See also: p4681, p4682, p4683, p4684		
	Note The display can only be reset to zero.		
r4689[0...2]	CO: Squarewave encoder diagnostics / Sq-wave enc diag		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Encoder Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the encoder status according to PROFIdrive for a squarewave encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	See also: A31422		
	Note After alarm A3x422 is output, this parameter is set for 100 ms.		

p4690	SMI spare part component number / SMI comp_no		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T	Calculation: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	399	0
Description:	Sets the component number for the SMI/DQI for which motor and/or encoder data should be saved, deleted or downloaded.		
Dependency:	See also: p4691, p4692, p4693		
	Note		
	DQI: DRIVE-CLiQ Sensor Integrated		
	SMI: SINAMICS Sensor Module Integrated		

p4691	SMI spare part save/download data / Save/DL SMI data		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T	Calculation: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	39	0
Description:	Setting for the saving/downloading/deletion of motor and/or encoder data for the component specified in p4690 (SMI/DQI).		
	A backup of this data can be saved to non-volatile memory. The backup procedure is performed automatically as part of the function for saving to non-volatile memory (p0977 = 1 or "Copy RAM to ROM"). If a part is replaced, the saved data can be reloaded.		
	Procedure:		
	p4690 = set component number		
	p4691 = 1, 2, 30: Set the required procedure (save/download/delete).		
	p4691 = 9, 10, 36: Feedback signal on successful completion of the procedure.		
	p4691 = 11... 22, 37, 38: Error values if the procedure could not be executed successfully.		
Value:	0: Inactive		
	1: Save SMI data		
	2: Download SMI data		
	9: SMI data downloaded and POWER ON required for component		
	10: SMI data backup complete		
	11: SMI data backup for selected component not found		
	12: Selected component not available or not connected		
	13: Insufficient memory space for backup		
	14: Format of saved data is incompatible		
	15: Transfer fault during data download		
	16: Transfer fault during data backup		
	17: Data backup does not match parameterized encoder/motor		
	18: Data backup directory not permissible		
	19: Component already contains data		
	20: Component does not contain any data		
	21: Component is not an SMI or a DQI		
	22: SMI data cannot be downloaded for component		
	30: Delete SMI data		
	35: Confirmation of SMI data delete required		

- 36: SMI data deleted and POWER ON required for component
 37: Access level not sufficient for delete
 38: Delete SMI data not permitted for component
 39: SMI data for component cannot be deleted

Dependency:

See also: p4690, p4692, p4693

NOTICE

Once SMI/DQI data has been deleted or downloaded successfully, the component has to be powered up.

Note

SMI: SINAMICS Sensor Module Integrated

DQI: DRIVE-CLiQ Sensor Integrated

Help for error value = 11:

- Save the data for the original SMI on the memory card.
- Use an SMI with a suitable hardware version.

Help for error value = 12:

- Set the correct component number or connect the component.

Help for error value = 13:

- Use a memory card with more memory space.

Help for error value = 14:

- Create a data backup on the memory card corresponding to the SMI type.

Help for error value = 15:

- Check the DRIVE-CLiQ wiring for the component.

Help for error value = 16:

- Check the DRIVE-CLiQ wiring for the component.

Help for error value = 17:

- Save the data for the original SMI on the memory card.

Help for error value = 18:

- Set parameter p4693 to an appropriate value.

Help for error value = 19:

- Perform an SMI delete or use a blank SMI.

Help for error value = 20:

- Use an SMI that is not blank.

Help for error value = 21:

- Set the correct component number (p4690).

Note for error value = 22:

- Data cannot be downloaded for component.

Help for error value = 35:

- Reset parameter p4691 to 30.

Help for error value = 37:

- Set the access level to Expert or higher.

Help for error value = 38:

- Insert the SMI/DQI into the actual topology as an additional component (component number ≥ 200).
- Set the component number from the actual topology (p4690 ≥ 200).
- Set the correct component number (p4690 ≥ 200).

Note for error value = 39:

- SMI already deleted or too old. Delete not possible.

p4692

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

SMI spare part save data of all SMIs / Save SMI data

Changeable: T

Data type: Integer16

P group: Displays, signals

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

29

Access level: 1

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description: Setting to back up the data of all SMIs and DQIs featured in the target topology.

Value:

- 0: Inactive
- 1: Save data of all SMIs and DQIs
- 10: Save all data successful
- 13: Insufficient memory space for backup
- 16: Transfer fault during data backup
- 20: Component does not contain any data
- 29: Not all components from target topology saved

Note

SMI: SINAMICS Sensor Module Integrated

p4692 = 10: Automatic on successful completion of backup procedure.

p4692 = 13, 16, 20, 29: Error values if the procedure could not be executed successfully.

The procedure must be repeated if the data save operation was interrupted (e.g. if the power supply voltage failed).

Help for error value = 13:

- Use a memory card with more memory space.

Help for error value = 16:

- check the DRIVE-CLiQ wiring.

Help for error value = 20:

- Use an SMI that is not blank.

Help for error value = 29:

- Check and correct the target and actual topologies for the SMIs.

- Repeat the save procedure.

p4693[0...1]

CU_I_828,
CU_I_COMBI,
CU_NX_828

SMI spare part data backup directory / SMI dat_bkup dir

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Displays, signals

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

399

0

Description: Sets the directory for downloading and saving data.

Example:

The SMI has the component number 5 and the SMI data (motor/encoder data) is to be stored in subdirectory C205.

--> p4690 = 5, p4693[0] = 205, p4691 = 1

Index: [0] = Subdirectory selection

[1] = Reserved

Dependency: See also: p4691, r4694

NOTICE

If p4693[0] is not equal to 0 and p4690 is not equal to p4690, the following applies:

- Only a number >= 200 may be selected for the subdirectory when saving.

- In the case of downloads, a selection for the subdirectory may only be made for an SMI/DQI with a component number >= 200 (preliminary component number) (p4690 >= 200).

Note

DQI: DRIVE-CLiQ Sensor Integrated

SMI: SINAMICS Sensor Module Integrated

For index 0:

This index is used to select the subdirectory for saving and downloading data. The motor order number (MLFB) of the corresponding data backup is displayed in r4694.

For p4693[0] = 0, the following applies:

The directory is determined by the setting of p4690.

r4694[0...19]	SMI spare part data backup motor order number / SMI dat_bkup MLFB		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the motor order number (MLFB) of the data backup selected with p4693.		
Dependency:	See also: p4691, p4692		

 **CAUTION**

If the selected subdirectory contains a number of data sets, "More Datasets" is displayed in r4694[0...19].
If there is no SMI data (motor/encoder data) in the selected subdirectory or if the selected subdirectory does not exist, the following applies:

- The number of the next subdirectory located is displayed.
- This subdirectory is not checked for valid SMI data.
- If another subdirectory cannot be located, nothing is displayed in r4694[0...19].

Note

SMI: SINAMICS Sensor Module Integrated

p4700[0...1]	Trace control / Trace control		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	0	1	0
Description:	Setting to control the trace function.		
Value:	0: Stop trace		
	1: Start trace		
Index:	[0] = Trace 0		
	[1] = Trace 1		

p4701	Measuring function control / Meas fct ctrl		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	0	3	0
Description:	Setting to control the measurement function.		
Value:	0: Stop measuring function		
	1: Start measuring function		
	2: Measuring function check parameterization		
	3: Start measuring function without enable signals		

p4703[0...1]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Trace options / Trace options

Changeable: T
Data type: Unsigned16
P group: Trace and function generator
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 0
Default:
0000 bin

Description: Sets the options for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

Bit	Signal name	1 signal	0 signal	FP
00	Automatically start trace with time slices	Yes	No	-

Dependency: See also: p4700

Note

For bit 00:
0: The trace starts with p4700 as before.
1: When powering up, the trace starts immediately with the saved parameter settings with the start of the time slices.

r4705[0...1]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Trace status / Trace status

Changeable: -
Data type: Integer16
P group: Trace and function generator
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
4

Access level: 3
Function plan: -
Unit selection: -
Expert list: 0
Default:
-

Description: Displays the actual status of the trace.

Value:
0: Trace inactive
1: Trace is recording presamples
2: Trace is waiting for trigger event
3: Trace is recording
4: Recording (trace) ended

Index:
[0] = Trace 0
[1] = Trace 1

r4706

CU_I_828,
CU_I_COMBI,
CU_NX_828

Measuring function status / Meas fct status

Changeable: -
Data type: Integer16
P group: Trace and function generator
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
5

Access level: 3
Function plan: -
Unit selection: -
Expert list: 0
Default:
-

Description: Displays the actual status of the measuring function.

Value:
0: Measurement function inactive
1: Measuring function parameterization checked
2: Measuring function waits for stabilizing time
3: Measuring function recording (tracing)
4: Measuring function trace ended with error
5: Measuring function trace successfully completed

p4707	Measurement function configuration / Meas fct config		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0	Max: 1	Default: 0
Description:	Setting to configure the measurement function.		
Value:	0: Standard 1: Free meas fct		
Dependency:	The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3).		
	Note		
	This parameter involves the free measuring functions and is only active for p4810=6.		
	For value = 0: The free measuring function is parameterized with master control.		
	For value = 1: The free measuring function is parameterized without master control.		

r4708[0...1]	Trace memory space required / Trace mem required		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -	Max: -	Default: -
Description:	Displays the required memory in bytes for the actual parameterization.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	See also: r4799		

r4709[0...1]	Trace memory space required for measuring functions / Trace mem required		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -	Max: -	Default: -
Description:	Displays the required memory in bytes for the actual parameterization. This applies, if the trace for the measurement functions is used.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	See also: r4799		

p4710[0...1]	Trace trigger condition / Trace Trig_cond		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	1	8	2
Description:	Sets the trigger condition for the trace.		
Value:	1: Immediate trace start 2: Positive edge 3: Negative edge 4: Entry to hysteresis band 5: Leaving hysteresis band 6: Trigger at bit mask 7: Start with function generator 8: Trigger at bit mask with edge		
Index:	[0] = Trace 0 [1] = Trace 1		

p4711[0...5]	Trace trigger signal / Trace trig_signal		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0
Description:	Selects the trigger signal for the trace.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
Dependency:	Only effective when p4710 does not equal 1.		

Note

It only makes sense to trace the PINs using the commissioning software.
 For index 2(4) and 3(5) equal to zero, index 0(1) can only be written and vice versa.
 For index 0 ... 1:
 Here, the trigger signal for trace 0 or 1 is entered as parameter in the BICO format.
 For trace with a physical address (p4789), the data type of the trigger signal is set here.
 For index 2 ...3:
 The triggering PIN for trace 0 is entered here.
 Index 2 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart
 Index 3 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN
 For index 4 ... 5:
 The triggering PIN for trace 1 is entered here.
 Index 4 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart
 Index 5 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

p4712[0...1]	Trace trigger threshold / Trace trig_thresh		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -340.28235E36	Max: 340.28235E36	Default: 0.00
Description:	Sets the trigger threshold for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 2, 3.		

p4713[0...1]	Trace tolerance band trigger threshold 1 / Trace trig thr 1		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -340.28235E36	Max: 340.28235E36	Default: 0.00
Description:	Sets the first trigger threshold for trigger via tolerance band.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 4, 5.		

p4714[0...1]	Trace tolerance band trigger threshold 2 / Trace trig thr 2		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -340.28235E36	Max: 340.28235E36	Default: 0.00
Description:	Sets the second trigger threshold for trigger via tolerance band		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 4, 5.		

p4715[0...1]	Trace bit mask trigger, bit mask / Trace trig mask		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0	Max: 4294967295	Default: 0
Description:	Sets the bit mask for the bit mask trigger.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 6.		

p4716[0...1] **Trace bit mask trigger trigger condition / Trace Trig_cond**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 0 4294967295 0

Description: Sets the trigger condition for bit mask trigger.

Index: [0] = Trace 0
 [1] = Trace 1

Dependency: Only effective when p4710 = 6.

p4717 **Measuring function number of averaging operations / Meas fct avg qty**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 0 255 0

Description: Sets the number of averaging operations for the measuring function.

p4718 **Measuring function number of stabilizing periods / MeasFct StabPerQty**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 0 255 0

Description: Sets the number of stabilizing periods for the measuring function.

r4719[0...1] **Trace trigger index / Trace Trig_index**
 CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 - - -

Description: Displays the trigger index in the trace buffer. The trigger event occurred at this point.

Index: [0] = Trace 0
 [1] = Trace 1

Dependency: Only valid when p4705 = 4.

p4720[0...1] **Trace recording cycle / Trace record_cyc**
 CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 0.000 [ms] 60000.000 [ms] 1.000 [ms]

Description: Sets the recording cycle for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4721[0...1] Trace recording time / Trace record_time

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: FloatingPoint32

P group: Trace and function generator

Not for motor type: -

Min:

0.000 [ms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

3600000.000 [ms]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 0

Default:

1000.000 [ms]

Description: Sets the recording time for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4722[0...1] Trace trigger delay / Trace trig_delay

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: FloatingPoint32

P group: Trace and function generator

Not for motor type: -

Min:

-3600000.000 [ms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

3600000.000 [ms]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 0

Default:

0.000 [ms]

Description: Sets the trigger delay for the trace.

Trigger delay < 0:

Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs.

Trigger delay > 0:

Post trigger: Tracing does not start until the set time after the trigger event.

Index: [0] = Trace 0
[1] = Trace 1

p4723[0...1] Trace time slice cycle / Trace cycle

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: FloatingPoint32

P group: Trace and function generator

Not for motor type: -

Min:

0.03125 [ms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

4.00000 [ms]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 0

Default:

0.12500 [ms]

Description: Sets the time slice cycle in which the trace is called.

Index: [0] = Trace 0
[1] = Trace 1

p4724[0...1] Trace average in the time range / Trace average

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: Unsigned8

P group: Trace and function generator

Not for motor type: -

Min:

0000 bin

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

0001 bin

Access level: 3

Function plan: -

Unit selection: -

Expert list: 0

Default:

0000 bin

Description: Sets the averaging in the time range for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4725[0...1] **Trace data type 1 traced / Trace rec type 1**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the recorded data type 1 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4726[0...1] **Trace data type 2 traced / Trace rec type 2**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the recorded data type 2 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4727[0...1] **Trace data type 3 traced / Trace rec type 3**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the recorded data type 3 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4728[0...1] **Trace data type 4 traced / Trace rec type 4**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the recorded data type 4 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4729[0...1]	Trace number of recorded values / Trace rec values		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-
Description:	Displays the number of traced values for each signal.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		

p4730[0...5]	Trace record signal 0 / Trace record sig 0		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0
Description:	Selects the first signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		

p4731[0...5]	Trace record signal 1 / Trace record sig 1		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0
Description:	Selects the second signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		

p4732[0...5]	Trace record signal 2 / Trace record sig 2		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0

Description: Selects the third signal to be traced.
Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4733[0...5] **Trace record signal 3 / Trace record sig 3**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0

Description: Selects the fourth signal to be traced.
Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4734[0...5] **Trace record signal 4 / Trace record sig 4**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0

Description: Selects the fifth signal to be traced.
Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4735[0...5] **Trace record signal 5 / Trace record sig 5**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0

Description: Selects the sixth signal to be traced.

Index:

- [0] = Trace 0 parameter in BICO format
- [1] = Trace 1 parameter in BICO format
- [2] = Trace 0 PINx with DO Id and chart Id
- [3] = Trace 0 PINx with block Id and PIN Id
- [4] = Trace 1 PINy with DO Id and chart Id
- [5] = Trace 1 PINy with block Id and PIN Id

p4736[0...5] **Trace record signal 6 / Trace record sig 6**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0

Description: Selects the seventh signal to be traced.

Index:

- [0] = Trace 0 parameter in BICO format
- [1] = Trace 1 parameter in BICO format
- [2] = Trace 0 PINx with DO Id and chart Id
- [3] = Trace 0 PINx with block Id and PIN Id
- [4] = Trace 1 PINy with DO Id and chart Id
- [5] = Trace 1 PINy with block Id and PIN Id

p4737[0...5] **Trace record signal 7 / Trace record sig 7**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	0

Description: Selects the eighth signal to be traced.

Index:

- [0] = Trace 0 parameter in BICO format
- [1] = Trace 1 parameter in BICO format
- [2] = Trace 0 PINx with DO Id and chart Id
- [3] = Trace 0 PINx with block Id and PIN Id
- [4] = Trace 1 PINy with DO Id and chart Id
- [5] = Trace 1 PINy with block Id and PIN Id

r4740[0...16383] **Trace 0 trace buffer signal 0 floating point / Trace 0 tr sig 0**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0.
 The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks.
 Example A:
 The first 16384 values of signal 0, trace 0 are to be read out.
 In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read out using r4740[0] to r4740[16383].
 Example B:
 The values 16385 to 32768 from signal 0, trace 0 are to be read out.
 In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].

Dependency: See also: p4795

r4741[0...16383] Trace 0 trace buffer signal 1 floating point / Trace 0 trace sig1

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.
Dependency: See also: r4740, p4795

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 trace sig2

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.
Dependency: See also: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 trace sig3

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.
Dependency: See also: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 trace sig4

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: See also: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 trace sig5

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: See also: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 trace sig6

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: See also: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 trace sig7

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: See also: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace1 trace sig 0

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: See also: r4740, p4795

r4751[0...16383] Trace 1 trace buffer signal 1 floating point / Trace1 trace sig 1

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: See also: r4740, p4795

r4752[0...16383] Trace 1 trace buffer signal 2 floating point / Trace1 trace sig 2

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: See also: r4740, p4795

r4753[0...16383] Trace 1 trace buffer signal 3 floating point / Trace1 trace sig 3

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: See also: r4740, p4795

r4754[0...16383] Trace 1 trace buffer signal 4 floating point / Trace1 trace sig 4

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: See also: r4740, p4795

r4755[0...16383] Trace 1 trace buffer signal 5 floating point / Trace1 trace sig 5

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: See also: r4740, p4795

r4756[0...16383] Trace 1 trace buffer signal 6 floating point / Trace1 trace sig 6

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: See also: r4740, p4795

r4757[0...16383] Trace 1 trace buffer signal 7 floating point / Trace1 trace sig 7

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: See also: r4740, p4795

r4760[0...16383] Trace 0 trace buffer signal 0 / Trace 0 tr sig 0

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0 as integer number.

Note

For signals, data type I32 or U32, the trace buffer is assigned as follows:

r4760[0] = value 0

r4760[1] = value 1

...

r4760[8191] = value 8191

For signals, data type I16 or U16, the trace buffer is assigned as follows:

r4760[0] = value 1 (bit 31 ... 16) and value 0 (bit 15 ... 0)

r4760[1] = value 3 (bit 31 ... 16) and value 2 (bit 15 ... 0)

...

r4760[8191] = value 16383 (bit 31 ... 16) and value 16382 (bit 15 ... 0)

For signals, data type I8 or U8, the trace buffer is assigned as follows:

r4760[0] = value 3 (bit 31 ... 24) value 2 (bit 23 ... 16) value 1 (bit 15 ... 8) value 0 (bit 7 ... 0)

r4760[1] = value 7 (bit 31 ... 24) value 6 (bit 23 ... 16) value 5 (bit 15 ... 8) value 4 (bit 7 ... 0)

...

r4760[8191] = value 32767 (bit 31 ... 24) value 32766 (bit 23 ... 16) value 32765 (bit 15 ... 8) value 32764 (bit 7 ... 0)

r4761[0...16383] Trace 0 trace buffer signal 1 / Trace 0 trace sig1

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: See also: r4760

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 trace sig2

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: See also: r4760

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 trace sig3

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: See also: r4760

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 trace sig4

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: See also: r4760

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 trace sig5

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: See also: r4760

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 trace sig6

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: See also: r4760

r4767[0...16383] Trace 0 trace buffer signal 7 / Trace 0 trace sig7

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: See also: r4760

r4770[0...16383] Trace 1 trace buffer signal 0 / Trace1 trace sig 0

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: See also: r4760

r4771[0...16383] Trace 1 trace buffer signal 1 / Trace1 trace sig 1

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: See also: r4760

r4772[0...16383] Trace 1 trace buffer signal 2 / Trace1 trace sig 2

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: See also: r4760

r4773[0...16383] Trace 1 trace buffer signal 3 / Trace1 trace sig 3

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: See also: r4760

r4774[0...16383] Trace 1 trace buffer signal 4 / Trace1 trace sig 4

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: See also: r4760

r4775[0...16383] Trace 1 trace buffer signal 5 / Trace1 trace sig 5

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: See also: r4760

r4776[0...16383] Trace 1 trace buffer signal 6 / Trace1 trace sig 6

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: See also: r4760

r4777[0...16383] Trace 1 trace buffer signal 7 / Trace1 trace sig 7

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: See also: r4760

p4780[0...1] Trace physical address signal 0 / Trace PhyAddr Sig0

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the first signal to be traced.

The data type is defined using p4730.

Index: [0] = Trace 0

[1] = Trace 1

p4781[0...1] Trace physical address signal 1 / Trace PhyAddr Sig1

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the second signal to be traced.

The data type is defined using p4731.

Index: [0] = Trace 0

[1] = Trace 1

p4782[0...1] Trace physical address signal 2 / Trace PhyAddr Sig2

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the third signal to be traced.

The data type is defined using p4732.

Index: [0] = Trace 0

[1] = Trace 1

p4783[0...1]	Trace physical address signal 3 / Trace PhyAddr Sig3		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0000 bin	Max: 1111 1111 1111 1111 1111 1111 1111 1111 bin	Default: 0000 bin
Description:	Sets the physical address for the fourth signal to be traced. The data type is defined using p4733.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4784[0...1]	Trace physical address signal 4 / Trace PhyAddr Sig4		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0000 bin	Max: 1111 1111 1111 1111 1111 1111 1111 1111 bin	Default: 0000 bin
Description:	Sets the physical address for the fifth signal to be traced. The data type is defined using p4734.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4785[0...1]	Trace physical address signal 5 / Trace PhyAddr Sig5		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0000 bin	Max: 1111 1111 1111 1111 1111 1111 1111 1111 bin	Default: 0000 bin
Description:	Sets the physical address for the sixth signal to be traced. The data type is defined using p4735.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4786[0...1]	Trace physical address signal 6 / Trace PhyAddr Sig6		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0000 bin	Max: 1111 1111 1111 1111 1111 1111 1111 1111 bin	Default: 0000 bin
Description:	Sets the physical address for the seventh signal to be traced. The data type is defined using p4736.		

Index: [0] = Trace 0
[1] = Trace 1

p4787[0...1] **Trace physical address signal 7 / Trace PhyAddr Sig7**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0000 bin	Max: 1111 1111 1111 1111 1111 1111 1111 1111 bin	Default: 0000 bin

Description: Sets the physical address for the eighth signal to be traced.
The data type is defined using p4737.

Index: [0] = Trace 0
[1] = Trace 1

p4789[0...1] **Trace physical address trigger signal / Trace PhyAddr Trig**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex

Description: Sets the physical address for the trigger signal.
The data type is defined by making the appropriate selection in p4711.

Index: [0] = Trace 0
[1] = Trace 1

r4790[0...1] **Trace data type 5 traced / Trace rec type 5**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -	Max: -	Default: -

Description: Displays the recorded data type 5 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4791[0...1] **Trace data type 6 traced / Trace rec type 6**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -	Max: -	Default: -

Description: Displays the recorded data type 6 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4792[0...1] **Trace data type 7 traced / Trace rec type 7**

CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 - - -

Description: Displays the recorded data type 7 for the trace.

Index: [0] = Trace 0
 [1] = Trace 1

r4793[0...1] **Trace data type 8 traced / Trace rec type 8**

CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 - - -

Description: Displays the recorded data type 8 for the trace.

Index: [0] = Trace 0
 [1] = Trace 1

p4795 **Trace memory bank changeover / Trace mem changeov**

CU_I_828, **Changeable:** T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 0 500 0

Description: Changes over the memory bank to read out the contents of the trace buffer.

Dependency: See also: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753

r4797[0...1] **Trace 0 trigger instant / Trace 0 t_trigger**

CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** Trace and function generator **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 0
 Min: **Max:** **Default:**
 - - -

Description: Displays the instant in time for fulfilling the trigger condition for trace recorder 0.
 The time comprises milliseconds (index 0) and days (index 1).

Index: [0] = Milliseconds
 [1] = Days

Dependency: See also: r2114, r3102, r4719

<p>NOTICE</p> <p>The accuracy of the trigger instant depends on the accuracy of the underlying basis time. For clarification: The trigger instant is calculated with a μs accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur. When referred to r4719, the trigger instant can therefore deviate somewhat.</p>
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Note

If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114).

r4798[0...1]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Trace 1 trigger instant / Trace 1 t_trigger

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description:

Displays the instant in time for fulfilling the trigger condition for trace recorder 1.
The time comprises milliseconds (index 0) and days (index 1).

Index:

[0] = Milliseconds

[1] = Days

Dependency:

See also: r2114, r3102, r4719

<p>NOTICE</p> <p>The accuracy of the trigger instant depends on the accuracy of the underlying basis time. For clarification: The trigger instant is calculated with a μs accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur. When referred to r4719, the trigger instant can therefore deviate somewhat.</p>
--

Note

If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114).

r4799

CU_I_828,
CU_I_COMBI,
CU_NX_828

Trace memory location free / Trace mem free

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description:

Displays the free memory for the trace in bytes.

Dependency:

See also: r4708

p4800

CU_I_828,
CU_I_COMBI,
CU_NX_828

Function generator control / FG control

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
0	3	0

Description: The function generator is started with p4800 = 1.
The signal is only generated for a 1 signal of binector input p4819.

Value: 0: Stop function generator
1: Start function generator
2: Check function generator parameterization
3: Start function generator without enable signals

Dependency: See also: p4819

r4805 **Function generator status / FG status**

CU_I_828, CU_I_COMBI, CU_NX_828

Changeable: -	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min: 0	Max: 6	Default: -

Description: Displays the actual status of the function generator.

Value: 0: Inactive
1: Generate accelerating ramp to offset
2: Generate parameterized signal shape
3: Generate braking ramp
4: Function generator stopped due to missing enable signals
5: Function generator waits for BI: p4819
6: Function generator parameterization has been checked

Dependency: See also: p4800, p4819

r4806.0 **BO: Function generator status signal / FG status signal**

CU_I_828, CU_I_COMBI, CU_NX_828

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min: -	Max: -	Default: -

Description: Displays the status of the function generator.
0 signal: Function generator inactive
1 signal: Function generator running

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-

p4810 **Function generator mode / FG operating mode**

CU_I_828, CU_I_COMBI, CU_NX_828

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min: 0	Max: 99	Default: 0

Description: Sets the operating mode of the function generator.

Value: 0: Connection at connector output r4818
1: Connection at current setpoint after filter and r4818
2: Connection as disturbing torque and r4818

3:	Connection at speed setpoint after filter and r4818
4:	Connection at current setpoint before filter and r4818
5:	Connection at speed setpoint before filter and r4818
6:	Connection for free measurement function r4818 and r4834
99:	Connection at physical address and r4818

p4812	Function generator physical address / FG phys address		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0	Max: 4294967295	Default: 0
Description:	Sets the physical address where the function generator is to be connected.		
Dependency:	Only effective when p4810 = 99.		

p4813	Function generator physical address reference value / FG phys addr ref		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 1.00	Max: 1000000.00	Default: 1.00
Description:	Sets the reference value for 100 % for referred inputs.		
Dependency:	Only effective when p4810 = 99.		

p4815[0...2]	Function generator drive number / FG drive number		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0	Max: 65535	Default: 0
Description:	Selects the required drive where the function generator is to be connected.		
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection		
Dependency:	Only effective when p4810 = 1, 2, 3, 4 or 5.		

Note

For the function generator, only type SERVO, VECTOR or DC_CTRL type drives can be used.

p4816	Function generator output signal integer number scaling / FG outp integ scal		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147483648	Max: 2147483647	Default: 0
Description:	Sets the scaling for the integer number of the output signal for the function generator.		

Dependency: See also: r4805, r4817

Note

The parameter can only be changed in the following operating states:
r4805 = 0, 4, 6

r4817

CU_I_828,
CU_I_COMBI,
CU_NX_828

CO: Function generator output signal integer number / FG outp integ no.

Changeable: -	Calculation: -	Access level: 4
Data type: Integer32	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Display and connector output for the integer number of the output signal for the function generator.

Dependency: See also: p4816

Note

The value is output independent of the function generator operating mode.

r4818

CU_I_828,
CU_I_COMBI,
CU_NX_828

CO: Function generator output signal / FG outp_sig

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: PERCENT	Expert list: 0
Min:	Max:	Default:
- [%]	- [%]	- [%]

Description: Displays the output signal for the function generator.

Dependency: See also: p4810

Note

The value is displayed independently of the function generator mode.

p4819

CU_I_828,
CU_I_COMBI,
CU_NX_828

BI: Function generator control / FG control

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	1

Description: Sets the signal source to control the function generator.
When the function generator is running, signal generation is stopped with a 0 signal from BI: p4819 and p4800 is set to 0.

Dependency: See also: p4800

p4820

CU_I_828,
CU_I_COMBI,
CU_NX_828

Function generator signal shape / FG signal shape

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Trace and function generator	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
1	5	1

Description:	Sets the signal to be generated for the function generator.	
Value:	1:	Square-wave
	2:	Staircase
	3:	Delta
	4:	Binary noise - PRBS (Pseudo Random Binary Signal)
	5:	Sine-wave

p4821	Function generator period / FG period duration		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.00 [ms]	Max: 60000.00 [ms]	Default: 1000.00 [ms]
Description:	Sets the period of the signal to be generated for the function generator.		
Dependency:	Ineffective when p4820 = 4 (PRBS).		

p4822	Function generator pulse width / FG pulse width		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.00 [ms]	Max: 60000.00 [ms]	Default: 500.00 [ms]
Description:	Sets the pulse width for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 1 (square-wave).		

p4823	Function generator bandwidth / FG bandwidth		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.0025 [Hz]	Max: 16000.0000 [Hz]	Default: 4000.0000 [Hz]
Description:	Sets the bandwidth for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 4 (PRBS). See also: p4830 See also: A02041		

p4824	Function generator amplitude / FG amplitude		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -1600.00 [%]	Max: 1600.00 [%]	Default: 5.00 [%]
Description:	Sets the amplitude for the signal to be generated for the function generator.		

Dependency: Units are dependent on p4810.
 If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current).
 If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).

p4825 **Function generator 2nd amplitude / FG 2nd amplitude**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -1600.00 [%]	Max: 1600.00 [%]	Default: 7.00 [%]

Description: Sets the second amplitude for the signal to be generated for the function generator.

Dependency: Only effective for p4820 = 2 (staircase).
 Units are dependent on p4810.
 If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current).
 If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).

p4826 **Function generator offset / FG offset**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -1600.00 [%]	Max: 1600.00 [%]	Default: 0.00 [%]

Description: Sets the offset (DC component) of the signal to be generated for the function generator.

Dependency: Units are dependent on p4810.
 If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current).
 If p4810 = 3, 5: The offset is referred to p2000 (reference speed).
 If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint.

p4827 **Function generator ramp-up time to offset / FG ramp-up offset**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.00 [ms]	Max: 100000.00 [ms]	Default: 32.00 [ms]

Description: Sets the ramp-up time to the offset for the function generator.

p4828 **Function generator lower limit / FG lower limit**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -10000.00 [%]	Max: 0.00 [%]	Default: -100.00 [%]

Description: Sets the lower limit for the function generator.

Dependency: For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

p4829	Function generator upper limit / FG upper limit		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.00 [%]	Max: 10000.00 [%]	Default: 100.00 [%]
Description:	Sets the upper limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		

p4830	Function generator time slice cycle / FG time slice		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.03125 [ms]	Max: 2.00000 [ms]	Default: 0.12500 [ms]
Description:	Sets the time slice cycle in which the function generator is called.		

p4831	Function generator amplitude scaling / FG amplitude scal		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0.00000 [%]	Max: 200.00000 [%]	Default: 100.00000 [%]
Description:	Sets the scaling for the amplitude of the signal waveforms for all output channels. The value can be changed while the function generator is running.		

p4832[0...2]	Function generator amplitude scaling / FG amplitude scal		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -340.28235E36 [%]	Max: 340.28235E36 [%]	Default: 100.00000 [%]
Description:	Sets the scaling for the amplitude of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running.		
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection		

p4833[0...2]	Function generator offset scaling / FG offset scal		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -340.28235E36 [%]	Max: 340.28235E36 [%]	Default: 100.00000 [%]

Description: Sets the scaling for the offset of the signal waveforms separately for each output channel.
The value cannot be changed while the function generator is running.

Index: [0] = First drive for connection
[1] = Second drive for connection
[2] = Third drive for connection

r4834[0...4] CO: Function generator free measurement output signal / FG fr MeasFct outp

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 0
	Min: - [%]	Max: - [%]	Default: - [%]

Description: Displays the output signal for the free measurement function.

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

Dependency: See also: p4810

Note

The signals are only output in the "free measurement function" operating mode (p4810 = 6)

p4835[0...4] Function generator free measurement function scaling / FG fr MeasFct scal

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Trace and function generator	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: -200.00000 [%]	Max: 200.00000 [%]	Default: 100.00000 [%]

Description: Sets the scaling of the output signals for the free measurement function.

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

Note

The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3).

r4950 OA DO-specific number / OA DO qty

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: OEM range	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 16	Default: -

Description: Displays the number of OA applications installed on this drive object.

Dependency: See also: r4951, r4952, r4955, p4956, r4957, r4958, r4959, r4960

Note

DO: Drive Object
 OA: Open Architecture (OA application)

r4951	OA DO-specific identifier total length / OA DO id tot_lgth		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned16 P group: OEM range Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 144	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the total length of the identifiers of the OA applications installed on this drive object.		
Dependency:	See also: r4950, r4952, r4955, p4956, r4957, r4958, r4959, r4960		

Note

The identifier of an OA application comprises a maximum of 8 characters plus separator.

r4952	OA DO-specific GUID total length / OA DO GUID length		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned16 P group: OEM range Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 288	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the total length of the GUIDs of the OA applications installed on this drive object.		
Dependency:	See also: r4950, r4951, r4955, p4956, r4957, r4958, r4959, r4960		

Note

The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information.

GUID: Globally Unique Identifier

r4955[0...n]	OA DO-specific identifier / OA DO ident		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned8 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: r4951 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the identifier of the OA applications installed on this drive object. r4955[0..8]: Identifier of OA application 1 r4955[9...17]: Identifier of OA applications 2, ...		
Dependency:	See also: r4950, r4951, r4952, p4956, r4957, r4958, r4959, r4960		

NOTICE

If there is no OA application, then it is not possible to access an index.

p4956[0...n]	OA DO-specific activation / OA DO act		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: C1, T Data type: Integer16 P group: OEM range Not for motor type: - Min: 0	Calculation: - Dynamic index: r4950 Unit group: - Scaling: - Max: 1	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Setting to activate the OA applications installed on this drive object.
r4956[0]: Activates OA application 1
r4956[1]: Activates OA application 2, ...

Value:
0: OA application inactive
1: OA application active

Dependency: See also: r4950, r4951, r4952, r4955, r4957, r4958, r4959, r4960

NOTICE
If there is no OA application, then it is not possible to access an index.

r4957[0...n]	OA DO-specific version / OA DO version		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned32 P group: OEM range Not for motor type: - Min: 0	Calculation: - Dynamic index: r4950 Unit group: - Scaling: - Max: 4294967295	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -

Description: Displays the version of the OA applications installed on this drive object.
r4957[0]: Version of OA application 1
r4957[1]: Version of OA application 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4958, r4959, r4960

NOTICE
If there is no OA application, then it is not possible to access an index.

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

r4958[0...n]	OA DO-specific interface version / OA DO interf_ers		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned32 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: r4950 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -

Description: Displays the interface version of OA applications installed on this drive object.
r4958[0]: Interface version of OA application 1
r4958[1]: Interface version of OA applications 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4957, r4959, r4960

NOTICE
If there is no OA application, then it is not possible to access an index.

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r4959[0...n]	OA DO-specific GUID / OA DO GUID		
All objects	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: r4952	Function plan: -
	P group: OEM range	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the GUIDs of the OA applications installed on this drive object.

r4959[0...15]: GUID of OA application 1
r4959[16]: Major information of OA application 1
r4959[17]: Minor information of OA application 1
r4959[18...33]: GUID of OA application 2
r4959[34]: Major information of OA application 2
r4959[35]: Minor information of OA application 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4960

NOTICE
If there is no OA application, then it is not possible to access an index.

r4960[0...n]	OA DO-specific GUID drive object / OA DO GUID DO		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned8	Dynamic index: r4952	Function plan: -
	P group: OEM range	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the GUIDs of this drive object of the OA applications installed on the memory card/device memory.

r4960[0...15]: GUID of this drive object of OA application 1
r4960[16]: Major information of this drive object of OA application 1
r4960[17]: Minor information of this drive object of OA application 1
r4960[18...33]: GUID of this drive object of OA application 2
r4960[34]: Major information of this drive object of OA application 2
r4960[35]: Minor information of this drive object of OA application 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4959

NOTICE
If there is no OA application, then it is not possible to access an index.

p4961[0...n]	OA DO-specific logbook module selection / OA DO log module		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HUB, S_INF_828, S_INF_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T Data type: Unsigned32 P group: OEM range Not for motor type: - Min: 0000 hex	Calculation: - Dynamic index: r4950 Unit group: - Scaling: - Max: FFFF FFFF hex	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0000 hex
Description:	Only for service purposes.		

r4975	OA invalid number / OA inv no.		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned16 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the number of invalid OA applications installed on the memory card/device memory.		
Dependency:	See also: r4976, r4978, r4979		
	Note OA: Open Architecture (OA application)		

r4976	OA invalid identifier total length / OA inv ID tot_lgth		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned16 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the total length of the IDs of all the invalid OA applications installed on the memory card/device memory.		
Dependency:	See also: r4975, r4978, r4979		
	Note The identifier of an invalid OA application comprises a maximum of 8 characters plus separator.		

r4978[0...n]	OA invalid identifier / OA inv ID		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned8 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: r4976 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the IDs of all the invalid OA applications installed on the memory card/device memory. r4978[0...8]: Identifier of invalid OA application 1 r4978[9...17]: Identifier of invalid OA application 2, ...		
Dependency:	See also: r4975, r4976, r4979		

NOTICE
If there is no invalid OA application, then it is not possible to access an index.

r4979[0...n]	OA invalid error code / OA inv error code		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: r4975	Function plan: -
	P group: OEM range	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the error code of the invalid OA applications installed on the memory card/device memory.
r4979[0]: Fault value of OA application 1
r4979[1]: Fault value of OA application 2, ...

Dependency: See also: r4975, r4976, r4978

NOTICE

If there is no invalid OA application, then it is not possible to access an index.

Note

The value in the error code must be interpreted in binary form. The bits have the following meaning:

Bit 0: Incompatible OA interface version.

Bit 1: OA application could not be loaded.

Bit 2: Incorrect description files.

Bit 3: OA application does not define a CPU type.

Bit 4: OA application for this device not supported (incorrect CPU type).

Bit 5: OA application for this device not supported (incorrect type ID).

Bit 6: Incorrect description files (Const/Startup incompatible).

r4985	OA number / OA no		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: OEM range	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	16	-

Description: Displays the number of OA applications installed on the memory card/device memory.

Dependency: See also: r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994

Note

OA: Open Architecture (OA application)

r4986	OA identifier total length / OA id tot_length		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: OEM range	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	144	-

Description: Displays the total length of the IDs of all the OA applications installed on the memory card/device memory.

Dependency: See also: r4985, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994

Note

The identifier of an OA application comprises a maximum of 8 characters plus separator.

r4987 **OA GUID total length / OA GUID tot_length**

CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 4
 CU_I_COMBI, **Data type:** Unsigned16 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** OEM range **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 288 -

Description: Displays the total length of the GUIDs of all the OA applications installed on the memory card/device memory.

Dependency: See also: r4985, r4986, r4988, r4989, r4990, r4991, r4992, r4993, r4994

Note
 The GUID of an OA application comprises 16 characters plus 1 character major information plus 1 character, minor information.
 GUID: Globally Unique Identifier

r4988[0...n] **OA identifier / OA ID**

CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 4
 CU_I_COMBI, **Data type:** Unsigned8 **Dynamic index:** r4986 **Function plan:** -
 CU_NX_828 **P group:** OEM range **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - -

Description: Displays the IDs of all the OA applications installed on the memory card/device memory.
 r4988[0...8]: Identifier of OA application 1
 r4988[9...17]: Identifier of OA applications 2, ...

Dependency: See also: r4985, r4986, r4987, r4989, r4990, r4991, r4992, r4993, r4994

NOTICE
 If there is no OA application, then it is not possible to access an index.

r4989[0...n] **OA version / OA version**

CU_I_828, **Changeable:** - **Calculation:** - **Access level:** 4
 CU_I_COMBI, **Data type:** Unsigned32 **Dynamic index:** r4985 **Function plan:** -
 CU_NX_828 **P group:** OEM range **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - -

Description: Displays the version of all the OA applications installed on the memory card/device memory.
 r4989[0]: Version of OA application 1
 r4989[1]: Version of OA application 2, ...

Dependency: See also: r4985, r4986, r4987, r4988, r4990, r4991, r4992, r4993, r4994

NOTICE
 If there is no OA application, then it is not possible to access an index.

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

r4990[0...n]	OA interface version / OA interf_vers		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned32 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: r4985 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the interface version of all the OA applications installed on the memory card/device memory. r4990[0]: Interface version of OA application 1 r4990[1]: Interface version of OA applications 2, ...		
Dependency:	See also: r4985, r4986, r4987, r4988, r4989, r4991, r4992, r4993, r4994		

NOTICE

If there is no OA application, then it is not possible to access an index.

Note

Example:

The value 1010100 should be interpreted as V01.01.01.00.

r4991[0...n]	OA GUID / OA GUID		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned8 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: r4987 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the GUID of all the OA applications installed on the memory card/device memory. r4991[0...15]: GUID of OA application 1 r4991[16]: Major information of OA application 1 r4991[17]: Minor information of OA application 1 r4991[18...33]: GUID of OA application 2 r4991[34]: Major information of OA application 2 r4991[35]: Minor information of OA application 2, ...		
Dependency:	See also: r4985, r4986, r4987, r4988, r4989, r4990, r4992, r4993, r4994		

NOTICE

If there is no OA application, then it is not possible to access an index.

r4992[0...n]	OA GUID ES / OA GUID ES		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned8 P group: OEM range Not for motor type: - Min: -	Calculation: - Dynamic index: r4987 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the GUID of all the OA applications installed on the memory card/device memory. r4992[0...15]: GUID of OA application 1 r4992[16]: Major information of OA application 1 r4992[17]: Minor information of OA application 1 r4992[18...33]: GUID of OA application 2 r4992[34]: Major information of OA application 2 r4992[35]: Minor information of OA application 2, ...		

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4993, r4994

NOTICE
If there is no OA application, then it is not possible to access an index.

r4993[0...n]

CU_I_828,
CU_I_COMBI,
CU_NX_828

OA activation status / OA act stat

Changeable: -	Calculation: -	Access level: 4
Data type: Integer16	Dynamic index: r4985	Function plan: -
P group: OEM range	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 1	Default: -

Description: Displays the activation status of the OA applications installed on the memory card/device memory.
r4993[0]: Activates OA application 1
r4993[1]: Activates OA application 2, ...

Value:
0: OA application inactive
1: OA application active

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4994

NOTICE
If there is no OA application, then it is not possible to access an index.

r4994[0...n]

CU_I_828,
CU_I_COMBI,
CU_NX_828

OA properties / OA property

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned32	Dynamic index: r4985	Function plan: -
P group: OEM range	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays the properties of all the OA applications installed on the memory card/device memory.
r4994[0]: Version of OA application 1
r4994[1]: Version of OA application 2, ...

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Properties diagnostics bit 0	Yes	No	-
	01	Properties diagnostics bit 1	Yes	No	-
	02	Properties diagnostics bit 2	Yes	No	-
	03	OEM	No	Yes	-
	04	Properties diagnostics bit 4	Yes	No	-
	05	Properties diagnostics bit 5	Yes	No	-

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993

NOTICE
If there is no OA application, then it is not possible to access an index.

Note
The parameter is only for internal Siemens diagnostics.

r5000		CO: Spindle properties/status / Prop/status			
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: - Data type: Unsigned16 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: -		
Description:	Displays the properties supported by the spindle hardware and status.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Spindle functionality available	Yes	No	-
	01	Sensor S1 available	Yes	No	-
	04	Sensor S4 available	Yes	No	-
	05	Sensor S5 available	Yes	No	-
	06	Sensor S6 available	Yes	No	-
	10	State machine enabled	Yes	No	-
	11	Parameter p5043 changed	State 2	State 1	-
	Note				
	This display value is contained in the manufacturer-specific telegram 139 (SP_CONFIG). For bit 11: After each change in p5043[0..6] the signal level of this bit is changed.				
r5001		CO: Spindle clamp state / Clamp state			
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: - Data type: Integer16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 11	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: -		
Description:	Display and connector output for the clamped state. Message A3x940 is output in states 2 and 11. The voltage threshold values for the states can be set using parameter p5041. The hysteresis is adapted using parameter p5040. The transition from state 4 to states 7, 8 or 10 can be influenced by the wait time p5042[0]. A transition is made into state 10 if the analog value in p5002 falls below the voltage threshold value in p5041[4]. However, if the analog value p5002 lies below the voltage threshold value in p5041[2] and the wait time in p5042[0] has expired, then a transition is made into state 7 or 8 - otherwise state 4 is kept.				
Value:	0: System being initialized 1: State being initialized 2: Released with message 3: Released without message 4: Clamping 5: Releasing 6: Releasing without tool 7: Clamped with tool (S4 inactive) 8: Clamped with tool (S4 active) 9: Clamping without tool 10: Clamped without tool 11: Clamped with message				
Dependency:	See also: r5002, r5003, p5040, p5041, p5042				

Note

This display value is contained in the manufacturer-specific telegram 139 (SP_ZSW).

r5002

CO: Spindle analog sensor S1 measured value / Ana_sensS1 MeasVal

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Changeable: -	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and connector output for the measured value from analog sensor S1 (1 increment = 1 mV).

Note

This display value is contained in the manufacturer-specific telegram 139 (SP_XIST_A).

r5003

CO: Spindle digital sensors status / Dig_sens status

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Display and connector output for the status of the digital sensors.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
04	Sensor S4 piston end position reached	Yes	No	-
05	Sensor S5 axis position OK	Yes	No	-
06	Sensor S6 reserved	-	-	-

Note

This display value is contained in the manufacturer-specific telegram 139 (SP_XIST_D).

r5005

Spindle file system status / File sys stat

SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the status for the file system on the non-volatile memory.
The individual result data and characteristic data are summarized in a corresponding file.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Result data clamping cycle thresholds available	Yes	No	-
02	Result data clamping cycle counter available	Yes	No	-
03	Result data operating hours counter available	Yes	No	-
04	Result data temperature diagnostics available	Yes	No	-
05	Result data real time clock synchronization available	Yes	No	-
06	Result data speed/torque matrix available	Yes	No	-
10	Result data collision detection available	Yes	No	-
11	Result data system detection available	Yes	No	-
16	Characteristic data spindle available	Yes	No	-

17	Characteristic data clamping cycle counter available	Yes	No	-
19	Characteristic data operating hours counter available	Yes	No	-
20	Characteristic data temperature diagnostics available	Yes	No	-
22	Characteristic data speed/torque matrix available	Yes	No	-
30	Characteristic data sensor description available	Yes	No	-
31	Characteristic data sensor calibration data available	Yes	No	-

Note

This parameter can only be used in conjunction with a Sensor Module Integrated 24 (SMI24).

p5007

SERVO_828,
SERVO_COMBI

Spindle file system selection / File sys select

Changeable: T

Data type: Unsigned32

P group: -

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description:

Sets the files to adapt the file system.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
01	Result data clamping cycle thresholds selected	Yes	No	-
02	Result data clamping cycle counter selected	Yes	No	-
03	Result data operating hours counter selected	Yes	No	-
04	Result data temperature diagnostics selected	Yes	No	-
05	Result data real time clock synchronization selected	Yes	No	-
06	Result data speed/torque matrix selected	Yes	No	-
10	Result data collision detection selected	Yes	No	-
11	Result data system detection selected	Yes	No	-
17	Characteristic data clamping cycle counter selected	Yes	No	-
19	Characteristic data operating hours counter selected	Yes	No	-
20	Characteristic data temperature diagnostics selected	Yes	No	-
22	Characteristic data speed/torque matrix selected	Yes	No	-

Note

This parameter can only be used in conjunction with a Sensor Module Integrated 24 (SMI24).

The action to adapt the selected files is selected in p5009.

For bit 01:

The action selected in p5009 only becomes immediately effective for this bit.

For bit 02 ... 22:

Only for internal Siemens use.

For this bit, after setting p5009, a hardware reset is required.

p5009

SERVO_828,
SERVO_COMBI

Adapt spindle file system / Adapt file sys

Changeable: T

Data type: Integer16

P group: -

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

53

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description: Setting to adapt the file system on the non-volatile memory.
 Example:
 The result data "clamping cycle thresholds" are available (r5005.1 = 1) and should be reset.
 --> set p5007.1 = 1: select result data "clamping cycle thresholds".
 --> set p5009 = 1: initiate "reset" function for the file selected in p5007.
 --> p5009 = 40: feedback signal during "operation running".
 --> p5009 = 20: feedback signal for a successfully completed operation.
 --> p5009 = 51 ... 53: fault values if the operation was not able to be successfully completed.
 --> carry out a POWER ON (power off/on).

Value:

0:	No function
1:	Reset
2:	Set invalid
3:	Reserved
5:	Set valid
20:	Operation successfully completed.
40:	Operation running
51:	Function not supported
52:	File access unsuccessful
53:	Operation unsuccessful

Note

This parameter can only be used in conjunction with a Sensor Module Integrated 24 (SMI24).
 Help for fault value = 51 ... 53:
 - repeat the operation.

r5012

SERVO_828
 (Spin_diag),
 SERVO_COMBI
 (Spin_diag)

Spindle Sensor Module properties / SM properties

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the Sensor Module Integrated 24 (SMI24) properties.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Display diagnostics stamp in UTC	Yes	No	-
	01	Clamping state counter extended	Yes	No	-
	02	Release times display available	Yes	No	-
	03	Release times available	Yes	No	-

p5016

SERVO_828,
 SERVO_COMBI

Enable spindle commissioning / Enable comm

Changeable: C2, T	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: All groups	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	1	0

Description: Setting to enable/inhibit spindle commissioning.
 Enabling spindle commissioning results in the spindle parameters being reset after commissioning has been initiated (e.g. via p0340 > 0 or p3900 > 0).
 Depending on the spindle configuration, the following parameters are reset:
 p0353, p0410, p0431, p0922, p1231, p1300, p1980, p1981, p1982

Value: 0: Spindle commissioning enabled
1: Spindle commissioning inhibited

Dependency: See also: p0340, p3900

Note

This parameter can only be used in conjunction with a Sensor Module Integrated 24 (SMI24).
The parameter is automatically set to a value of 1 after exiting commissioning (p0009 = 0).

p5019**Spindle password / Password**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Data type: Unsigned16

P group: -

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Sets the password for the spindle diagnostics write parameters.
Number range for spindle diagnostics:
5000 ... 5169

Note

This parameter can only be used in conjunction with a Sensor Module Integrated 24 (SMI24).

r5020**Spindle manufacturer / Manufacturer**

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Changeable: -

Data type: Integer16

P group: -

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

48

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the spindle manufacturer.

Value:

0: Unknown
1: Siemens AG Automation and Drives
32: Reserved
33: Reserved
48: WEISS Spindeltechnologie GmbH

r5021[0...18]**Spindle order number / Order No.**

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Changeable: -

Data type: Unsigned8

P group: -

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the order number (MLFB) or the spindle drawing number.

NOTICE

An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r5022[0...15]

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Spindle serial number / Serial No.

Changeable: -
Data type: Unsigned8
P group: -
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays the spindle serial number.

NOTICE

An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r5023

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Spindle production date / Prod_date

Changeable: -
Data type: Unsigned32
P group: -
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays the production date of the spindle.

Note

Format: yyyyymmdd

r5032

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Maximum spindle speed / n_max

Changeable: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [rpm]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
- [rpm]

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
- [rpm]

Description: Displays the maximum spindle speed.

Note

The highest possible (maximum) speed is set using p1082 (p1082 <= r5032).

r5033

SERVO_828
(Spin_diag),
SERVO_COMBI
(Spin_diag)

Spindle angular commutation offset / Commut_ang_off

Changeable: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [°]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
- [°]

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
- [°]

Description: Displays the angular commutation offset for the spindle encoder.

Note

When exiting commissioning, the value is transferred into p0431.

r5034	Spindle current controller sampling time maximum / I_ctrl t_samp max		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [µs]	- [µs]	- [µs]
Description:	Displays the maximum recommended sampling time for the spindle current controller. This value must, as a minimum, be set using p0112 or p0115[0]. If p0115[0] is greater than r5034, then alarm A7140 is issued.		
Dependency:	See also: A07140		

p5040	Spindle voltage threshold values tolerance / U_thresh tol		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [mV]	1000.0 [mV]	0.0 [mV]
Description:	Sets the voltage tolerance for the voltage threshold values. The tolerance acts symmetrically around the individual voltage threshold values (p5041[0...5]).		
Dependency:	See also: r5001, r5002, p5041		

p5041[0...5]	Spindle voltage threshold values / U_thresh		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [mV]	340.28235E36 [mV]	0.0 [mV]
Description:	Sets the voltage threshold values for the spindle.		
Index:	[0] = Released (upper limit) [1] = Released (lower limit) [2] = Clamped with tool (upper limit) [3] = Clamped with tool (lower limit) [4] = Clamped without tool (upper limit) [5] = Clamped without tool (lower limit)		
Dependency:	See also: r5001, r5002, p5040		

Note

Only values can be entered, which do not overlap, taking into consideration the set tolerance (p5040).

p5042[0...1]	Spindle transition times / t_transition		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [µs]	340.28235E36 [µs]	0.0 [µs]

Description: Sets the transition times for the clamping state machine of the spindle.
 For index 0:
 Sets the maximum time for staying in the state r5001 = 4, before a transition is made to state r5001 = 10 or 7/8.
 A higher value can force a direct transition from state r5001 = 4 to 10 without passing through the states r5001 = 7/8 and 9.
 For index 1:
 Sets the maximum time for clamping without tool (see clamping operations inside and outside the tolerance in p5045).

Index: [0] = Stabilization time for "clamped with tool"
 [1] = Maximum time to clamp

Dependency: See also: r5001, r5002

Note
 The input is limited to a maximum value of 20 seconds.

p5043[0...6]

Spindle speed limits / n_limits

SERVO_828
 (Spin_diag),
 SERVO_COMBI
 (Spin_diag)

Changeable: T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
 0.0 [rpm]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 65535.0 [rpm]

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
 0.0 [rpm]

Description: Sets the speed limits for the clamping state machine of the spindle.
 For index 0:
 Valid for state r5001 = 3.
 For index 1:
 Valid for state r5001 = 4.
 For index 2:
 Valid for state r5001 = 5.
 For index 3:
 Valid for state r5001 = 6.
 For index 4:
 Valid for state r5001 = 7/8.
 For index 5:
 Valid for state r5001 = 9.
 For index 6:
 Valid for state r5001 = 10.

Index: [0] = Released
 [1] = Clamping
 [2] = Releasing from the state "clamped with tool"
 [3] = Releasing from the state "clamped without tool"
 [4] = Clamped with tool
 [5] = Clamping without tool
 [6] = Clamped without tool

Dependency: See also: r5001

Note
 For state r5001 = 0, 1, 2 or 11, the fixed speed limit 0 applies.

r5044	Maximum permissible spindle speed limit / Spin n_lim MaxPerm		
SERVO_828 (Spin_diag), SERVO_COMBI (Spin_diag)	Changeable: -	Calculation: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	Displays the maximum permissible speed limit.		
Dependency:	See also: r5001, p5043		
	Note		
	Currently, the speed limit is only displayed for the state "clamped without tool". The speed limit set in p5043[6] is effective. Value = 65535: speed limit not active.		
r5170[0...5]	HF phase current actual values / HF I_ph act val		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Displays the measured phase currents as peak value.		
Index:	[0] = Phase U motor current [1] = Phase V motor current [2] = Phase W motor current [3] = Phase U capacitor current [4] = Phase V capacitor current [5] = Phase W capacitor current		
Dependency:	See also: r0069		
	Note		
	HF: High Frequency Drive For index 0 ... 2: The 3 motor phase currents are displayed. For index 3 ... 5: The currents in the filter capacitors of the 3 phases are displayed.		
r5171	CO: HF damping voltage actual value / HF U_damp act val		
SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual value of the damping voltage.		
Dependency:	See also: F37002		
	Note		
	HF: High Frequency Drive		

r5172[0...3]
SERVO_828

CO: HF temperatures / HF temp

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
Not for motor type: -	Scaling: p2006	Expert list: 1
Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the temperatures in the HF Choke Module and HF Damping Module.

Index:
 [0] = HF Choke Module heat sink
 [1] = HF Damping Module heat sink
 [2] = HF Damping Module assembly
 [3] = HF Damping Module depletion layer

Note
 The value of -200 indicates that there is no measuring signal.
 HF Choke Module (reactor module)
 HF Damping Module
 HF: High Frequency Drive

r5173
SERVO_828

CO: HF Damping Module I2t overload / HF DM overl I2t

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: PERCENT	Expert list: 1
Min: - [%]	Max: - [%]	Default: - [%]

Description: Displays the overload of the filter capacitors of the HF Damping Module determined using an I2t calculation.

Note
 HF Damping Module

p5174
SERVO_828

HF control word / HF control word

Changeable: T	Calculation: CALC_MOD_REG	Access level: 4
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Displays, signals	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0000 bin

Description: Setting the HF control word.

Bit	Signal name	1 signal	0 signal	FP
00	Supplementary capacitor active	Yes	No	-
01	Activate damping	Continuously	For pulse enable	-

Note
 For bit 00:
 This bit can be used to compensate the filter resonance frequency shift for low motor inductances.
 For bit 01:
 Is used for diagnostic purposes.

r5175[0...1]	HF diagnostics / HF diag		
SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the status and control word for the HF Damping Module.		
Index:	[0] = HF Damping Module status word [1] = HF Damping Module control word		
	Note HF Damping Module		

p5200[0...n]	Current setpoint filter 5 ... 10 activation / I_setp_filt act				
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 5711		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 0000 bin		
Description:	Setting for activating/de-activating the current setpoint filter.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Filter 5	Active	Inactive	-
	01	Filter 6	Active	Inactive	-
	02	Filter 7	Active	Inactive	-
	03	Filter 8	Active	Inactive	-
	04	Filter 9	Active	Inactive	-
	05	Filter 10	Active	Inactive	-
Dependency:	The individual current setpoint filters are parameterized from p5201 and higher.				
	Note If not all of the filters are required, then the filters should be used consecutively starting from filter 1.				

p5200	Signal filter activation / I_act_filt act				
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Setting for activating/de-activating the signal filter.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Filter 5	Active	Inactive	-
	02	Filter 7	Active	Inactive	-
Dependency:	The signal filters are parameterized from p5201 and higher.				

p5201[0...n]	Current setpoint filter 5 type / I_set_filt 5 type		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 1	Max: 2	Default: 1
Description:	Sets the current setpoint filter 5 as low pass (PT2) or general 2nd-order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	Current setpoint filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.		

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5201	Output voltage setpoint filter 5 type / U_set_filt 5 type		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 2	Default: 2
Description:	Sets the output voltage setpoint filter 5 as low pass (PT2) or as extended general 2nd order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	Filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.		

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5202[0...n]	Current setpoint filter 5 denominator natural frequency / I_set_filt 5 fn_d		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 5 (PT2, general filter).		
Dependency:	Current setpoint filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.		

p5202 Output voltage setpoint filter 5 denominator natural frequency / U_set_filt 5 fn_d

A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1000.0 [Hz]

Description: Sets the denominator natural frequency for output voltage setpoint filter 5 (PT2, general filter).

Dependency: Filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5203[0...n] Current setpoint filter 5 denominator damping / I_set_filt 5 D_d

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for current setpoint filter 5 (PT2, general filter).

Dependency: Current setpoint filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5203 Output voltage setpoint filter 5 denominator damping / U_set_filt 5 D_d

A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for output voltage setpoint filter 5.

Dependency: Filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5204[0...n] Current setpoint filter 5 numerator natural frequency / I_set_filt 5 fn_n

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 5 (general filter).

Dependency: Current setpoint filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5204 Output voltage setpoint filter 5 numerator natural frequency / U_set_filt 5 fn_n

A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1000.0 [Hz]

Description: Sets the numerator natural frequency for output voltage setpoint filter 5 (general filter).

Dependency: Filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5205[0...n] **Current setpoint filter 5 numerator damping / I_set_filt 5 D_n**

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
---	---	---	---

Description: Sets the numerator damping for current setpoint filter 5 (general filter).

Dependency: Current setpoint filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5205 **Output voltage setpoint filter 5 numerator damping / U_set_filt 5 D_n**

A_INF_828 (Suppl ctrl)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: 0.000	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0.010
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Description: Sets the numerator damping for output voltage setpoint filter 5.

Dependency: Filter 5 is activated via p5200.0 and parameterized via p5202 ... p5205.

p5206[0...n] **Current setpoint filter 6 type / I_set_filt 6 type**

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: Integer16 P group: Closed-loop control Not for motor type: REL Min: 1	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1
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Description: Sets the current setpoint filter 6 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: Current setpoint filter 6 is activated via p5200.1 and parameterized via p5207 ... p5210.

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5207[0...n] **Current setpoint filter 6 denominator natural frequency / I_set_filt 6 fn_d**

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
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Description: Sets the denominator natural frequency for current setpoint filter 6 (PT2, general filter).

Dependency: Current setpoint filter 6 is activated via p5200.1 and parameterized via p5207 ... p5210.

p5208[0...n]	Current setpoint filter 6 denominator damping / I_set_filt 6 D_d		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.001	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the denominator damping for current setpoint filter 6 (PT2, general filter).		
Dependency:	Current setpoint filter 6 is activated via p5200.1 and parameterized via p5207 ... p5210.		

p5209[0...n]	Current setpoint filter 6 numerator natural frequency / I_set_filt 6 fn_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 6 (general filter).		
Dependency:	Current setpoint filter 6 is activated via p5200.1 and parameterized via p5207 ... p5210.		

p5210[0...n]	Current setpoint filter 6 numerator damping / I_set_filt 6 D_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the numerator damping for current setpoint filter 6 (general filter).		
Dependency:	Current setpoint filter 6 is activated via p5200.1 and parameterized via p5207 ... p5210.		

p5211[0...n]	Current setpoint filter 7 type / I_set_filt 7 type		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: Integer16 P group: Closed-loop control Not for motor type: REL Min: 1	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the current setpoint filter 7 as low pass (PT2) or general 2nd-order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	Current setpoint filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.		

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5211 Current actual value filter 7 type / I_act_filt 7 type

A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2	2

Description: Sets the current actual value filter 7 as low pass (PT2) or as extended general 2nd-order filter.

Value:
 1: PT2 low pass
 2: General 2nd order filter

Dependency: The current actual value filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5212[0...n] Current setpoint filter 7 denominator natural frequency / I_set_filt 7 fn_d

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.5 [Hz]	16000.0 [Hz]	1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 7 (PT2, general filter).

Dependency: Current setpoint filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.

p5212 Current actual value filter 7 denominator natural frequency / I_act_filt 7 fn_d

A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.5 [Hz]	16000.0 [Hz]	1000.0 [Hz]

Description: Sets the denominator natural frequency for current actual value filter 7 (PT2, general filter).

Dependency: The current actual value filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.

p5213[0...n] Current setpoint filter 7 denominator damping / I_set_filt 7 D_d

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.001	10.000	0.700

Description: Sets the denominator damping for current setpoint filter 7 (PT2, general filter).

Dependency: Current setpoint filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.

p5213	Current actual value filter 7 denominator damping / I_act_filt 7 D_d		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700
Description:	Sets the denominator damping for current actual value filter 7.		
Dependency:	The current actual value filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.		

p5214[0...n]	Current setpoint filter 7 numerator natural frequency / I_set_filt 7 fn_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 7 (general filter).		
Dependency:	Current setpoint filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.		

p5214	Current actual value filter 7 numerator natural frequency / I_act_filt 7 fn_n		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1000.0 [Hz]
Description:	Sets the numerator natural frequency for current actual value filter 7 (general filter).		
Dependency:	The current actual value filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.		

p5215[0...n]	Current setpoint filter 7 numerator damping / I_set_filt 7 D_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.700
Description:	Sets the numerator damping for current setpoint filter 7 (general filter).		
Dependency:	Current setpoint filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.		

p5215	Current actual value filter 7 numerator damping / I_act_filt 7 D_n		
A_INF_828 (Suppl ctrl)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000	Max: 10.000	Default: 0.010
Description:	Sets the numerator damping for current actual value filter 7.		

Dependency: The current actual value filter 7 is activated via p5200.2 and parameterized via p5212 ... p5215.

p5216[0...n] Current setpoint filter 8 type / I_set_filt 8 type

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 1	Max: 2	Default: 1

Description: Sets the current setpoint filter 8 as low pass (PT2) or general 2nd-order filter.

Value:
1: PT2 low pass
2: General 2nd order filter

Dependency: Current setpoint filter 8 is activated via p5200.3 and parameterized via p5217 ... p5220.

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5217[0...n] Current setpoint filter 8 denominator natural frequency / I_set_filt 8 fn_d

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the denominator natural frequency for current setpoint filter 8 (PT2, general filter).

Dependency: Current setpoint filter 8 is activated via p5200.3 and parameterized via p5217 ... p5220.

p5218[0...n] Current setpoint filter 8 denominator damping / I_set_filt 8 D_d

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.001	Max: 10.000	Default: 0.700

Description: Sets the denominator damping for current setpoint filter 8 (PT2, general filter).

Dependency: Current setpoint filter 8 is activated via p5200.3 and parameterized via p5217 ... p5220.

p5219[0...n] Current setpoint filter 8 numerator natural frequency / I_set_filt 8 fn_n

SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5711
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.5 [Hz]	Max: 16000.0 [Hz]	Default: 1999.0 [Hz]

Description: Sets the numerator natural frequency for current setpoint filter 8 (general filter).

Dependency: Current setpoint filter 8 is activated via p5200.3 and parameterized via p5217 ... p5220.

p5220[0...n]	Current setpoint filter 8 numerator damping / I_set_filt 8 D_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the numerator damping for current setpoint filter 8 (general filter).		
Dependency:	Current setpoint filter 8 is activated via p5200.3 and parameterized via p5217 ... p5220.		

p5221[0...n]	Current setpoint filter 9 type / I_set_filt 9 type		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: Integer16 P group: Closed-loop control Not for motor type: REL Min: 1	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the current setpoint filter 9 as low pass (PT2) or general 2nd-order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	Current setpoint filter 9 is activated via p5200.4 and parameterized via p5222 ... p5225.		

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$$

p5222[0...n]	Current setpoint filter 9 denominator natural frequency / I_set_filt 9 fn_d		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 9 (PT2, general filter).		
Dependency:	Current setpoint filter 9 is activated via p5200.4 and parameterized via p5222 ... p5225.		

p5223[0...n]	Current setpoint filter 9 denominator damping / I_set_filt 9 D_d		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.001	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the denominator damping for current setpoint filter 9 (PT2, general filter).		
Dependency:	Current setpoint filter 9 is activated via p5200.4 and parameterized via p5222 ... p5225.		

p5224[0...n]	Current setpoint filter 9 numerator natural frequency / I_set_filt 9 fn_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 9 (general filter).		
Dependency:	Current setpoint filter 9 is activated via p5200.4 and parameterized via p5222 ... p5225.		

p5225[0...n]	Current setpoint filter 9 numerator damping / I_set_filt 9 D_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the numerator damping for current setpoint filter 9 (general filter).		
Dependency:	Current setpoint filter 9 is activated via p5200.4 and parameterized via p5222 ... p5225.		

p5226[0...n]	Current setpoint filter 10 type / I_set_filt 10 type		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: Integer16 P group: Closed-loop control Not for motor type: REL Min: 1	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1
Description:	Sets the current setpoint filter 10 as low pass (PT2) or general 2nd-order filter.		
Value:	1: PT2 low pass 2: General 2nd order filter		
Dependency:	Current setpoint filter 10 is activated via p5200.5 and parameterized via p5227 ... p5230.		

Note

For a general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed.

The denominator damping can be determined from the equation for the 3 dB bandwidth:

$$f_{3dB \text{ bandwidth}} = 2 * D_{denominator} * f_{bandstop \text{ frequency}}$$

p5227[0...n]	Current setpoint filter 10 denominator natural frequency / I_set_filt 1 fn_d		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 10 (PT2, general filter).		
Dependency:	Current setpoint filter 10 is activated via p5200.5 and parameterized via p5227 ... p5230.		

p5228[0...n]	Current setpoint filter 10 denominator damping / I_set_filt 10 D_d		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.001	Calculation: CALC_MOD_CON Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the denominator damping for current setpoint filter 10 (PT2, general filter).		
Dependency:	Current setpoint filter 10 is activated via p5200.5 and parameterized via p5227 ... p5230.		

p5229[0...n]	Current setpoint filter 10 numerator natural frequency / I_set_filt 10 fn		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.5 [Hz]	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 16000.0 [Hz]	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 10 (general filter).		
Dependency:	Current setpoint filter 10 is activated via p5200.5 and parameterized via p5227 ... p5230.		

p5230[0...n]	Current setpoint filter 10 numerator damping / I_set_filt 10 D_n		
SERVO_828 (Ext I_setp_filt), SERVO_COMBI (Ext I_setp_filt)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: REL Min: 0.000	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 10.000	Access level: 3 Function plan: 5711 Unit selection: - Expert list: 1 Default: 0.700
Description:	Sets the numerator damping for current setpoint filter 10 (general filter).		
Dependency:	Current setpoint filter 10 is activated via p5200.5 and parameterized via p5227 ... p5230.		

p5250[0...n]	Activate cogging torque compensation / Cog_M_comp act			
SERVO_828 (Cog_M_comp), SERVO_COMBI (Cog_M_comp)	Changeable: T, U Data type: Unsigned8 P group: Closed-loop control Not for motor type: - Min: -	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0000 bin	
Description:	Setting for activating/de-activating the cogging torque compensation.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activate compensation	Yes	No
Dependency:	See also: p5252, p5253, r5254, r5255, p5260			

NOTICE

After replacing the encoder and/or motor, the torque table for the cogging torque compensation must be learned again.

p5251 **Activate cogging torque compensation learning / Cog_M_comp_learn**
 SERVO_828 **Changeable:** T, U **Calculation:** - **Access level:** 3
 (Cog_M_comp), **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** -
 SERVO_COMBI **P group:** Closed-loop control **Unit group:** - **Unit selection:** -
 (Cog_M_comp) **Not for motor type:** - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - 0000 bin

Description: Setting for activating/de-activating learning for cogging torque compensation.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Reactivate slow learning	Yes	No	-
01	Activate slow learning as supplement	Yes	No	-
02	Remove average value	Yes	No	-

Dependency: See also: p5252, p5253, r5254, r5255, p5260

NOTICE
 After replacing the encoder and/or motor, the torque table for the cogging torque compensation must be learned again.

p5252 **Cogging torque compensation table length / Cog_M_comp length**
 SERVO_828 **Changeable:** T **Calculation:** - **Access level:** 3
 (Cog_M_comp), **Data type:** Unsigned8 **Dynamic index:** - **Function plan:** -
 SERVO_COMBI **P group:** Closed-loop control **Unit group:** - **Unit selection:** -
 (Cog_M_comp) **Not for motor type:** - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 6 12 10

Description: Sets the table length in bits for cogging torque compensation.
 10 corresponds to $2^{10} = 1024$ values.

Dependency: See also: p5250, p5253, r5254, r5255, p5260

p5253 **Cogging torque compensation periodicity factor / Cog_M_comp_period**
 SERVO_828 **Changeable:** T **Calculation:** - **Access level:** 3
 (Cog_M_comp), **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** -
 SERVO_COMBI **P group:** Closed-loop control **Unit group:** - **Unit selection:** -
 (Cog_M_comp) **Not for motor type:** - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0.00000 32768.00000 1.00000

Description: Sets the factor for the periodicity for the cogging torque compensation.
 For rotating motors, the reference value is one mechanical revolution, for linear motors, the pole pair width.

Dependency: See also: p5250, p5252, r5254, r5255, p5260

Note
 For values < 1, several table periods are passed through for each mechanical revolution or pole pair width, for values > 1 several revolutions or pole pair widths are required for one table period.
 The following must apply for endlessly rotating machines:
 p0408 and $p0408 * p5253 * 2^{p0418}$ must have a power of two less than 2^{24} .

r5254[0...3]	Cogging torque compensation diagnostics / Cog_M_comp diag		
SERVO_828 (Cog_M_comp), SERVO_COMBI (Cog_M_comp)	Changeable: - Data type: Integer16 P group: Closed-loop control Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays diagnostics data for the cogging torque compensation.		
Index:	[0] = Average values for slowly learning [1] = Actual table index [2] = Table index when starting learning [3] = Table index when ending learning		
Dependency:	See also: p5250, p5252, p5253, r5255, p5260		
	Note For index 0: Average values for slowly learning the cogging torque compensation. During learning, the average value is incremented by 1 for each table period passed. For index 1: Currently used table index. For index 2: Table index when starting slow learning. For index 3: Table index when ending slow learning. For Index 2, 3: If the actual index when learning is decremented, then the table index at start and end is interchanged.		
r5255[0...1]	CO: Cogging torque compensation input/output / Cog_M_comp I/O		
SERVO_828 (Cog_M_comp), SERVO_COMBI (Cog_M_comp)	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [Nm]	Calculation: - Dynamic index: - Unit group: 7_1 Scaling: p2003 Max: - [Nm]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [Nm]
Description:	Display and connector output for input and output of the cogging torque compensation.		
Index:	[0] = Input [1] = Output		
Dependency:	See also: p5250, p5252, p5253, r5254, p5260		
p5260[0...4095]	Cogging torque compensation torque table / Cog_M_comp M-tab		
SERVO_828 (Cog_M_comp), SERVO_COMBI (Cog_M_comp)	Changeable: T, U Data type: FloatingPoint32 P group: Closed-loop control Not for motor type: - Min: -1000000.000 [Nm]	Calculation: - Dynamic index: - Unit group: 7_1 Scaling: - Max: 1000000.000 [Nm]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: 0.000 [Nm]
Description:	Display or setting of the compensation values for the cogging torque compensation		
Dependency:	See also: p5250, p5252, p5253, r5254, r5255		
	Note The table length used is set using p5252.		

p5271[0...n] SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Online tuning configuration controller / Ot config ctrl		
	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: 5045
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 1100 bin

Description: Sets the configuration for the online tuning.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	PD controller for large load moments of inertia	Yes	No	-
	01	Reduce gain at low speeds	Yes	No	-
	02	Load adaptation Kp	Yes	No	-
	03	Speed precontrol	Yes	No	-
	04	Torque pre-control	Yes	No	-
	05	Setting maximum acceleration limiting	Yes	No	-
	06	Do not change Kp	Yes	No	-

Dependency: See also: p5272, p5273, r5274, p5275

Note

For bit 00:

For significant differences between the motor and load moment of inertia, or for low dynamic performance of the controller, then the P controller becomes a PD controller in the position control loop. As a consequence, the dynamic performance of the position controller is increased.

This function should only be set when the speed pre-control (bit 3 = 1) or the torque pre-control (bit 4 = 1) is active.

For bit 01:

At low speeds, the controller gain factors are automatically reduced in order to avoid noise and oscillation at standstill.

For bit 02:

The estimated load moment of inertia is taken into account for the speed controller gain (see p5273).

For bit 03:

Activates the speed pre-control for the basic positioner (EPOS).

For bit 04:

Activates the torque pre-control for the basic positioner (EPOS).

For bit 05:

The maximum setpoint acceleration for the basic positioner (EPOS) is determined based on the estimated moment of inertia. This is realized by activating the bit once.

The prerequisite is that the drive pulses are inhibited, and the moment of inertia was previously determined.

For bit 06:

The speed controller gain set in p1460 is not changed when calculating the controller data.

p5272[0...n] SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Online tuning dynamic factor / Ot dyn_factor		
	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	5.0 [%]	1000.0 [%]	100.0 [%]

Description: Sets the dynamic factor for the P gain of the speed controller for online tuning.

Dependency: See also: p5271, p5273, r5274, p5275

NOTICE

The speed control can become unstable for excessively high values.
--

Note

The stiffer the mechanical load coupling, the higher the dynamic factor can be set.

p5273[0...n]	Online tuning dynamic factor load / Ot dyn_factor load		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5045
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.0 [%]	Max: 100.0 [%]	Default: 30.0 [%]
Description:	Sets the dynamic factor for the P gain of the speed controller for online tuning. The value specifies which component of the estimated load moment of inertia is taken into account when adapting the speed controller.		
Dependency:	See also: p5271, p5272, r5274, p5275		

NOTICE

The speed control can become unstable for excessively high values.

r5274	CO: Online tuning dynamic estimated / Ot dyn estimate		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 5045
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: - [ms]	Max: - [ms]	Default: - [ms]
Description:	Display and connector output for the estimated dynamic response of the speed control loop as PT1 time constant for online tuning.		
Dependency:	See also: p5271, p5272, p5273, p5275		

p5275[0...n]	Online tuning dynamic time constant / Ot dyn T		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: 5045
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min: 0.0 [ms]	Max: 60.0 [ms]	Default: 7.5 [ms]
Description:	Sets the time constant for the pre-control symmetrization for online tuning. As a consequence, the drive is allocated a defined, dynamic response via its pre-control. For drives, which must interpolate with one another, the same value must be entered. Examples: 0 ms = travel without following error (Kv factor is infinity) 5 ms = settling behavior as for PT1 with 5 ms (Kv factor = 12 [1000/min])		
Dependency:	See also: p5271, p5272, p5273, r5274		

NOTICE

This time constant is only effective if p5302.7 is set = 1.
Otherwise, the pre-control symmetrization is adapted to the estimated dynamic response, therefore setting positioning without any overshoot.

p5280[0...n]	Current setpoint filter adaptation configuration / Filt adapt config		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-1	1	0
Description:	Sets the configuration for the adaptive current setpoint filter. The adaptation acts on the filter set using p5281.		
Value:	-1: Inactive and filter deactivated 0: Inactive 1: Active		
Dependency:	The prerequisite for the adaptation of the current setpoint filter is that the "Moment of inertia estimator" function module is activated (r0108.10). See also: p5281, p5282, p5283, p5284, r5285		

NOTICE
If, when activating adaptation (p5280 = 1), the filter assigned via p5281 is still not active, then it is automatically activated.

Note
If p5280 = -1:
The adaptation is deactivated and the assigned filter deactivated.
If p5280 = 0:
The adaptation is inactive. The actual setting of the filter parameters is kept in a volatile memory. To permanently save the values that have been determined, the parameters must be saved in a non-volatile memory (p0977 = 1).
If p5280 = 1:
The adaptation is active. When a mechanical resonant frequency is excited, the filter frequency is adapted. Adaptation is temporarily inactive while the function generator generates a noise signal (p4820 = 4).

p5281[0...n]	Current setpoint filter adaptation assignment / Filt adapt assign		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10	0
Description:	Sets the current setpoint filter that is to be adapted. Value = 0: No assignment Value = 1: Current setpoint filter 1 assigned (basic system) ... Value = 4: Current setpoint filter 4 assigned (basic system) Value = 5: Current setpoint filter 5 assigned (function module, r0108.21) ... Value = 10: Current setpoint filter 10 assigned (function module, r0108.21)		
Dependency:	See also: p5280, p5282, p5283, p5284, r5285 See also: F07419		

NOTICE
Fault F7419 is generated if this setting is changed when adaptation is active.

Note
If, when activating adaptation (p5280 = 1), the selected filter is still not active, then it is automatically activated.

p5282[0...n]	Current setpoint filter adaptation limit frequency lower / Filt adapt f lower		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 50 [Hz]	Max: 5000 [Hz]	Default: 250 [Hz]
Description:	Sets the lower limit frequency for the current setpoint filter adaptation. If the actual frequency of the adapted filter falls below the lower limit frequency, then the frequency of the adapted filter is set to the lower limit frequency. This limit is only effective when adaptation is active (p5280 = 1). If adaptation is not active, then this limit only becomes effective at the time of the next activation.		
Dependency:	See also: p5280, p5281, p5283, p5284, r5285		
	Note If a value is entered which exceeds the upper limit frequency (p5283), then the value is rejected.		
p5283[0...n]	Current setpoint filter adaptation limit frequency upper / Filt adapt f upper		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 200 [Hz]	Max: 10000 [Hz]	Default: 1500 [Hz]
Description:	Sets the upper limit frequency for the current setpoint filter adaptation. If the actual frequency of the adapted filter exceeds the upper limit frequency, then the frequency of the adapted filter is set to the upper limit frequency. This limit is only effective when adaptation is active (p5280 = 1). If adaptation is not active, then this limit only becomes effective at the time of the next activation. There is an internal maximum value for the upper limit frequency; this depends on the damping (attenuation) of the adapted filter and the current controller sampling time. If the parameterized value exceeds the internal maximum value, then the following applies: - this parameter is immediately limited to the internal maximum value if adaptation is active. - this parameter is limited to the internal maximum value the next time that adaptation is activated (p5280).		
Dependency:	See also: p5280, p5281, p5282, p5284, r5285		
	Note If a value is entered which falls below the lower limit frequency (p5282), then the value is rejected.		
p5284[0...n]	Current setpoint filter adaptation activation threshold / Filt adapt thresh		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0 [%]	Max: 10000 [%]	Default: 100 [%]
Description:	Sets the activation threshold for the current setpoint filter adaptation.		
Dependency:	See also: p5280, p5281, p5282, p5283, r5285		
	Note The value should be increased if, in operation, the filter frequency continuously changes significantly although the resonance frequency does not change. The value should be reduced if the filter frequency adaptation cannot be set so that mechanical resonance is suppressed.		

r5285[0...n] **Current setpoint filter adaptation actual frequency / Filt adapt act f**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** DDS, p0180 **Function plan:** -
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - [Hz] - [Hz] - [Hz]

Description: Displays the actual frequency of the adapted current setpoint filter.
Dependency: See also: p5280, p5281, p5282, p5283, p5284

p5292 **FFT tuning dynamic factor / FFT tun dyn_factor**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: T, U **Calculation:** - **Access level:** 2
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 25.0 [%] 150.0 [%] 60.0 [%]

Description: Sets the dynamic factor for the proportional gain of the speed controller for FFT tuning. (One Button Tuning)

NOTICE
 The speed control can become unstable for excessively high values.

r5293 **FFT tuning speed controller gain identified / FFT tun Kp ident**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** 17_1 **Unit selection:** p0505
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - [Nms/rad] - [Nms/rad] - [Nms/rad]

Description: Displays the proportional gain of the speed controller calculated from the FFT measurement for One Button Tuning.

r5294[0...3] **FFT tuning zero position identified / FFT tun zero ident**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** 2_1 **Unit selection:** p0505
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - [Hz] - [Hz] - [Hz]

Description: Displays the identified mechanical zero points.

r5295[0...3] **FFT tuning pole position identified / FFT tun pole ident**
 SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)
Changeable: - **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** -
P group: Closed-loop control **Unit group:** 2_1 **Unit selection:** p0505
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - [Hz] - [Hz] - [Hz]

Description: Displays the identified mechanical pole positions.

p5296	FFT tuning PRBS amplitude / FFT tun PRBS amp		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: REL Min: 5.0 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 300.0 [%]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 40.0 [%]
Description:	Sets the amplitude of the PRBS signal. The value refers to the rated motor torque (r333).		
p5297	FFT tuning PRBS offset / FFT tun PRBS offs		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: REL Min: 0.0 [rpm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 210000.0 [rpm]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0.0 [rpm]
Description:	Sets the speed offset of the motor. This is intended to prevent non-linear effects, such as backlash or stiction from influencing the measured values		
p5300[0...n]	Autotuning selection / Autotuning select		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T Data type: Integer16 P group: - Not for motor type: REL Min: -1	Calculation: - Dynamic index: DDS, p0180 Unit group: - Scaling: - Max: 2	Access level: 2 Function plan: 5045 Unit selection: - Expert list: 1 Default: 0
Description:	Sets activation/de-activation of the "auto tuning" function. To permanently save the values that have been set, the parameters must be saved in a non-volatile memory (p0977 = 1). The individual measuring steps can be configured in the following parameters: p5301 for "One Button Tuning" (p5300=1) - this function is being prepared p5302 for "Online Tuning" (p5300=2)		
Value:	-1: Reset (restore default values) 0: Inactive 1: One Button Tuning 2: Online Tuning		
Dependency:	The prerequisite for the "auto tuning" function is that the "Moment of inertia estimator" function module is activated (r0108.10). See also: p5301, p5302		
⚠ WARNING			
Only the motor measuring system is taken into account when optimizing the position controller. If an external measuring system is used for the position control, then this can result in an unstable controller setting.			
⚠ CAUTION			
For some drive trains, the "online tuning" function can result in unstable settings. (motor makes a whistling sound). This is especially the case for high load moments of inertia, which are coupled to the motor through a low-frequency connection/coupling. In this case, parameter p5272 or p5273 must be reduced.			

Note

If p5300 = -1:

Autotuning is deactivated, and p5300 is automatically set to 0. In addition, the default setting values for the speed and position controller are restored.

If p5300 = 0:

Online tuning is inactive. To permanently save the values determined for the speed and position controllers, the parameters must be saved in a non-volatile memory (p0977 = 1).

The results of the moment of inertia estimator can be reset using p5300 = 0. The moment of inertia and the tuning parameters must be redetermined after p5300>0.

If p5300 = 1:

One Button Tuning is active. The moment of inertia is determined once using a test signal. The controller parameters and current setpoint filters are additionally determined once using a noise signal as excitation source.

If p5300 = 2:

Online tuning is active. The moment of inertia is estimated. The controller parameters are recalculated if the moment of inertia noticeably changes.

p5301[0...n]

SERVO_828
(J_estimator),
SERVO_COMBI
(J_estimator)

One Button Tuning configuration / OBT config

Changeable: T, U

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: DDS, p0180

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: REL

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0000 0111 bin

Description:

Setting the functions for One Button Tuning (p5300 = 1).

As long as autotuning is still active (p5300 <> 0), it is not possible to change the configuration.

A test signal is required for some measuring steps. Parameters p5307 to p5309 must be observed for this purpose.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Setting Kp	Yes	No	-
01	Setting current setpoint filter	Yes	No	-
02	Moment of inertia estimator	Yes	No	-
07	Synchronized axes	Yes	No	-

Dependency:

See also: p5300, p5307, p5308, p5309

Note

For bit 00:

The speed controller gain is determined and set using a noise signal.

For bit 01:

Possibly required current setpoint filters are determined and set using a noise signal.

As a consequence, a higher dynamic performance can be achieved in the speed control loop.

For bit 02:

Using this bit, the moment of inertia is determined using a test signal. If this bit is not set, then the load moment of inertia must be manually parameterized in parameter p1498. The test signal must have been previously set using parameters p5308 and p5309.

For bit 07:


With this function, these axes are adapted to the dynamic response set in p5275. This is necessary for interpolating axes. The time in p5275 should be set according to the axis with the lowest dynamic response.

p5302[0...n]	Online tuning configuration / OT config		
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 1100 bin

Description: Setting the functions for online tuning (p5300 = 2).
As long as autotuning is still active (p5300 <> 0), it is not possible to change the configuration.
A noise signal is required for some measuring steps.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Setting Kp	Yes	No	-
	01	Setting current setpoint filter	Yes	No	-
	02	Moment of inertia estimator	Yes	No	-
	03	Moment of inertia estimator	Cyclic	Once	-
	06	Current setpoint filter adaptation	Yes	No	-
	07	Synchronized axes	Yes	No	-

Dependency: This parameter can only be changed if p5300=0 has been parameterized.
See also: p5300, p5307, p5308, p5309

 CAUTION
Please note the general conditions of the moment of inertia estimator, online tuning and adaptive resonance filter. See Function Manual FH1.

Note

Re bit 00: being prepared
The speed controller gain is determined and set using a noise signal.

Re bit 01: being prepared
Possibly required current setpoint filters are determined and set using a noise signal.
As a consequence, a higher dynamic performance can be achieved in the speed control loop.

For bit 02:
Using this bit, the moment of inertia is determined while traversing (moment of inertia estimator). If this bit is not set, then the load moment of inertia must be manually parameterized in parameter p1498.

For bit 03:
If "once" has been parameterized, then after successfully determining the moment of inertia p1498 the moment of inertia estimator is deactivated.
If "Cyclic" has been parameterized, then the moment of inertia is continually determined and the controller parameters adapted. After the moment of inertia has been successfully determined (r1407.26=1), we recommend that the parameter is saved. This means that after power on, the controller does not have to re-stabilize.

For bit 06:
The adaptation of a current setpoint filter can be set here. See p5280-p5285.
This adaptation may be necessary if a mechanical resonance frequency changes in operation. It can also be used to dampen a fixed resonance frequency. Once the control loop has stabilized, this bit should be deactivated and the determined parameters saved in a non-volatile fashion.

For bit 07:
With this function, these axes are adapted to the dynamic response set in p5275. This is necessary for interpolating axes. The time in p5275 should be set according to the axis with the lowest dynamic response.

p5307[0...n]	Test signal activation / Test sig act			
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0000 bin	
Description:	Activating the test signal. For bit 01: As setpoint speed, the rated motor speed is entered, alternating in the positive and negative directions. This signal can only be activated for p5308 > 0 and p5309 > 0. A motor encoder is required for activation.			
Bit field:	Bit	Signal name	1 signal	0 signal
	01	Square wave with rated speed	ON	OFF
Dependency:	See also: p5308, p5309			
	Note			
	A motor encoder is required for activation.			

p5308[0...n]	Test signal traversing range limiting / Test sig trav rng			
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0	30000	0	
Description:	When the test signal is activated (p5307.1) the traversing range is limited to +/- p5308 degrees. (360 degrees correspond to one motor revolution) The position before the pulse enable is used as zero point.			
Dependency:	See also: p5307			

p5309[0...n]	Test signal duration / Test sig dur			
SERVO_828 (J_estimator), SERVO_COMBI (J_estimator)	Changeable: T	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: DDS, p0180	Function plan: -	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0 [ms]	5000 [ms]	2000 [ms]	
Description:	Sets the test signal sequence duration (several acceleration operations).			
Dependency:	See also: p5307			

r5397	Mot_temp_mod 3 ambient temperature image p0613 / AmbTmp image p0613			
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 8017	
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505	
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	- [°C]	- [°C]	- [°C]	
Description:	Displays the ambient temperature for motor temperature model 3. This value is used to calculate the utilization display (p0034). The parameter value is an image of p0613.			

Dependency: See also: r0034

Note

Users cannot see and change parameter p0613 (only Siemens internal).

r5398[0...n]	Mot_temp_mod 3 alarm threshold image p5390 / A thr image p5390		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the alarm threshold for monitoring the motor temperature for motor temperature model 3. This value is used to calculate the utilization display (p0034). The parameter value is an image of p5390.

Dependency: See also: F07011, A07012, F07013, A07014

Note

Users cannot see and change parameter p5390 (only Siemens internal).

r5399[0...n]	Mot_temp_mod 3 fault threshold image p5391 / F thr image p5391		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Function plan: 8017
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: ASM, SESM, REL	Scaling: -	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Sets the fault threshold for monitoring the motor temperature for motor temperature model 3. Fault F07011 is output after the fault threshold is exceeded. The parameter value is an image of p5391.

Dependency: See also: F07011, A07012, F07013, A07014

Note

Users cannot see and change parameter p5391 (only Siemens internal).

p5406[0...1]	Cl: Line droop control frequency droop supplementary setpoint / L drp f_suppl_setp		
A_INF_828 (Line droop ctrl, Line transf)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 7982
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min: -	Max: -	Default: [0] 0 [1] 5582[0]

Description: Sets the signal source for the frequency droop supplementary setpoint (as a % of p0211).

Index: [0] = Supplementary setpoint is smoothed
[1] = Supplementary setpoint direct

NOTICE

For index 1: Setpoint steps without smoothing can result in significant equalization operations in the line supply and the overload of the inverter and the line components.

Note

For index 0:

The setpoint signals are smoothed using a PT1 filter (p5409).

For index 1:

If the signals for the unsmoothed setpoints are precisely reset to 0 (e.g. for p5483[3] = 1), then by internally adapting the smoothed setpoint state, an undesirable step-like frequency change is avoided. The signal for the smoothed setpoint should be adapted using a corresponding frequency change, if the frequency is to be kept constant.

p5406[0...1] CI: Line droop control frequency droop supplementary setpoint / L drp f_suppl_setp

A_INF_828 (Line droop ctrl)

Changeable: T, U

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: -

Function plan: 7982

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min:

Max:

Default:

-

-

[0] 0

[1] 0

Description:

Sets the signal source for the frequency droop supplementary setpoint (as a % of p0211).

Index:

[0] = Supplementary setpoint is smoothed

[1] = Supplementary setpoint direct

NOTICE

For index 1:

Setpoint steps without smoothing can result in significant equalization operations in the line supply and the overload of the inverter and the line components.

Note

For index 0:

The setpoint signals are smoothed using a PT1 filter (p5409).

For index 1:

If the signals for the unsmoothed setpoints are precisely reset to 0 (e.g. for p5483[3] = 1), then by internally adapting the smoothed setpoint state, an undesirable step-like frequency change is avoided. The signal for the smoothed setpoint should be adapted using a corresponding frequency change, if the frequency is to be kept constant.

p5416[0...1] CI: Line droop control voltage droop supplementary setpoint / L drp U_suppl_setp

A_INF_828 (Line droop ctrl, Line transf)

Changeable: T, U

Calculation: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: -

Function plan: 7982

P group: Closed-loop control

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: PERCENT

Expert list: 1

Min:

Max:

Default:

-

-

[0] 0

[1] 5582[1]

Description:

Sets the signal source for the voltage droop supplementary setpoint (as a % of p0210).

Index:

[0] = Supplementary setpoint is smoothed

[1] = Supplementary setpoint direct

NOTICE

For index 1:

Setpoint steps without smoothing can result in significant equalization operations in the line supply and the overload of the inverter and the line components.

Note

For index 0:

The setpoint signals are PT1-filtered with the time constant p5419.

For index 1:

If the signals for the unsmoothed setpoints are precisely reset to 0 (e.g. for p5483[3] = 1), then by internally adapting the smoothed setpoint state, an undesirable step-like voltage change is avoided. The signal for the smoothed setpoint should be adapted using a corresponding voltage change, if the output voltage is to be kept constant.

p5416[0...1] CI: Line droop control voltage droop supplementary setpoint / L drp U_suppl_setp

A_INF_828 (Line droop ctrl)

Changeable: T, U

Data type: Unsigned32 / FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: PERCENT

Max:

-

Access level: 3

Function plan: 7982

Unit selection: -

Expert list: 1

Default:

[0] 0

[1] 0

Description:

Sets the signal source for the voltage droop supplementary setpoint (as a % of p0210).

Index:

[0] = Supplementary setpoint is smoothed

[1] = Supplementary setpoint direct

NOTICE

For index 1:

Setpoint steps without smoothing can result in significant equalization operations in the line supply and the overload of the inverter and the line components.

Note

For index 0:

The setpoint signals are PT1-filtered with the time constant p5419.

For index 1:

If the signals for the unsmoothed setpoints are precisely reset to 0 (e.g. for p5483[3] = 1), then by internally adapting the smoothed setpoint state, an undesirable step-like voltage change is avoided. The signal for the smoothed setpoint should be adapted using a corresponding voltage change, if the output voltage is to be kept constant.

p5460[0...n] VSM2 input line supply voltage, voltage scaler / VSM2 inp U_scaler

A_INF_828 (Line transf)

Changeable: T

Data type: FloatingPoint32

P group: Closed-loop control

Not for motor type: -

Min:

0.00 [%]

Calculation: -

Dynamic index: p0150

Unit group: -

Scaling: PERCENT

Max:

100000.00 [%]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0.00 [%]

Description:

Sets a voltage scaler for Voltage Sensing Module 2 (VSM2).

Note

When the 690 V input is used (X522) without voltage scaler, 0 % should be entered.

When the 100 V input (X521) is used with voltage scaler to measure medium voltages, the dividing (scaling) factor multiplied by 100% should be entered.

Example:

1000 V line supply voltage, voltage scaling, 10:1

--> voltage at the VSM input is 100 V

--> p5460 = 10 * 100 % = 1000 %

r5461[0...n] CO: VSM2 input line supply voltage u1 - u2 / VSM2 inp u1-u2

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]

Description: Displays the voltage between phases L1 and L2.

Note

X521.1 or X522.1: Connection of L1
X521.2 or X522.2: Connection of L2

r5462[0...n] CO: VSM2 input line supply voltage u2 - u3 / VSM2 inp u2-u3

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]

Description: Displays the voltage between phases L2 and L3.

Note

X521.2 or X522.2: Connection of L2
X521.3 or X522.3: Connection of L3

r5464[0...n] CO: VSM2 temperature evaluation status / VSM2 temp status

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: p0150	Function plan: -
	P group: Terminals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of the temperature evaluation of Voltage Sensing Module 2 (VSM2).
This displays whether the temperature actual value has exceeded the fault/alarm threshold.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Alarm is present	Yes	No	-
	01	Fault is present	Yes	No	-

p5465[0...n] VSM2 temperature evaluation sensor type / VSM2 temp sens_typ

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	6	0

Description: Sets the temperature sensor for Voltage Sensing Module 2 (VSM2).
The temperature sensor is connected to terminals X520.5 and X520.6 on the VSM2.

Value:

0:	No sensor
1:	PTC
2:	KTY84

6: PT1000

r5466[0...n] CO: VSM2 temperature actual value / VSM2 Temp_ActVal

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value of a temperature sensor connected to Voltage Sensing Module 2 (VSM2).
Prerequisite:

- A KTY/PT1000 temperature sensor is connected, and p5465 is set = 2, 6.

Dependency: See also: p5465

Note

For sensor type PTC (p5465 = 1), the following applies:

- Below the nominal response temperature, r5466 = -50 °C.

- Above the nominal response temperature, r5466 = 199.9 °C.

p5467[0...n] VSM2 overtemperature alarm threshold / VSM2 temp A_thresh

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: -	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	-100.00 [°C]	301.00 [°C]	150.00 [°C]

Description: Sets the alarm threshold for the temperature sensor on Voltage Sensing Module 2 (VSM2).

Prerequisite:

- A KTY/PT1000 temperature sensor is connected, and p5465 is set = 2, 6.

Dependency: See also: p5465

See also: A34211

p5468[0...n] VSM2 overtemperature shutdown threshold / VSM2 temp F_thresh

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: -	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	-100.00 [°C]	301.00 [°C]	180.00 [°C]

Description: Sets the shutdown threshold for the temperature sensor of the VSM2 to monitor a temperature.

Prerequisite:

- A KTY/PT1000 temperature sensor is connected, and p5465 is set = 2, 6.

Dependency: See also: p5467

See also: F34207

p5469[0...n] VSM2 overtemperature hysteresis / VSM2 temp hyst

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: -	Unit group: 21_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: 1.00 [K]	Max: 50.00 [K]	Default: 3.00 [K]

Description: Sets the hysteresis for the warning threshold of the VSM2 to monitor a temperature.

Dependency: See also: p5467

p5470[0...n] VSM2 10 V input CT gain / VSM2 CT_gain

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: 0.000 [A]	Max: 1000.000 [A]	Default: 1.000 [A]

Description: Sets the CT gain of the CT connected at the 10 V input of Voltage Sensing Module 2 (VSM2). The parameter specifies the current magnitude in [A] referred to the input voltage at VSM2 in [V].

Example:
CT with 1 V per 200 A.
--> p5470 = 200

Note

The CT for phase 1 is connected at terminals X520.1 and X520.2 of VSM2.
The CT for phase 2 is connected at terminals X520.3 and X520.4 of VSM2.

r5471[0...n] CO: VSM2 10 V input CT 1 actual value / VSM2 CT1 I_act

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the current actual value from current transducer (CT) 1 at the 10 V input of Voltage Sensing Module 2 (VSM2).

Dependency: See also: p5470

Note

The CT for phase 1 is connected at terminals X520.1 and X520.2 of VSM2.

r5472[0...n] CO: VSM2 10 V input CT 2 actual value / VSM2 CT2 I_act

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the current actual value from current transducer (CT) 2 at the 10 V input of Voltage Sensing Module 2 (VSM2).

Dependency: See also: p5470

Note

The CT for phase 2 is connected at terminals X520.3 and X520.4 of VSM2.

r5473[0...n]	CO: VSM2 10 V input 1 actual value / VSM2 inp 1 U_act		
A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 1 of Voltage Sensing Modules 2 (VSM2).		
Dependency:	See also: p5470		

Note

10 V input 1: Terminals X520.1 and X520.2

r5474[0...n]	CO: VSM2 10 V input 2 actual value / VSM2 inp 2 U_act		
A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0150	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 2 of Voltage Sensing Modules 2 (VSM2).		
Dependency:	See also: p5470		

Note

10 V input 2: Terminals X520.3 and X520.4

p5480	Transformer magnetization mode / Transf mag mode		
A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 7990
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	102	0

Description: Sets the mode for the transformer magnetization.
 Using this function, a transformer is magnetized using a voltage that is in synchronism with the external line supply; this means that no inrush currents flow when this transformer is connected to the line supply.
 For a value = 11:
 Automatic determination of the magnetizing inductance.
 The magnetizing inductance determined in r5491 must be transferred to p5492 in order to take effect.
 Observe notes regarding r5491.
 For a value = 12:
 Automatic determination of the transformer phase shift and the gain correction.
 The transformer phase shift determined in r6440 must be transferred to p6420 in order to take effect.
 The gain correction determined in r6441 must be transferred to p6421 in order to take effect.
 For a value = 13:
 Determination of the total leakage inductance of the transformer during line data identification. p3410 = 1 is set automatically and the inductance is measured on the next power-up. Once the measurement has been taken the converter shuts down automatically and p3410 is set to 0.
 The total leakage inductance of the transformer determined in r5489 must be transferred to p5490 in order to take effect.
 For a value = 101:
 The infeed goes into line droop control, however the main switch/circuit breaker is not closed, and the transformer magnetization remains in the state r5482 = 4. The test mode requires that the "line droop control" function module is activated (r0108.12 = 1).
 For a value = 102:
 The same as test operation 1. However, synchronization with the line is not realized (VSM2 measured data r5460 and following is not used); instead, the output voltage is generated corresponding to the rated data p0210, p0211, p5486.

Value:

- 0: Deactivated
- 1: Normal operation
- 11: Identification transformer magnetizing inductance
- 12: Identification transformer phase shift/gain correction
- 13: Identification total transformer leakage inductance
- 101: Test operation 1 (without activation of circuit breaker)
- 102: Test oper. 2 (w/o activation of circuit breaker, without VSM2)

Dependency: See also: r5482, p5486, r5493, p5494, r5499, p5580

NOTICE

The feedback signal contact of the circuit breaker between the Active Interface Module and the island grid must be connected in parallel via binector input p0860.
 For an active black start (p5580 > 0), a separate transformer magnetization is not performed.

Note

The transformer magnetizing function is used in order to magnetize a line transformer to which the ALM is connected. The precondition is that the transformer can be isolated from the line supply on the primary side using a circuit breaker and that the DC link of the ALM is supplied from a separate power source before the circuit breaker is closed (e.g. with a separate pre-charging transformer or for photovoltaic applications).
 The circuit breaker between the Active Interface Module and the island grid is controlled via binector output r0863.1
 The status of the transformer magnetization, black start and island grid synchronization is displayed in r5499.
 The status of the sequence control for transformer magnetization, black start and island grid synchronization is displayed in r5482.
 For a value = 13:
 On low-power systems it is advisable to reduce the excitation current p3415 for inductance identification (e.g. p3415[0] = p3415[1] = 5%).
 To repeat a measurement p5480 must first be set to 1 and then reset to a value of 13 once the measurement has been taken.

p5481[0...2] Transformer magnetization times / Transf mag t

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.04 [s]	Max: 100.00 [s]	Default: [0] 2.00 [s] [1] 1.00 [s] [2] 1.00 [s]

Description: Sets the time values for the transformer magnetization.

Index:
 [0] = Voltage ramp ramp-up time
 [1] = Circuit breaker bounce time
 [2] = Line synchronization timeout

Note

For index 0:

Sets the ramp duration for the transformer voltage.

For index 1:

Sets the bounce time for the circuit breaker at the line side of the line transformer.

An interruption-free connection between the line supply and the transformer is only guaranteed after the bounce time has expired.

The feedback signal contact of the circuit breaker between the Active Interface Module and the island grid must be connected in parallel via binector input p0860.

The wait state until the debounce time has expired is canceled, if the following applies:

- feedback signal p0860 = 1 and
- current rise or DC link voltage change identified.

For index 2:

Sets the permissible maximum time.

If the maximum time elapses without the line being synchronized, alarm A06502 is output.

The minimum duration of line synchronization is 25 % of this maximum time.

r5482 Line synchronization status / Line synch. status

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 207	Default: -

Description: Sets the state of the sequence control for transformer magnetization, black start and island grid synchronization.

Value:

0:	Initialization
1:	Waiting for r3402 = 12
2:	Transformer magnetization with voltage ramp running
3:	Transformer magnetization line synchronization in progress
4:	Transformer magnetization wait for LSS enable
5:	Transformer magnetiz. wait for bounce time for circuit breaker
6:	Transformer magnetiz. transition to operation running (r3402=9)
7:	Transformer magnetization completed
8:	Identification of magnetizing inductance
9:	Identification transformer phase shift/gain correction
100:	Black start line check
101:	Black start wait for line PLL
102:	Black start demagnetization ramp running

- 103: Black start wait for voltage threshold p5586[0]
- 104: Black start wait for LSS enable (p5483 = 1 signal)
- 105: Black start wait LLS debounce time
- 106: Black start wait for line droop active
- 107: Black start magnetization ramp
- 108: Black start final line check
- 109: Black start completed
- 200: Island grid synchronization line test
- 201: Island grid synchronization U/F ramp
- 202: Island grid synchronization angle ramp
- 203: Island grid synchronization control
- 204: Island grid synchronization waiting for LSS feedback signal
- 205: Island grid synchronization waiting LSS bounce time
- 206: Island grid synchronization waiting for line droop inactive
- 207: Island grid synchronization cancellation running

Dependency: See also: p5480, p5580, p5583

p5483 BI: Line circuit breaker enable / Line LSS enab

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 7990
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal source to enable the circuit breaker.
The line-side circuit breaker in front of the supply transformer is required for the functions "Transformer magnetization" (p5480 > 0) and "Black start in the island grid" (p5580 > 0).

p5484[0...2] Magnetization transformer controller dynamics / Mag transf ctr_dyn

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7993
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 1000.00 [ms]	Default: [0] 50.00 [ms] [1] 50.00 [ms] [2] 100.00 [ms]

Description: Sets the time constants for the transformer magnetization closed-loop controls.

Index:
[0] = Angle controller integration time
[1] = Voltage controller integration time
[2] = Control deviation smoothing time

p5485[0...1] Transformer magnetization voltage thresholds / Transf mag U_thr

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7990, 7993
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [V]	Max: 300.0 [V]	Default: [0] 35.0 [V] [1] 3.5 [V]

Description: Sets the permissible voltage difference for closing the circuit breaker after transformer magnetization.

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

Dependency: See also: p5484

Note

For index 0:

Sets the permissible absolute value of the instantaneous difference between the secondary voltages at the line transformer (r5498[0, 1]) and the transformed primary voltage (r5488[0, 1]).

This condition must be met to reach the state p5482 = 4.

For index 1:

Sets the permissible absolute value of the averaged difference between the secondary voltages at the line transformer (r5498[0, 1]) and the transformed primary voltage (r5488[0, 1]).

This condition must be met to reach the state p5482 = 4.

p5486[0...1] Transformer rated voltage primary / Transf U_rated pri

A_INF_828 (Line transf)	Changeable: C2(1, 2)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [Vrms]	Max: 63000.00 [Vrms]	Default: 400.00 [Vrms]

Description: Sets the primary rated voltage of the transformer.

Index:
[0] = Supply transformer
[1] = Island grid transformer

Note

For index 0:

Setting the rated primary voltage of the line transformer, at whose secondary the AIM and the ALM are connected. If there is a circuit breaker at the transformer primary side, then the transformer can be magnetized before closing this circuit breaker in order to avoid high inrush currents.

The setting of this primary voltage and setting the device supply voltage (p0210) defines the transformer ratio.

To magnetize the transformer, the voltage has to be measured at the line side of the circuit breaker. To do this, an additional VSM must be connected and parameterized using p0150[0] and following. The voltage actual values of this VSM are displayed in r5461[0] and r5462[0]. The voltages converted over to the transformer secondary side are displayed in r5488[0, 1, 2].

For index 1:

Setting the rated primary voltage of the line transformer; an island grid with ALM in the grid droop mode (p5401) is connected to the secondary of this transformer. Typically, the transformer primary is connected to the grid or to another island grid through a circuit breaker.

The setting of this primary voltage and setting the device supply voltage (p0210) defines the island grid transformer ratio.

To synchronize the island grid voltage with the external grid, the external grid voltage must be measured. To do this, an additional VSM must be connected and parameterized using p0150[1] and following. The voltage actual values of this VSM are displayed in r5461[1] and r5462[1]. The voltages converted over to the transformer secondary side can be displayed in r5488[3, 4, 5]. To do this, the following BICO interconnections are acquired: p5487[2] = r5461[1], p5487[3] = r5462[1].

p5487[0...3] CI: Transformer primary voltage signal source / Trans U_prim s_src

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	-	-	[0] 5461[0]
			[1] 5462[0]
			[2] 0
			[3] 0

Description: Sets the signal sources for the measured phase voltages (u12, u23) on the primary side of the transformer. Using these measured values, the transformer voltages on the secondary side are calculated and displayed (r5488).

Index:
 [0] = Supply transformer u12
 [1] = Supply transformer u23
 [2] = Island grid transformer u12
 [3] = Island grid transformer u23

Dependency: See also: p5486

NOTICE

To transform the measured primary voltages to the transformer secondary side (ALM connection point), in addition to specifying the ratio (p0210, p5487), the phase angle (p6420) of the transformer must also be parameterized. Before commissioning it is absolutely necessary that this phase angle is roughly set! Using the transformer test mode (p5480 = 12), for the supply transformer, this angle and a gain error can be finely set.

Note
 The rated voltage for the transformer primary side is set using p5486.

r5488[0...5] CO: Transformer secondary voltage transformed / Transf U_sec trans

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7990
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]

Description: Display and connector output for alpha/beta components and amplitude of the calculated transformer secondary voltage.

Index:
 [0] = Supply transformer U alpha
 [1] = Supply transformer U beta
 [2] = Supply transformer U amplitude
 [3] = Island grid transformer U alpha
 [4] = Island grid transformer U beta
 [5] = Island grid transformer U amplitude

Dependency: See also: p5487

Note

For index 0, 1, 2:
 The signals from p5487[0, 1] are transformed for the transformer calculation. To do this, the ratio (p5486[0] / p0210), the phase angle of the transformer (p6420[0]) as well as a correction factor for the voltage ratio (p6421[0]) are taken into account.

For index 3, 4, 5:
 The signals from p5487[2, 3] are transformed for the transformer calculation. To do this, the ratio (p5486[1] / p0210), the phase angle of the transformer (p6420[1]) as well as a correction factor for the voltage ratio (p6421[1]) are taken into account.

r5489 Transformer leakage inductance identified / Transf L_I ident

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]

Description: Displays the total leakage inductance of the supply transformer determined using the identification (p5480 = 13). The result of the identification must be entered into p5490.

Dependency: See also: p5480, p5490

NOTICE

During identification, the value previously entered in p5490 is not effective.

p5490 Transformer leakage inductance / Transf L_leak

A_INF_828 (Line transf)	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.001 [mH]	1000.000 [mH]	0.100 [mH]

Description: Sets the total leakage inductance of the supply transformer.

r5491 Transformer magnetizing inductance identified / Transf L_H ident

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mH]	- [mH]	- [mH]

Description: Displays the magnetizing inductance of the supply transformer determined using the identification (p5480 = 11). The result of the identification must be entered into p5492.

Dependency: See also: p5480, p5492

NOTICE

Overmodulation ($r0074 > 97\%$) during the measurement as a result of an excessively low DC link voltage, can have a significant influence on the measurement result. A countermeasure, for example, can be to reduce the output voltage using p5494.

The measurement result depends very strongly on precisely specifying the filter capacitance (p0221).

When filter monitoring is active ($p3678 > 0$), the current measured values of the VSM ($r3671$, $r3672$) are used to identify the magnetizing inductance. Incorrect VSM measured values result in excessively high deviations when determining the magnetizing inductance.

Note

During identification, the value previously entered in p5492 is not effective.

p5492 Transformer magnetizing inductance / Transf L_H

A_INF_828 (Line transf)	Changeable: C2(1)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.10 [mH]	Max: 10000.00 [mH]	Default: 250.00 [mH]

Description: Sets the magnetizing inductance of the supply transformer.
Dependency: See also: r5491

NOTICE

If possible, p5492 should be set based on the data on the transformer rating plate.
 If the magnetizing inductance is not specified, then an estimate can be made using the formula specified below (instead of r0206, the transformer rated power is used).
 The magnetizing inductance should be used as basis for setting the DC component controller (p5437).

Note
 The parameter is preset when selecting the power unit (p0201). In so doing, a transformer is assumed with the same power and with 2 % magnetizing current:
 $p5492 = r0206[0] / (3 * r0207[0] * r0207[0] * 2\% * 2\pi * p0211)$


r5493.0...1 CO/BO: Line circuit breaker control signals / LSS control sig

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 7990
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Display and connector output to control the circuit breaker for transformer magnetization and island grid synchronization.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	External pre-charging bypass contactor	Yes	No	-
	01	Island grid circuit breaker	Yes	No	-

Dependency: See also: r0863, r3402

 **CAUTION**

For bit 01:
 Without any additional control logic, the signal is not suitable to control the island grid circuit breaker.
 The signal only represents an enable signal to close the circuit breaker during the actual synchronization (r5499.5 = 1). For r5499.5 = 0, generally the following applies r5493.1 = 0.

Note
 For bit 00:
 The signal is used to control the external bridging contactor in the pre-charging circuit.
 The external bridging contactor is closed if pre-charging is complete (r3402 > 5) and the circuit breaker has not been activated (r0863.1 = 0).
 For bit 01:
 The signal is used to control the circuit breaker between the island grid and the external grid.
 The signal is set to 1, if the island grid was successfully synchronized. In this case, the conditions for synchronization (frequency, amplitude, phase angle, p5586) are maintained.

p5494[0...1] Magnetization scaling values / Mag scale

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.0 [%]	Max: 150.0 [%]	Default: [0] 100.0 [%] [1] 40.0 [%]
Description:	Sets the scaling values for the transformer magnetization.		
Index:	[0] = Transformer magnetization setpoint scaling (90-100%) [1] = Transformer magnetization current limit (150% deactivated)		

r5497[0...1] CO: Transformer secondary current / Transf I_second

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the components for the transformer's calculated secondary current.		
Index:	[0] = Alpha [1] = Beta		

r5498[0...2] CO: Transformer secondary voltage / Transf U_second

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 7990
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Displays the components for the calculated secondary voltage of the supply transformer. Contrary to r5488, the calculation is based on the measured filter voltages (r3468) and currents (r3467) using line filter and transformer models.		
Index:	[0] = Alpha [1] = Beta [2] = Amplitude		
Dependency:	See also: r3467, r3468, p5490, p5492		

r5499.0...6 CO/BO: Line synchronization status word / Sync status word

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Closed-loop control	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Display and connector output for the status word of line synchronization.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Line synchronization wait for switch on	Yes	No	-
	01	Transformer magnetization running	Yes	No	-

02	Transformer magnetization completed	Yes	No	-
03	Grid black start running	Yes	No	-
04	Grid black start completed	Yes	No	-
05	Island grid synchronization running	Yes	No	-
06	Island grid synchronization completed	Yes	No	-

p5571 BI: Line PLL2 activation signal source / LinePLL2 act s_src

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 5499.5

Description: Sets the signal source to activate the PLL2 to determine the frequency, phase angle and amplitude of an external line. An island grid (p5493[0]) is synchronized to the output signals of PLL2 (r6311[1], r6313, r6314).

BI: p5501 = 1 signal:

Activation of the PLL2.

BI: p5501 = 0 signal:

Deactivation of the PLL2.

Dependency: See also: r5572, p5574, r6311, r6313, r6314, r6316

Note

The BiCo interconnections of the PLL2 are preset for an application involving island grid synchronization. However, the PLL2 can be generally used for sinusoidal voltage characteristics.

r5572.0...3 CO/BO: Line PLL2 status word / Line PLL2 status

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Display and connector output for the status word of PLL2. The value 0 signals is valid values for frequency and voltage within the parameterized tolerance limits.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	PLL deactivated	Yes	No	-
	01	PLL not stabilized	Yes	No	-
	02	PLL line frequency out of tolerance	Yes	No	-
	03	PLL line voltage out of tolerance	Yes	No	-

Dependency: See also: p0281, p0282, p0284, p0285, r6311, r6313, r6314, r6316

Note

For bit 00:

It is recommended that the PLL2 should be deactivated if invalid voltage values are present (e.g. when the power supply is shutdown).

After activation initially a PLL synchronization is carried out. An excessively low voltage prevents synchronization from starting and this is displayed using r5572.3...0 = 1011.

For bit 01:

After PLL synchronization starts (r5572.0 = 0) and the settling time has expired, the actual values are valid for phase angle, frequency and amplitude (r5572.1 = 0).

For bit 02:

The tolerance limits are set using p0284 and p0285.

For bit 03:

The tolerance limits are set using p0281 and p0282.

p5574[0...1] CI: Line PLL2 voltage signal source / Line PLL2 U s_src

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	-	-	[0] 0
			[1] 0

Description: Sets the signal source for the voltage to be measured in alpha/beta coordinates.

Index:
[0] = Alpha
[1] = Beta

Note

PLL2 is deactivated with input signal 0.

The following interconnection is practical for synchronizing an island grid to another grid (typically: public grid):

- The voltage of the island grid is measured using a VSM (r5461[0] and r5462[0]), which is connected in front of the circuit breaker between the island grid and the ALM.
- The voltage of the external grid is measured using another VSM (r5461[1] and r5462[1]), which is connected in front of the circuit breaker between the external grid and the island grid. The voltages (r5488[3, 4]) transformed to the ALM supply voltage are used as input variables for the PLL2.

p5580 Island grid black start mode / Black start mode

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	3	0

Description:

Sets the mode for the black start.

An island grid, which at the start has no voltage, can be established using this function. In this case, the ALM acts as the grid voltage source or as grid generator for the connected island grid.

Prerequisite:

The ALM function module "line droop control" and line droop operation (p5401) are activated.

For a value = 0:

The black start is deactivated.

For a value = 2:

At the next switch on, a black start is carried out. Here, the precondition is that the line voltage is close to zero (less than p5586[0]). Using the grid droop control, the grid voltage is increased up to the rated value using a ramp function.

For a value = 3:

At the next switch on, a black start is carried out if the grid voltage is less than p5586[0]. If on the other hand, a grid is connected within the regular tolerances (p0281, p0282), then a regular switch-on operation is carried out with synchronization to the existing grid voltage.

If, in so doing, transformer magnetization is activated (p5480 = 1), then this is performed.

Value:

- 0: Deactivated
- 2: Grid black start completed
- 3: Grid black start automatic

NOTICE
A black start is only possible when the grid droop control (p5401) is activated.
A black start is only possible when the transformer test operation mode is deactivated (p5480 <= 1).
The use of feedback signal contacts from the circuit breaker between the Active Interface Module and the island grid is urgently recommended (p0860).

Note

Precondition for establishing a voltage in an island grid is that adequate power is supplied into the ALM DC link (e.g. generator, photovoltaic) as well as control of the DC link voltage using this power generation system. The power requirement of the Island grid must not exceed the power of the generating system - even briefly.

In order to avoid the high inrush currents, when the grid is being established, the voltage is ramped up to the rated value. At the end of the voltage ramp, the system changes over into regular grid droop operation. The ALM then operates as grid-generating voltage source using active and reactive power droop, also with other sources of power in the island grid, in a stable fashion. The other power units can then act as a current source to support the grid or as a voltage source to form a grid. As grid forming unit, then the other power units must also have a grid droop function.

The circuit breaker between the Active Interface Module and the island grid is controlled via binector output r0863.1 Before closing this switch, it is checked as to whether the island grid is in a non-voltage condition. A possibly existing residual voltage in the Active Interface Module is automatically controlled down to zero.

p5581[0...8]

Island grid times / Island grid t

A_INF_828 (Line transf)

Changeable: T

Data type: FloatingPoint32

P group: Commands

Not for motor type: -

Min:

0.10 [s]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

100.00 [s]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

[0] 2.00 [s]

[1] 1.00 [s]

[2] 60.00 [s]

[3] 1.00 [s]

[4] 0.10 [s]

[5] 1.00 [s]

[6] 60.00 [s]

[7] 1.00 [s]

[8] 0.10 [s]

Description:

Sets the time parameters for transformer magnetization, black start and island grid synchronization.

Index:	[0] = Black start voltage ramp duration
	[1] = Black start circuit breaker bounce time
	[2] = Black start maximum time
	[3] = Black start checking time
	[4] = Black start ramp smoothing time
	[5] = Synchronization circuit breaker bounce time
	[6] = Synchronization maximum time
	[7] = Synchronization check time
	[8] = Synchronization ramp smoothing time

Note

For index 0:

Sets the ramp time for the grid voltage.

For index 1:

Sets the bounce time for the circuit breaker at the line side of the line transformer.

An interruption-free connection between the line supply and the transformer is only guaranteed after the bounce time has expired.

For index 2:

Sets the permissible maximum time.

If the maximum time elapses without the line being synchronized, fault F06503 is output.

For index 3:

Sets the test of time for the line voltage before closing the circuit breaker.

The line voltage must be less than the threshold specified in p5586[0].

For index 4:

Sets the smoothing time constant for an additional PT1 filtering of the voltage ramp.

For index 5:

Sets the bounce time for the circuit breaker at the line side of the line transformer.

An interruption-free connection between the line supply and the transformer is only guaranteed after the bounce time has expired.

For index 6:

Sets the permissible maximum time.

If the maximum time elapses without the line being synchronized, fault F06504 is output.

For index 7:

Sets of the test time for the outer line supply, to which the system should be synchronized (voltage signals r5488[3, 4]). This line supply must maintain the regular tolerance for voltage and frequency (see p0281 ... p0285). The test is realized before synchronizing starts.

For index 8:

Sets the smoothing time constant for an additional PT1 filtering of the voltage and frequency ramp.

r5582[0...1] CO: Island grid synchronization setpoint control / Island sync setpno

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Display and connector output of the supplementary setpoints for the frequency and voltage control during island grid synchronization.

Index:	[0] = Setpoint ramp frequency
	[1] = Setpoint ramp voltage

NOTICE

In order to avoid equalization operations, after island synchronization has been completed, it is not permissible that supplementary setpoints for frequency and voltage are suddenly set to zero (as step function). This is the reason that after ending synchronization, the setpoints are held constant and reset with the trigger signal p5583[2] = 1. In the same controller cycle, the signals for smoothed frequency (p5406[0]) and voltage (p5416[0]) are corrected by the corresponding absolute values!

The supplementary setpoints (r5582) are automatically reset when synchronization is canceled and when the grid droop (p5401) is deactivated with a change into regular closed-loop current control operation (with adaptation to the grid frequency).

Note

In the default setting, the setpoints are connected with the unfiltered setpoint inputs (no-load frequency p5406[1], no-load voltage p5416[1]) of the grid droop. While synchronizing the island grid to an external grid, the amplitude, phase angle as well as the frequency of the island grid are adapted in this fashion.

The setpoints for synchronizing can also be used for synchronous voltage and frequency adaptation of additional power generating systems in the island grid.

p5583[0...2]

BI: Island grid synchronization signal sources / Island sync s_src

A_INF_828 (Line transf)

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned32 / Binary

Dynamic index: -

Function plan: -

P group: Commands

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

[0] 0

[1] 0

[2] 0

Description:

Sets the signal sources for island grid synchronization.

Using the island grid synchronization function, an island grid can be synchronized with an external grid regarding frequency, phase angle and voltage amplitude.

After synchronization has been performed, a circuit breaker between the two grids can be closed (r5493.1).

Index:

[0] = Start

[1] = Circuit breaker feedback signal

[2] = Reset setpoints

NOTICE

For index 1:
 The feedback signal contact of the circuit breaker between the external grid and the island grid (in front of the grid transformer) must be connected in parallel via binector input p5583[1].
 The feedback signal is required for a state change in the synchronization sequence control. This signal is not used to completely monitor the contactor (p0860 and following).

Note

In order to synchronize an island grid with an external grid, frequency, phase position and amplitude of the island grid must be changed in operation!

This assumes that the components of the island grid are suitable for these parameter changes and that the ALM is the only grid generator in the island grid.

For index 0:

Signal source for the start command to synchronize the island grid with an external grid.

The target values for the synchronization, are the output values of the PLL2 (r6311[1], r6313, r6314).

The PLL2 must be activated at the latest when synchronization starts (p5571, p5574).

For index 1:

Signal source for the feedback signal of the circuit breaker between the island grid and the external grid.

For index 2:

Signal source to reset the supplementary setpoints for voltage and frequency(r5582[0, 1]) after island grid synchronization has been completed.

At the same time as the reset command, the external cyclic supplementary setpoints (p5406[0], p5416[0]) must be appropriately adapted.

p5584[0...2] Island grid synchronization controller dynamics / Island synch dyn

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	1000.00 [ms]	[0] 100.00 [ms]
			[1] 100.00 [ms]
			[2] 100.00 [ms]

Description: Sets the time constants for the closed-loop control for the island grid synchronization.

Index:
 [0] = Angle controller integration time
 [1] = Voltage controller integration time
 [2] = Control deviation smoothing time

p5585[0...1] Island grid synchronization voltage thresholds / Island sync U_thr

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Commands	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.0 [V]	300.0 [V]	[0] 35.0 [V]
			[1] 3.5 [V]

Description: Sets the permissible voltage difference between the space vectors of the line voltage and the Active Line Module (ALM).

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

Dependency: See also: p5484

Note

For index 0:

Sets the permissible absolute value of the instantaneous difference between the voltage in the island grid (r3468[4, 5]) and the voltage of the external grid (r5488[3, 4]). This condition must be met to reach the state p5482 = 204.

For index 1:

Sets the permissible absolute value of the averaged difference between the voltage in the island grid (r3468[4, 5]) and the voltage of the external grid (r5488[3, 4]). This condition must be met to reach the state p5482 = 204.

p5586[0...6] Island grid scaling values / Island scal_val

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.1 [%]	Max: 200.0 [%]	Default: [0] 3.0 [%] [1] 0.5 [%] [2] 1.0 [%] [3] 1.0 [%] [4] 4.0 [%] [5] 0.4 [%] [6] 2.0 [%]

Description: Sets the scaling values for black start and island grid synchronization.

- Index:**
- [0] = Black start voltage limit
 - [1] = Synchronization line angle ramp
 - [2] = Synchronization frequency ramp
 - [3] = Synchronization voltage ramp
 - [4] = Synchronization maximum angular deviation
 - [5] = Synchronization maximum frequency deviation
 - [6] = Synchronization maximum voltage deviation

Note

For index 0:
Sets the limit for the line voltage amplitude (percentage of p0210), below which a black start is performed (for a grid that had no voltage, a grid is established).
Maximum value: 10 %

For index 1:
Setting the maximum permissible frequency deviation (as a percentage of the rated frequency p0211) for aligning the line phase angle for island grid synchronization.

For index 2:
Setting the ramp speed for aligning the line frequency for island grid synchronization (as a percentage of the rated frequency p0211 per second).

For index 3:
Setting the ramp speed for aligning the line voltage for island grid synchronization (as a percentage of the rated voltage p0210 per second).

For index 4:
Setting the maximum permissible angular deviation (percentage of 360°) between the island grid and external grid for ending the phase angle ramp for island grid synchronization (condition for transitioning into the state p5482 = 203).

For index 5:
Setting the maximum permissible frequency deviation (percentage of p0211) between the island grid and external grid for ending the frequency ramp for island grid synchronization (condition for transitioning into the state p5482 = 202).

For index 6:
Setting the maximum permissible voltage deviation (percentage of p0210) between the island grid and external grid for ending the voltage ramp for island grid synchronization (condition for transitioning into the state p5482 = 202).

r6311[0...1] CO: Line PLL2 frequency / Line PLL2 f

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p0514	Expert list: 1
	Min: - [Hz]	Max: - [Hz]	Default: - [Hz]

Description: Display the line frequency determined with PLL2 for the voltage signals specified in p5574.

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

Note

A positive sign of the frequency is obtained when the line supply phases U, V and W are connected with the correct phase sequence.

A negative sign of the frequency is obtained when the 3 line phases are interchanged therefore designating a negative direction of the rotating field of the 3-phase line supply voltage.

For index 0:

Displays the instantaneous value.

The following applies for the dynamic time constant of the PLL2: p3458[1] * p6423

For index 1:

Displays the values additionally smoothed with a time constant of 50 ms (suitable for monitoring the frequency).

r6313 **CO: Line PLL2 smoothed voltage / Line PLL2 U smth**

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 6799, 8026
	P group: Displays, signals	Unit group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [Vrms]	- [Vrms]	- [Vrms]

Description: Display the rms value calculated with PLL2 for the voltage signals specified in p5574.

Dependency: See also: p3472

Note

The following applies to the smoothing time: p3458[1] * p6425

r6314 **CO: Line PLL2 phase angle / Line PLL2 ph_angle**

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]

Description: Display the phase angle calculated with PLL2 for the voltage signals specified in p5574.

r6316 **CO: Line PLL2 line supply angle measured / Line PLL2 ang meas**

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]

Description: Displays the actual value for the phase angle of the voltage signals (p5574) for the PLL2.

p6420[0...1] Phase shift input voltage VSM to the drive converter / INF U VSM/conv

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -180.00 [°]	Max: 179.90 [°]	Default: 0.00 [°]

Description: Sets the phase shift between the synchronizing voltage measured by the Voltage Sensing Module (VSM) and the actual drive converter input voltage.

Index: [0] = Supply transformer
[1] = Island grid transformer

⚠ WARNING
Switching-in with a significantly incorrectly parameterized offset angle (> 5 °) can cause a peak current intervention and / or triggering the crowbar thyristor.

⚠ CAUTION
If this parameter is changed in the "ready for operation" state and if a synchronizing voltage is already available at the VSM, under certain circumstances, a line supply fault can be signaled. When this occurs for the first time after changing the parameter, the fault can be ignored and acknowledged.

Note

This phase shift must be determined when commissioning the system.

Example:

If the converter input voltage (= secondary side voltage of the power transformer) lags the synchronizing voltage measured by the VSM by 30 °, then p6420 should be set to -30°.

p6421[0...1] Line supply voltage sensing gain adaptation / U_line gain

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 50.000 [%]	Max: 200.000 [%]	Default: 100.000 [%]

Description: Sets the gain factor identified in p6441 to finely calibrate the line voltage detection.

Index: [0] = Supply transformer
[1] = Island grid transformer


Dependency: See also: r6441

p6422 Line supply voltage rotating field direction / U_line field dir

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0

Description: Setting to reverse the rotating field direction of the synchronizing voltage system measured by the Voltage Sensing Module (VSM).

Value: 0: Rotating field direction positive
1: Rotating field negative

 WARNING
Only use in an emergency if it is not possible to correct the wiring. Extreme caution must be applied in this case when measuring the phase shift (p6420).

Note

Allows the rotating field direction to be adapted if there is inconsistency in the wiring.

p6423 PLL dynamic / PLL dynamic

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	2.000 [%]	500.000 [%]	20.000 [%]

Description: Sets the dynamic response for the line supply voltage PLL.

Note

Higher values increase the dynamic response but also the tendency of the PLL to oscillate (instability).

p6425 Line voltage active/react. power comp. smoothing time constant / U_line p/q t_smth

A_INF_828 (Line transf)	Changeable: T	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1.000 [ms]	5000.000 [ms]	100.000 [ms]

Description: Sets the smoothing time constant for the active and reactive component of the line supply voltage.

Dependency: See also: r6313

r6440 Transf phase offset identified / Tr ph_shift ident

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]

Description: Displays the phase shift between the primary and secondary voltages of the line transformer identified by automatic transformer identification (p5480 = 12).

Dependency: See also: p5480, p6420

Note

The phase shift relates to the primary side of the transformer, which is connected to the line. The secondary side is connected to the infeed.

Example:

A Dy5n transformer has a phase shift of $-5 \times 30^\circ = -150^\circ$.

This means that the secondary voltage is shifted from the primary voltage by -150° , the primary voltage leads by 150° .

The result should be entered into p6420. During identification, the value previously entered in p6420 is not effective.

r6441 Transformer gain adaptation identified / Transf gain ident

A_INF_828 (Line transf)	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Displays the gain factor correction identified (p5480 = 12) for fine calibration of the line transformer transformation ratio.

Dependency: See also: p6421

Note

The result should be entered in parameter p6421. During identification, the value previously entered in p6421 is not effective.

r6587.0...31 CO/BO: Circuit monitoring functions status / I_cct monit stat

CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Function plan: 8032
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of the circuit monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Protective breaker trip 0	Yes	No	-
	01	Protective breaker trip 1	Yes	No	-
	02	Protective breaker trip 2	Yes	No	-
	03	Protective breaker trip 3	Yes	No	-
	04	Protective breaker trip 4	Yes	No	-
	05	Protective breaker trip 5	Yes	No	-
	06	Protective breaker trip 6	Yes	No	-
	07	Protective breaker trip 7	Yes	No	-
	08	Protective breaker trip 8	Yes	No	-
	09	Protective breaker trip 9	Yes	No	-
	10	Protective breaker trip 10	Yes	No	-
	11	Protective breaker trip 11	Yes	No	-
	12	Protective breaker trip 12	Yes	No	-
	13	Protective breaker trip 13	Yes	No	-
	14	Protective breaker trip 14	Yes	No	-
	15	Protective breaker trip 15	Yes	No	-
	16	Protective breaker trip 16	Yes	No	-
	17	Protective breaker trip 17	Yes	No	-
	18	Protective breaker trip 18	Yes	No	-
	19	Protective breaker trip 19	Yes	No	-
	20	Protective breaker trip 20	Yes	No	-
	21	Protective breaker trip 21	Yes	No	-
	22	Protective breaker trip 22	Yes	No	-
	23	Protective breaker trip 23	Yes	No	-
	24	Protective breaker trip 24	Yes	No	-
	25	Protective breaker trip 25	Yes	No	-

26	Protective breaker trip 26	Yes	No	-
27	Protective breaker trip 27	Yes	No	-
28	Protective breaker trip 28	Yes	No	-
29	Protective breaker trip 29	Yes	No	-
30	Protective breaker subsystem 1 tripped	No	Yes	-
31	Protective breaker subsystem 2 tripped	No	Yes	-

r6991[0...4] Recorder settings display / Rec setting displ

A_INF_828 (Recorder), B_INF_828 (Recorder), S_INF_828 (Recorder), S_INF_COMBI (Recorder), SERVO_828 (Recorder), SERVO_COMBI (Recorder)	Changeable: - Data type: FloatingPoint32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
--	--	---	--

Description: Displays the values calculated for the recorder

Index:
[0] = Actual trace number
[1] = Actual trace duration
[2] = Actual pretrigger time
[3] = Actual post trigger time
[4] = Actual number of signals

Dependency: See also: p6999

r6992.0...14 CO/BO: Recorder status word / Rec ZSW

A_INF_828 (Recorder), B_INF_828 (Recorder), S_INF_828 (Recorder), S_INF_COMBI (Recorder), SERVO_828 (Recorder), SERVO_COMBI (Recorder)	Changeable: - Data type: Unsigned16 P group: Displays, signals Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: 8144 Unit selection: - Expert list: 1 Default: -
--	---	---	---

Description: Displays the status word of the recorder.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Internal activation	Set	Not set	-
	01	External activation	Set	Not set	-
	02	Internal trigger	Set	Not set	-
	03	External trigger 1.1	Set	Not set	-
	04	External trigger 1.2	Set	Not set	-
	05	External trigger 1.3	Set	Not set	-
	06	External trigger 1.4	Set	Not set	-
	07	External trigger 2.1	Set	Not set	-
	08	External trigger 2.2	Set	Not set	-
	09	External trigger 2.3	Set	Not set	-
	10	Hardware trigger	Set	Not set	-
	11	Data buffering running	Yes	No	-
	12	Post trigger time running	Yes	No	-
	13	Data being stored	Yes	No	-
	14	Data buffer full	Yes	No	-

Dependency: See also: p6993, p6994, r6997, p6998, p6999
See also: A49998

p6993[0...2] Recorder trigger 2 bit mask / Rec trig 2 mask

A_INF_828 (Recorder), B_INF_828 (Recorder), S_INF_828 (Recorder), S_INF_COMBI (Recorder), SERVO_828 (Recorder), SERVO_COMBI (Recorder)	Changeable: T, U Data type: Unsigned32 P group: - Not for motor type: - Min: 0000 hex	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: FFFF FFFF hex	Access level: 4 Function plan: 8144 Unit selection: - Expert list: 1 Default: 0001 hex
--	---	---	--

Description: Sets the bit mask for trigger signal 2 (p6994) of the recorder.
Trigger 2.1 is formed by ANDing the signal source in p6994[0] and the bit mask in p6993[0].
Trigger 2.2 is formed by ANDing the signal source in p6994[1] and the bit mask in p6993[1].
Trigger 2.3 is formed by ANDing the signal source in p6994[2] and the bit mask in p6993[2].

Index: [0] = Trigger 2.1
[1] = Trigger 2.2
[2] = Trigger 2.3

Dependency: See also: p6994

p6994[0...2] CI: Recorder trigger 2 signal source / Rec trig 2 S_src

A_INF_828 (Recorder), B_INF_828 (Recorder), S_INF_828 (Recorder), S_INF_COMBI (Recorder), SERVO_828 (Recorder), SERVO_COMBI (Recorder)	Changeable: T, U Data type: Unsigned32 / Integer32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: 8144 Unit selection: - Expert list: 1 Default: 0
--	--	---	---

Description: Sets the signal source for trigger 2 of the recorder.
Trigger 2.1 is formed by ANDing the signal source in p6994[0] and the bit mask in p6993[0].
Trigger 2.2 is formed by ANDing the signal source in p6994[1] and the bit mask in p6993[1].
Trigger 2.3 is formed by ANDing the signal source in p6994[2] and the bit mask in p6993[2].

Index: [0] = Trigger 2.1
[1] = Trigger 2.2
[2] = Trigger 2.3

Dependency: See also: p6993

p6996[0...63] Recorder signals / Rec sig

A_INF_828 (Recorder), B_INF_828 (Recorder), S_INF_828 (Recorder), S_INF_COMBI (Recorder), SERVO_828 (Recorder), SERVO_COMBI (Recorder)	Changeable: T, U Data type: Unsigned32 P group: Commands Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 996553699	Access level: 4 Function plan: 8144 Unit selection: - Expert list: 1 Default: 0
--	---	---	---

Description: Setting to parameterize the signals for the recorder.

r6997	CO: Recorder sequencer state / Rec state		
A_INF_828 (Recorder),	Changeable: -	Calculation: -	Access level: 4
B_INF_828 (Recorder),	Data type: Integer16	Dynamic index: -	Function plan: 8144
S_INF_828 (Recorder),	P group: Closed-loop control	Unit group: -	Unit selection: -
S_INF_COMBI	Not for motor type: -	Scaling: -	Expert list: 1
(Recorder),	Min:	Max:	Default:
SERVO_828	0	60	-
(Recorder),			
SERVO_COMBI			
(Recorder)			
Description:	Displays the state of the sequencer for the recorder.		
Value:	0: Not active		
	10: Active		
	20: Post trigger time running		
	30: Prepare data save operation		
	40: Start data save		
	50: End data save		
	60: Configuration		

p6998[0...4]	BI: Recorder trigger 1 signal sources / Rec trig 1 S_src		
A_INF_828 (Recorder),	Changeable: T, U	Calculation: -	Access level: 4
B_INF_828 (Recorder),	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 8144
S_INF_828 (Recorder),	P group: -	Unit group: -	Unit selection: -
S_INF_COMBI	Not for motor type: -	Scaling: -	Expert list: 1
(Recorder),	Min:	Max:	Default:
SERVO_828	-	-	0
(Recorder),			
SERVO_COMBI			
(Recorder)			
Description:	Sets the signal sources to activate and trigger the recorder.		
Index:	[0] = Activating		
	[1] = Trigger 1.1		
	[2] = Trigger 1.2		
	[3] = Trigger 1.3		
	[4] = Trigger 1.4		

p6999[0...4]	Recorder parameterization / Rec par		
A_INF_828 (Recorder),	Changeable: T, U	Calculation: -	Access level: 4
B_INF_828 (Recorder),	Data type: Integer16	Dynamic index: -	Function plan: 8144
S_INF_828 (Recorder),	P group: -	Unit group: -	Unit selection: -
S_INF_COMBI	Not for motor type: -	Scaling: -	Expert list: 1
(Recorder),	Min:	Max:	Default:
SERVO_828	0	2000	[0] 1
(Recorder),			[1] 1000
SERVO_COMBI			[2] 900
(Recorder)			[3] 0
			[4] 0

Description: Setting to parameterize the recorder.

The recorder supplies up to 64 internal variables (depending on the parameterization). The maximum recording time is 2000 ms, the variables are acquired in the current controller sampling time – and a pretrigger can be set. The values can then be acyclically written to the memory card. The development and system test departments have the software necessary to decode the content.

Index: [0] = Enable
 [1] = Recording time
 [2] = Pre-trigger time
 [3] = Output message
 [4] = Recording factor

Dependency: See also: A49998

Note

For index [0]:
 Enables or disables the function.
 p6999[0] = 0 inhibit the function.
 p6999[0] = 1 enable the function. A POWER ON is required after the enable.

For index [1]:
 Sets the recording time, [ms]. The value is discretized with the current controller sampling time.

For index [2]:
 Sets the pretrigger time, [ms]. This time is included in the recording time and cannot be longer than the recording time p6999[1]. The value is discretized with the current controller sampling time.

For index [3]:
 Enables or disables the output of message A49998 when the trigger event is triggered.

For index [4]:
 p6999[4] = n, n = 0 ...4
 Recording with the factor, which extends the record time p6999[1] and the pre-trigger time p6999[2] 2ⁿ times, and reduces the number of signals 2ⁿ times.
 Example:
 p6999[1] = 2000, p6999[2] = 1000, p6999[4] = 4
 --> recording time: 2000 ms * 2⁴ = 32 s, pre-trigger time: 1000 ms * 2⁴ = 16 s, number of signals 128/16 = 8.
 When setting p6999[4] to 0, the results are as follows:
 --> recording time: 2000 ms, pre-trigger time: 1000 ms, number signals 128. The maximum number of signals depends on the drive object.

r7000

CO: Par_circuit No. of active power units / Qty active PU

A_INF_828 (Parallel),
 B_INF_828 (Parallel),
 S_INF_828 (Parallel)

Changeable: -
Data type: Unsigned16
P group: Modulation
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
 -

Description: Displays the active power units for a parallel circuit configuration.

Dependency: See also: p7001, r7001

p7001[0...n]

Par_circuit power units enable / PU enable

A_INF_828 (Parallel),
 B_INF_828 (Parallel),
 S_INF_828 (Parallel)

Changeable: T
Data type: Integer16
P group: Modulation
Not for motor type: -
Min:
 0

Calculation: -
Dynamic index: PDS, p0120
Unit group: -
Scaling: -
Max:
 1

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
 1

Description: Enables the power units in the parallel circuit configuration.

Value: 0: Deactivated
 1: Activated

Dependency: See also: r7000

Note

For motors with separate winding systems (p7003 = 1) it is not possible to inhibit an individual power unit. p7001 is automatically reset if a power unit is de-activated via p0125 or p0895.

r7002[0...n]	CO: Par_circuit status power units / Status PU		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: - Data type: Integer16 P group: Modulation Not for motor type: - Min: 0	Calculation: - Dynamic index: PDS, p0120 Unit group: - Scaling: - Max: 1	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display and connector output for the status of the power units in a parallel connection.		
Value:	0: Pulses inhibited 1: Pulses enabled		
Dependency:	See also: r7000, p7001, r7001		
p7010	Par_circuit current asymmetry alarm threshold / i_asym A thresh		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U Data type: FloatingPoint32 P group: Modulation Not for motor type: - Min: 2 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: PERCENT Max: 100 [%]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 20 [%]
Description:	Sets the alarm threshold to detect current asymmetry in the parallel circuit configuration. The deviation between the measured values and average value is evaluated. The specified value is referred to the rated power unit current (p7251[0]).		
Dependency:	See also: r7251 See also: A05052		
p7011	Par_circuit DC link voltage asymmetry alarm threshold / Vdc_asym A thrsh		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U Data type: FloatingPoint32 P group: Modulation Not for motor type: - Min: 2 [%]	Calculation: - Dynamic index: - Unit group: - Scaling: PERCENT Max: 100 [%]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 10 [%]
Description:	Sets the alarm threshold to detect asymmetry of the DC link voltages in the parallel circuit configuration. The deviation between the measured values and average value is evaluated. The specified value is referred to the rated link voltage.		
Dependency:	See also: A05053		
r7020[0...n]	CO: Par_circuit deviation current in phase U / Phase U curr dev		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: - Data type: FloatingPoint32 P group: Displays, signals Not for motor type: - Min: - [A]	Calculation: - Dynamic index: PDS, p0120 Unit group: 6_5 Scaling: p2002 Max: - [A]	Access level: 3 Function plan: - Unit selection: p0505 Expert list: 1 Default: - [A]

Description: Displays the deviation between the measured current actual value of phase U and the average value as peak value. The maximum deviation from the average value is displayed in r7025.

Dependency: See also: r7021, r7022, r7025

r7021[0...n] **CO: Par_circuit deviation current in phase V / Phase V curr dev**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the deviation between the measured current actual value of phase V and the average value as peak value. The maximum deviation from the average value is displayed in r7026.

Dependency: See also: r7020, r7022, r7026

r7022[0...n] **CO: Par_circuit deviation current in phase W / Phase W curr dev**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the deviation between the measured current actual value of phase W and the average value as peak value. The maximum deviation from the average value is displayed in r7027.

Dependency: See also: r7020, r7021, r7027

r7025 **CO: Par_circuit max. deviation currents phase U / Phase U Max i_dev**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the maximum absolute deviation of the measured current actual values of phase U from the average value as peak value. The deviation of the individual currents from the average value is displayed in r7020.

Dependency: See also: r7020, r7026, r7027
See also: A05052

r7026 **CO: Par_circuit max. deviation currents phase V / Phase V Max i_dev**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]

Description: Displays the maximum absolute deviation of the measured current actual values of phase V from the average value as peak value. The deviation of the individual currents from the average value is displayed in r7021.

Dependency: See also: r7021, r7025, r7027
See also: A05052

r7027	CO: Par_circuit max. deviation currents phase W / Phase W Max i_dev		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the maximum absolute deviation of the measured current actual values of phase W from the average value as peak value. The deviation of the individual currents from the average value is displayed in r7022.		
Dependency:	See also: r7022, r7025, r7026 See also: A05052		

r7030[0...n]	CO: Par_circuit DC link voltage deviation / Vdc deviation		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Displays the deviation of the measured DC link voltage from the average value. The maximum deviation from the average value is displayed in r7031.		
Dependency:	See also: r7031		

r7031	CO: Par_circuit DC link voltage maximum deviation / Vdc deviation max.		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min: - [V]	Max: - [V]	Default: - [V]
Description:	Displays the maximum absolute deviation of the measured DC link voltage from the average value. The deviation of the individual voltages from the average value is displayed in r7030.		
Dependency:	See also: r7030 See also: A05053		

p7035	Infeed par_circuit circulating current control operating mode / I_cct_ctrl mode		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 1
Description:	Sets the operating mode of the circulating current control. The circulating current control ensures symmetrical distribution of the total currents to the individual converters.		
Value:	0: Circulating current control de-activated		

1: Circulating current control activated

p7036	Infeed par_cct circulating current controller proportional gain / Circ_I Kp		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00000 [%]	Max: 1000.00000 [%]	Default: 100.00000 [%]

Description: Sets the scaled proportional gain for the circulating current controller.

Note

A value of 100 % corresponds to the basic setting derived from loop control parameters (p3421, p3622).

p7037	Infeed par_cct circulating current control integral time / I_circ Tn		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0 [%]	Max: 100000.0 [%]	Default: 100.0 [%]

Description: Sets the scaled integral time of the circulating current controller.

Note

A value of 100 % corresponds to the basic setting derived from the controller sampling time p0115[0].

The integral component of the controller is de-activated with p7037 = 0.

p7038	Infeed par_circuit circulating current control limit / I_circ limit		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1 [%]	Max: 100 [%]	Default: 100 [%]

Description: Sets the limit of the circulating current controller output values.

The parameter is, depending on the phase, referred to the valve lockout times (p1828, p1829, p1830).

p7040[0...n]	Par_circuit correction valve lockout time phase U / Comp t_lockout U		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1000000.00 [µs]	Max: 1000000.00 [µs]	Default: 0.00 [µs]

Description: For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase U (p1828).

The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.

p7042[0...n]	Par_circuit correction valve lockout time phase V / Comp t_lockout V		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1000000.00 [µs]	Max: 1000000.00 [µs]	Default: 0.00 [µs]
Description:	For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase V (p1829). The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.		

p7044[0...n]	Par_circuit correction valve lockout time phase W / Comp t_lockout W		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Modulation	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1000000.00 [µs]	Max: 1000000.00 [µs]	Default: 0.00 [µs]
Description:	For the particular Motor Module, the correction time must be added to the valve lockout time to be compensated for phase W (p1830). The corrective value is used to compensate variations/spread in the valve lockout times of Motor Modules for a parallel circuit configuration.		
Dependency:	See also: p1830		

r7050[0...n]	Par_circuit circulating current phase U / Circ_I_phase U		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the circulating current of phase U as peak value.		

r7051[0...n]	Par_circuit circulating current phase V / Circ_I_phase V		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [A]	Max: - [A]	Default: - [A]
Description:	Displays the circulating current of phase V as peak value.		

r7052[0...n]	Par_circuit circulating current phase W / Circ_I_phase W		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]

Description: Displays the circulating current of phase W as peak value.

r7100[0...99]	Par_circuit ring buffer fault/alarm code / Fault/alarm code		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).
Displays the fault/alarm code.

Dependency: See also: r7101, r7102, r7103

Note

The last fault case that occurred is documented in index 0.
The parameter is reset to 0 at POWER ON.

r7101[0...99]	Par_circuit ring buffer data set number / Ring buffer Ds_no		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

p7101 < 100:

Displays the Power unit Data Set number (PDS).

p7101 >= 100:

Displays the Voltage Sensing Module Data Set number (VSMDS)

Dependency: See also: r7100, r7102, r7103

Note

The last fault case that occurred is documented in index 0.
The parameter is reset to 0 at POWER ON.

r7102[0...99]	Par_circuit ring buffer fault/alarm received / F/A received		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

Displays the relative system runtime when the fault or alarm occurred.

Dependency: See also: r7100, r7101, r7103

Note

The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

r7103[0...99] Par_circuit ring buffer fault/alarm gone / F/A gone

A_INF_828 (Parallel),
B_INF_828 (Parallel),
S_INF_828 (Parallel)

Changeable: -

Data type: Unsigned32

P group: Displays, signals

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description: Ring buffer for faults and alarms that have occurred from power units connected in parallel (Motor Module, Active Line Infeed, Voltage Sensing Module).

Displays the relative system runtime when the fault or alarm was withdrawn.

Dependency: See also: r7100, r7101, r7102

Note

The last fault case that occurred is documented in index 0.

The parameter is reset to 0 at POWER ON.

r7200[0...n] Par_circuit power unit overload I2t / PU overload I2t

A_INF_828 (Parallel),
S_INF_828 (Parallel)

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [%]

Calculation: -

Dynamic index: PDS, p0120

Unit group: -

Scaling: PERCENT

Max:

- [%]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [%]

Description: Displays the overload of the particular power unit in a parallel circuit configuration calculated using the I2t function. The maximum value of all power units is displayed in r0036.

r7201[0...n] CO: Par_circuit power unit temperatures max. inverter / PU temp max inv

A_INF_828 (Parallel),
B_INF_828 (Parallel),
S_INF_828 (Parallel)

Changeable: -

Data type: FloatingPoint32

P group: Displays, signals

Not for motor type: -

Min:

- [°C]

Calculation: -

Dynamic index: PDS, p0120

Unit group: 21_1

Scaling: p2006

Max:

- [°C]

Access level: 3

Function plan: -

Unit selection: p0505

Expert list: 1

Default:

- [°C]

Description: Displays the maximum inverter temperature in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[0].

r7202[0...n] **Par_circuit power unit temperatures max. depletion layer / PU TempMaxDepLayer**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the maximum depletion layer temperature in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[1].

r7203[0...n] **CO: Par_circuit power unit temperatures max. rectifier / PU temp max rect**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the maximum rectifier temperature in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[2].

r7204[0...n] **CO: Par_circuit power unit temperatures air intake / PU temp air intake**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the air intake temperature in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[3].

r7205[0...n] **Par_circuit power unit temperatures electronics / PU temp electr**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the temperature of the electronics module in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[4].

r7206[0...n] **Par_circuit power unit temperatures inverter 1 / PU temp inv 1**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays the inverter temperature 1 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[5].

r7207[0...n]	Par_circuit power unit temperatures inverter 2 / PU temp inv 2		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays the inverter temperature 2 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[6].		

r7208[0...n]	Par_circuit power unit temperatures inverter 3 / PU temp inv 3		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays the inverter temperature 3 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[7].		

r7209[0...n]	Par_circuit power unit temperatures inverter 4 / PU temp inv 4		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays the inverter temperature 4 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[8].		

r7210[0...n]	Par_circuit power unit temperatures inverter 5 / PU temp inv 5		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays the inverter temperature 5 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[9].		

r7211[0...n]	Par_circuit power unit temperatures inverter 6 / PU temp inv 6		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays the inverter temperature 6 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[10].		

r7212[0...n] **Par_circuit power unit temperatures inverter 1 / PU temp rect 1**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays rectifier temperature 1 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[11].

r7213[0...n] **Par_circuit power unit temperatures inverter 2 / PU temp rect 2**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays rectifier temperature 2 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[12].

r7214[0...n] **Par_circuit power unit temperatures depletion layer 1 / PU temp DepLayer 1**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays depletion layer temperature 1 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[13].

r7215[0...n] **Par_circuit power unit temperatures depletion layer 2 / PU temp DepLayer 2**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays depletion layer temperature 2 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[14].

r7216[0...n] **Par_circuit power unit temperatures depletion layer 3 / PU temp DepLayer 3**

A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]

Description: Displays depletion layer temperature 3 in the power unit for a parallel circuit configuration.
The maximum value of all power units is displayed in r0037[15].

r7217[0...n]	Par_circuit power unit temperatures depletion layer 4 / PU temp DepLayer 4		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays depletion layer temperature 4 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[16].		

r7218[0...n]	Par_circuit power unit temperatures depletion layer 5 / PU temp DepLayer 5		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays depletion layer temperature 5 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[17].		

r7219[0...n]	Par_circuit power unit temperatures depletion layer 6 / PU temp DepLayer 6		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min: - [°C]	Max: - [°C]	Default: - [°C]
Description:	Displays depletion layer temperature 6 in the power unit for a parallel circuit configuration. The maximum value of all power units is displayed in r0037[18].		

r7220[0...n]	Infeed par_circuit absolute current value motoring permissible / INF I_abs mot perm		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Displays the currently permissible line-side absolute current when motoring. The minimum value of all power units multiplied by the number of Motor Modules is displayed in r0067[0].		

r7221[0...n]	Infeed par_circuit absolute current regenerating permissible / INF I_absRegenPerm		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Displays the currently permissible line-side absolute regenerative current. The minimum value of all power units multiplied by the number of Motor Modules is displayed in r0067[1].		

r7222[0...n] **CO: Par_circuit absolute current actual value / I_act abs val**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [Arms]	- [Arms]	- [Arms]

Description: Displays actual absolute current.
The summed value of all power units is displayed in r0068.

r7223[0...n] **CO: Par_circuit phase current actual value phase U / I_phase U act val**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]

Description: Displays the measured actual value of phase U as peak value.
The summed value of all power units is displayed in r0069[0].

r7224[0...n] **CO: Par_circuit phase current actual value phase V / I_phase V act val**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]

Description: Displays the measured actual value of phase V as peak value.
The summed value of all power units is displayed in r0069[1].

r7225[0...n] **CO: Par_circuit phase current actual value phase W / I_phase W act val**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]

Description: Displays the measured actual value of phase W as peak value.
The summed value of all power units is displayed in r0069[2].

r7226[0...n] **CO: Par_circuit phase current actual value phase U offset / I_phase U offset**

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]

Description: Displays the measured offset of phase U as peak value.
The summed value of all power units is displayed in r0069[3].

r7227[0...n]	CO: Par_circuit phase current actual value phase V offset / I_phase V offset		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Displays the measured offset of phase V as peak value. The summed value of all power units is displayed in r0069[4].		

r7228[0...n]	CO: Par_circuit phase current actual value phase W offset / I_phase W offset		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Displays the measured offset of phase W as peak value. The summed value of all power units is displayed in r0069[5].		

r7229[0...n]	CO: Par_circuit phase current actual value sum U, V, W / I_phase sum UVW		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Displays the measured sum of the currents in phases U, V and W as instantaneous value. The summed value of all power units is displayed in r0069[6].		

r7230[0...n]	CO: Par_circuit DC link voltage actual value / Vdc_act		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the measured actual value of the DC link voltage. The average value of all power units is displayed in r0070.		

r7231[0...n]	CO: Par_circuit phase voltage actual value phase U / U_phase U act val		
S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual voltage, phase U. The average value of all power units is displayed in r0089[0].		

r7231[0...n]	CO: Par_circuit phase voltage actual value phase U / U_phase U act val		
A_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual voltage, phase U.		

r7232[0...n]	CO: Par_circuit phase voltage actual value phase V / U_phase V act val		
S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual voltage, phase V. The average value of all power units is displayed in r0089[1].		

r7232[0...n]	CO: Par_circuit phase voltage actual value phase V / U_phase V act val		
A_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual voltage, phase V.		

r7233[0...n]	CO: Par_circuit phase voltage actual value phase W / U_phase W act val		
S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual voltage, phase W. The average value of all power units is displayed in r0089[2].		

r7233[0...n]	CO: Par_circuit phase voltage actual value phase W / U_phase W act val		
A_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS, p0120	Function plan: -
	P group: Displays, signals	Unit group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the actual voltage, phase W.		

r7250[0...4]	Par_circuit power unit rated power / PU P_rated		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: 14_6	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [kW]	Max: - [kW]	Default: - [kW]
Description:	Displays the rated power of the individual power units connected in parallel for various load duty cycles. The sum of the rated powers of all power units connected in parallel is displayed in r0206.		
Index:	[0] = Rated value [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 cont duty cyc [4] = S6 load duty cycle		
Dependency:	The value is displayed in [kW] or [hp]. See also: p0100, p0205, r0205		

r7251[0...4]	Par_circuit power unit rated current / PU PI_rated		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Displays the rated current of the individual power units connected in parallel for various load duty cycles. The sum of the rated currents of all power units connected in parallel is displayed in r0207.		
Index:	[0] = Rated value [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 cont duty cyc [4] = S6 load duty cycle		
Dependency:	See also: p0205, r0205		

r7252[0...4]	Par_circuit maximum power unit current / PU I_max		
A_INF_828 (Parallel), B_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Converter	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [Arms]	Max: - [Arms]	Default: - [Arms]
Description:	Displays the maximum output current of the individual power units connected in parallel. The sum of the maximum currents of all power units connected in parallel is displayed in r0209.		
Index:	[0] = Rated value [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 cont duty cyc [4] = S6 load duty cycle		
Dependency:	See also: p0205, r0205		

r7300[0...n]	CO: Par_circuit VSM input line voltage u1 - u2 / VSM inp u1-u2		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the voltage between phases L1 and L2 of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSMs is displayed in r3661.		
Dependency:	See also: p3660		
	Note		
	X521.1 or X522.1: Connection of L1		
	X521.2 or X522.2: Connection of L2		

r7301[0...n]	CO: Par_circuit VSM input line voltage u2 - u3 / VSM inp u2-u3		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]
Description:	Displays the voltage between phases L2 and L3 of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSMs is displayed in r3662.		
Dependency:	See also: p3660		
	Note		
	X521.2 or X522.2: Connection of L2		
	X521.3 or X522.3: Connection of L3		

r7305[0...n]	Par_circuit VSM temperature evaluation status / VSM temp status			
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: p0140	Function plan: -	
	P group: Terminals	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	-	
Description:	Displays the status of the temperature evaluation of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. This displays whether the temperature actual value has exceeded the fault/alarm threshold. The overall status of the temperature evaluation of all VSMs is displayed in r3664.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Alarm is present	Yes	No
	01	Fault is present	Yes	No
Dependency:	See also: p3665, r3666, p3667, p3668			

r7306[0...n]	CO: Par_connect VSM temperature actual value / VSM Temp_ActVal		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2006	Expert list: 1
	Min:	Max:	Default:
	- [°C]	- [°C]	- [°C]
Description:	Displays the temperature actual value of a temperature sensor connected to the Voltage Sensing Module (VSM) for a parallel connection. The maximum value of all VSMS is displayed in r3666. Prerequisite: - A KTY/PT1000 temperature sensor is connected, and p3665 is set = 2, 6.		
Dependency:	See also: p3665		
r7310[0...n]	CO: Par_circuit VSM 10 V input CT1 actual value / VSM CT 1 I_act		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Displays the current actual value from current transducer (CT) 1 at the 10 V input of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSMS is displayed in r3671.		
Dependency:	See also: p3670		
	Note The CT for phase 1 is connected at terminals X520.1 and X520.2 of the VSM.		
r7311[0...n]	CO: Par_circuit VSM 10 V input CT2 actual value / VSM CT 2 I_act		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min:	Max:	Default:
	- [A]	- [A]	- [A]
Description:	Displays the current actual value from current transducer (CT) 2 at the 10 V input of the particular Voltage Sensing Module (VSM) for a parallel circuit configuration. The average value of all VSMS is displayed in r3672.		
Dependency:	See also: p3670		
	Note The CT for phase 2 is connected at terminals X520.3 and X520.4 of the VSM.		
r7315[0...n]	CO: Par_circuit VSM 10 V input 1 actual value / VSM inp 1 U_act		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]

Description: Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM).
The average value of all VSM is displayed in r3673.

Dependency: See also: p3670

Note

10 V input 1: Terminals X520.1 and X520.2

r7316[0...n] CO: Par_circuit VSM 10 V input 2 actual value / VSM inp 2 U_act

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min:	Max:	Default:
	- [V]	- [V]	- [V]

Description: Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM).
The average value of all VSMs is displayed in r3674.

Dependency: See also: p3670

Note

10 V input 2: Terminals X520.3 and X520.4

r7320[0...n] Par_circuit VSM line filter capacitance phase U / VSM filt C phase U

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [μ F]	- [μ F]	- [μ F]

Description: Displays the capacitance of the line filter, phase U of the particular Voltage Sensing Module (VSM).
The average value of all VSMs is displayed in r3677[0].

Dependency: See also: p3676

Note

Prerequisites:
The monitoring of the filter capacitance is activated.

r7321[0...n] Par_circuit VSM line filter capacitance phase V / VSM filt C phase V

A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [μ F]	- [μ F]	- [μ F]

Description: Displays the capacitance of the line filter, phase V of the particular Voltage Sensing Module (VSM).
The average value of all VSMs is displayed in r3677[1].

Dependency: See also: p3676

Note

Prerequisites:
The monitoring of the filter capacitance is activated.

r7322[0...n]	Par_circuit VSM line filter capacitance phase W / VSM filt C phase W		
A_INF_828 (Parallel), S_INF_828 (Parallel)	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: p0140	Function plan: -
	P group: Closed-loop control	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [μ F]	- [μ F]	- [μ F]

Description: Displays the capacitance of the line filter, phase W of the particular Voltage Sensing Module (VSM).
The average value of all VSMS is displayed in r3677[2].

Dependency: See also: p3676

Note

Prerequisites:
The monitoring of the filter capacitance is activated.

r7740[0...n]	IGBT power cycling counter valve 1 / IGBT load count 1		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of power cycling counter for valve 1.
For repairs, this parameter serves as internal documentation for service personnel.
The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: See also: p7786

NOTICE

After a valve has been replaced, the corresponding power cycling counter must be reset.

Note

The IGBT power cycling counter can only be set to 0.
Procedure when replacing valve 1:
1. Switch off the system and replace valve 1.
2. Switch on the system and acknowledge that valve 1 has been replaced (p7786.1 = 1).
--> the power cycling counter of valve 1 is then reset (r7740 = 0).
3. Carry out a POWER ON (power off/on).
--> as a consequence p7786.1 is automatically set to 0.

r7741[0...n]	IGBT power cycling counter valve 2 / IGBT load count 2		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of power cycling counter for valve 2.
For repairs, this parameter serves as internal documentation for service personnel.
The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: See also: p7786

NOTICE
After a valve has been replaced, the corresponding power cycling counter must be reset.

Note

The IGBT power cycling counter can only be set to 0.
 Procedure when replacing valve 2:
 1. Switch off the system and replace valve 2.
 2. Switch on the system and acknowledge that valve 2 has been replaced (p7786.2 = 1).
 --> the power cycling counter of valve 2 is reset (r7741 = 0).
 3. Carry out a POWER ON (power off/on).
 --> as a consequence p7786.2 is automatically set to 0.

r7742[0...n]

IGBT power cycling counter valve 3 / IGBT load count 3

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the status of power cycling counter for valve 3.
 For repairs, this parameter serves as internal documentation for service personnel.
 The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: See also: p7786

NOTICE
After a valve has been replaced, the corresponding power cycling counter must be reset.

Note

The IGBT power cycling counter can only be set to 0.
 Procedure when replacing valve 3:
 1. Switch off the system and replace valve 3.
 2. Switch on the system and acknowledge that valve 3 has been replaced (p7786.3 = 1).
 --> the power cycling counter of valve 3 is reset (r7742 = 0).
 3. Carry out a POWER ON (power off/on).
 --> as a consequence p7786.3 is automatically set to 0.

r7743[0...n]

IGBT power cycling counter valve 4 / IGBT load count 4

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned16	Dynamic index: PDS, p0120	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the status of power cycling counter for valve 4.
 For repairs, this parameter serves as internal documentation for service personnel.
 The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency: See also: p7786

NOTICE

After a valve has been replaced, the corresponding power cycling counter must be reset.

Note

The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 4:

1. Switch off the system and replace valve 4.
2. Switch on the system and acknowledge that valve 4 has been replaced (p7786.4 = 1).
--> the power cycling counter of valve 4 is reset (r7743 = 0).
3. Carry out a POWER ON (power off/on).
--> as a consequence p7786.4 is automatically set to 0.

r7744[0...n]**IGBT power cycling counter valve 5 / IGBT load count 5**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -

Data type: Unsigned16

P group: -

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: PDS, p0120

Unit group: -

Scaling: -

Max:

-

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the status of power cycling counter for valve 5.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency:

See also: p7786

NOTICE

After a valve has been replaced, the corresponding power cycling counter must be reset.

Note

The IGBT power cycling counter can only be set to 0.

Procedure when replacing valve 5:

1. Switch off the system and replace valve 5.
2. Switch on the system and acknowledge that valve 5 has been replaced (p7786.5 = 1).
--> the power cycling counter of valve 5 is reset (r7744 = 0).
3. Carry out a POWER ON (power off/on).
--> as a consequence p7786.5 is automatically set to 0.

r7745[0...n]**IGBT power cycling counter valve 6 / IGBT load count 6**

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -

Data type: Unsigned16

P group: -

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: PDS, p0120

Unit group: -

Scaling: -

Max:

-

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays the status of power cycling counter for valve 6.

For repairs, this parameter serves as internal documentation for service personnel.

The counter state corresponds to the valve wear. A maximum of 650% of the specified service life is displayed. 10000 corresponds to the nominal service life (100%). When this value is reached, the IGBT is theoretically at the end of its service life and must be replaced.

Dependency:

See also: p7786

NOTICE

After a valve has been replaced, the corresponding power cycling counter must be reset.

Note

The IGBT power cycling counter can only be set to 0.
 Procedure when replacing valve 6:
 1. Switch off the system and replace valve 6.
 2. Switch on the system and acknowledge that valve 6 has been replaced (p7786.6 = 1).
 --> the power cycling counter of valve 6 is reset (r7745 = 0).
 3. Carry out a POWER ON (power off/on).
 --> as a consequence p7786.6 is automatically set to 0.

r7760

All objects

Write protection/know-how protection status / Wr_prot/KHP stat

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the status for the write protection and know-how protection.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Write protection active	Yes	No	-
01	Know-how protection active	Yes	No	-
02	Know-how protection temporarily withdrawn	Yes	No	-
03	Know-how protection cannot be deactivated	Yes	No	-
04	Extended copy protection is active	Yes	No	-
05	Basic copy protection is active	Yes	No	-
06	Trace and measuring functions for diagnostic purposes active	Yes	No	-

Dependency:

See also: p7761

Note

KHP: Know-How Protection
 For bit 00:
 Write protection can be activated/deactivated via p7761 on the Control Unit.
 For bit 01:
 The know-how protection can be activated by entering a password (p7766 ... p7768).
 For bit 02:
 If it has already been activated, know-how protection can be temporarily deactivated by entering the valid password in p7766. In this case, bit 1 = 0 and bit 2 = 1 offset.
 For bit 03:
 Know-how protection cannot be deactivated, as p7766 is not entered in the OEM exception list (only the factory setting is possible). This bit is only set if know-how protection is active (bit 1 = 1) and p7766 has not been entered in the OEM exception list.
 For bit 04:
 When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards/Control Units. This bit is only set if know-how protection is active and p7765 bit 00 is set.
 For bit 05:
 When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards. This bit is only set if know-how protection is active and in p7765 bit 01 is set and not bit 00.
 For bit 06:
 When know-how protection is activated, the drive data can be traced using the device trace function. This bit is only set if know-how protection is active and in p7765.2 is set.

p7761	Write protection / Write protection		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Setting for activating/de-activating the write protection for adjustable parameters.		
Value:	0: Deactivate write protection		
	1: Activate write protection		
Dependency:	See also: r7760		
NOTICE			
While write protection is active, a download is prevented; however, it is still possible to restore the factory settings.			
Note			
Parameters with the "WRITE_NO_LOCK" attributes are excluded from the write protection.			
A product-specific list of these parameters is also available in the corresponding List Manual.			

p7762	Write protection multi-master fieldbus system access behavior / Fieldbus acc_behav		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Sets the behavior for write protection when accessing via multi-master fieldbus systems (e.g. CAN, BACnet).		
Value:	0: Write access independent of p7761		
	1: Write access dependent on p7761		
Dependency:	See also: r7760, p7761		

p7763	KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764		
A_INF_828, B_INF_828, CU_LINK, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	500	1
Description:	Sets the number of parameters for the OEM exception list (p7764[0...n]). p7764[0...n], with n = p7763 - 1		
Dependency:	See also: p7764		

Note

KHP: Know-How Protection

Even if know-how protection is set, parameters in this list can be read and written to.

p7764[0...n] **KHP OEM exception list / KHP OEM excep list**
 CU_LINK, HUB, **Changeable:** T, U **Calculation:** - **Access level:** 3
 TM120, TM150, **Data type:** Unsigned16 **Dynamic index:** p7763 **Function plan:** -
 TM54F_MA, TM54F_SL **P group:** - **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 65535 0

Description: OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection. p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.
 See also: p7763

Note
 KHP: Know-How Protection
 Even if know-how protection is set, parameters in this list can be read and written to.

p7770 **NVRAM action / NVRAM action**
 A_INF_828, **Changeable:** T **Calculation:** - **Access level:** 3
 B_INF_828, HLA_828, **Data type:** Integer16 **Dynamic index:** - **Function plan:** -
 HUB, S_INF_828, **P group:** - **Unit group:** - **Unit selection:** -
 S_INF_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_828, **Min:** **Max:** **Default:**
 SERVO_COMBI, 0 3 0
 TM120, TM150,
 TM54F_MA, TM54F_SL

Description: Sets the action to be executed for NVRAM data.
 At the end of the action the value is automatically set to 0.

Value: 0: Inactive
 1: Load NVRAM data to parameters
 2: Load parameters to NVRAM
 3: Reset

NOTICE
 After action p7770 = 1 no more pulses may be enabled.
 After action p7770 = 2, it is essential that parameters are backed up (p0977 = 1) and that a warm restart is then performed (p0009 = 30, p0976 = 2, 3). This will apply the values written.

Note
 For a value = 1:
 This action loads the NVRAM data to the parameters.
 For a value = 2:
 This action loads the parameters to the NVRAM.
 For a value = 3:
 This action sets parameters p7771 ... p7774 to the factory setting.
 It is recommended to avoid placing unnecessary load on the subsequent upload/download operation.

p7775 **NVRAM data backup/import/delete / NVRAM backup**
 CU_I_828, **Changeable:** C1, T, U **Calculation:** - **Access level:** 3
 CU_I_COMBI, **Data type:** Integer16 **Dynamic index:** - **Function plan:** -
 CU_NX_828 **P group:** All groups **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0 17 0

Description: Setting to backup/import/delete NVRAM data.
 NVRAM data are non-volatile data in the device (e.g. fault buffer).
 For NVRAM data actions, the following data are excluded:
 - Crash diagnostics
 - CU operating hours counter
 - CU temperature
 - Safety logbook

Value:

0:	Inactive
1:	NVRAM data backup to memory card
2:	Import NVRAM data from the memory card
3:	Delete NVRAM data in the device
10:	Error when clearing
11:	Error when backing up, memory card not available
12:	Error when backing up, insufficient memory space
13:	Error when backing up
14:	Error when importing, memory card not available
15:	Error when importing, checksum error
16:	Error when importing, no NVRAM data available
17:	Error when importing

NOTICE

For 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).

p7786[0...n]

A_INF_828,
 B_INF_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Service report / Service report

Changeable: T, U
Data type: Unsigned16
P group: -
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: PDS, p0120
Unit group: -
Scaling: -
Max:
 -

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
 0000 0000 0000 0000 bin

Description: Service parameter to internally document repairs.
 After a component has been replaced, this must be confirmed using p7786.x = 0/1.
 When acknowledging a replacement, the "Generate report" function is automatically executed.
 p7786.x is automatically set to 0 after POWER ON.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Control Interface Module (CIM) replaced	Yes	No	-
	01	Valve 1 replaced	Yes	No	-
	02	Valve 2 replaced	Yes	No	-
	03	Valve 3 replaced	Yes	No	-
	04	Valve 4 replaced	Yes	No	-
	05	Valve 5 replaced	Yes	No	-
	06	Valve 6 replaced	Yes	No	-
	15	Generate report	Yes	No	-

NOTICE

This write process can take several minutes.

Note

The power unit involved can be assigned the correct P index using p0124 (power unit detection via LED).

p7788

Power unit sign-of-life monitoring tolerance window / PU SoL monit tol

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T, U
Data type: Unsigned16
P group: Converter
Not for motor type: -
Min:
1

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
1000

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
10

Description:

Setting of the tolerance window for the sign of life monitoring for communication to the power unit.

Dependency:

See also: A30853

Note

An active window is generated by means of DRIVE-CLiQ telegrams.
If more than one sign-of-life error appears in the window, then A30853 is output.
The lower the value in p7788, the greater the monitoring tolerance.

p7789

Power unit sign-of-life monitoring fault threshold / PU SoL monit F_thr

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: T, U
Data type: Unsigned16
P group: Converter
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
1000

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
1

Description:

Sets the number of consecutive sign-of-life errors that are tolerated for communication to the power unit.

Dependency:

See also: F30008

Note

F30008 is output in the case of a fault.
The higher the value in the parameter, the higher the monitoring tolerance.

p7820

DRIVE-CLiQ component component number / DQ compo_no

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U
Data type: Unsigned16
P group: -
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
65535

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
0

Description:

Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed.

Dependency:

See also: p7821, p7822, r7823

p7821

DRIVE-CLiQ component parameter number / DQ para_no

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U
Data type: Unsigned16
P group: -
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
65535

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
0

Description:

Sets the parameter number to access a parameter of a DRIVE-CLiQ component.

Dependency: See also: p7820, p7822, r7823

p7822	DRIVE-CLiQ component parameter index / DQ para_index		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 65535	Default: 0
Description:	Sets the parameter index to access a parameter of a DRIVE-CLiQ component.		
Dependency:	See also: p7820, p7821, r7823		

r7823	DRIVE-CLiQ component read parameter value / Read DQ value		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the parameter value read from the DRIVE-CLiQ component.		
Dependency:	See also: p7820, p7821, p7822		

r7825[0...6]	DRIVE-CLiQ component versions / DQ comp version		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the firmware and EEPROM versions of the DRIVE-CLiQ component selected using p7828[1].		
Index:	[0] = Reference firmware version [1] = Actual firmware version [2] = EEPROM0 version [3] = EEPROM1 version [4] = AndEEPROM2 version [5] = EEPROM3 version [6] = EEPROM4 version		
Dependency:	See also: p7828		

Note

For index 0:
Firmware version on the memory card/device memory.
For index 1:
Actual firmware version of the DRIVE-CLiQ component.
For index 2 ... 6:
Actual EEPROM version of the DRIVE-CLiQ component.

p7826	Firmware update automatic / FW update auto		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2	1
Description:	Sets the behavior for the automatic firmware update of the DRIVE-CLiQ components.		
Value:	0: Deactivated		
	1: Upgrade and downgrade		
	2: Upgrade		

NOTICE
If this parameter is changed, it only becomes effective the next time that the drive system boots.

Note
The firmware is automatically updated when the system boots. The boot can take several minutes. After the update has been completed, it is necessary to carry out a new POWER ON (power-down/power-up) for the components involved.
The firmware update procedure is displayed as follows:
Control Unit (LED RDY):
Flashes yellow with 0.5 Hz --> firmware is being updated.
Flashing yellow with 2 Hz --> POWER ON is required for the components involved.
Components involved:
Flashing red/green with 0.5 Hz --> firmware is being updated.
Flashing red/green with 2 Hz --> POWER ON of the components is required.
Only components from firmware version 2.5 support the red/green flashing at 2 Hz.

r7827	Firmware update progress display / FW update progress		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]
Description:	Displays the progress when updating the firmware of the DRIVE-CLiQ components.		

p7828[0...1]	Firmware download component number / FW downl comp_no		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	399	0
Description:	Sets the component number for the required DRIVE-CLiQ component. Index 0: Component number of the DRIVE-CLiQ component for which a firmware download is to be made. Index 1: Component number of the DRIVE-CLiQ component for which the reference firmware version, saved in r7825 on the memory card/device memory, is to be displayed.		
Index:	[0] = Firmware download [1] = Reference firmware version		

Dependency: See also: p0121, p0141, p0151, p7829

Note

For p7828[0] = 399, the firmware for all of the existing components is downloaded.
The firmware download is started with p7829 = 1.

p7829

Activate firmware download / FW download act

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-1

999

0

Description:

Activating the firmware download for the DRIVE-CLiQ components specified in p7828.

1: Activate download.

-1: activate the download and carry out a reset.

0: Download successfully completed.

> 1: Fault code

011: DRIVE-CLiQ component has detected a checksum error.

015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file.

018: Firmware version is too old and is not accepted by the component.

019: Firmware version is not suitable for the hardware release of the component.

101: After several communication attempts, no response from the DRIVE-CLiQ component.

140: Firmware file for the DRIVE-CLiQ component not available on the memory card/device memory.

143: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.

144: When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card/device memory is defective.

145: Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.

156: Component with the specified component number is not available.

Additional values:

Only for internal Siemens troubleshooting.

Dependency:

See also: p7828

Note

p7829 is automatically set to 0 after the firmware has been successfully downloaded.

The new firmware only becomes active at the next system run-up.

p7830

Telegram diagnostics selection / Telegr diag sel

HLA_828, SERVO_828

Changeable: T

Calculation: -

Access level: 4

Data type: Integer16

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

3

0

Description:

Selects a telegram whose contents should be shown in r7831 ... r7836.

Value:

0: Reserved

1: First cyclic receive telegram sensor 1

2: First cyclic receive telegram sensor 2

3: First cyclic receive telegram sensor 3

Dependency:

See also: r7831, r7832, r7833, r7834, r7835, r7836

r7831[0...23] Telegram diagnostics signals / Telegr diag sig

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	15157	-

Description: Displays the signals contained in the selected telegram (p7830).

Value:

- 0: UNUSED
- 1: UNKNOWN
- 102: SAPAR_ID_DSA_ALARM
- 110: SAPAR_ALARMBITS_FLOAT_0
- 111: SAPAR_ALARMBITS_FLOAT_1
- 112: SAPAR_ALARMBITS_FLOAT_2
- 113: SAPAR_ALARMBITS_FLOAT_3
- 114: SAPAR_ALARMBITS_FLOAT_4
- 115: SAPAR_ALARMBITS_FLOAT_5
- 10500: ENC_ID_TIME_PRETRIGGER
- 10501: ENC_ID_TIME_SEND_TELEG_1
- 10502: ENC_ID_TIME_CYCLE_FINISHED
- 10503: ENC_ID_TIME_DELTA_FUNMAN
- 10504: ENC_ID_SUBTRACE_CALCTIMES
- 10505: ENC_ID_SYNO_PERIOD
- 10516: ENC_ID_ADC_TRACK_A
- 10517: ENC_ID_ADC_TRACK_B
- 10518: ENC_ID_ADC_TRACK_C
- 10519: ENC_ID_ADC_TRACK_D
- 10520: ENC_ID_ADC_TRACK_A_SAFETY
- 10521: ENC_ID_ADC_TRACK_B_SAFETY
- 10523: ENC_ID_ADC_TEMP_1
- 10524: ENC_ID_SUBTRACE_TRACK_A
- 10525: ENC_ID_SUBTRACE_TRACK_B
- 10526: ENC_ID_ADC_TRACK_R
- 10532: ENC_ID_TRACK_AB_X
- 10533: ENC_ID_TRACK_AB_Y
- 10534: ENC_ID_OFFSET_CORR_AB_X
- 10535: ENC_ID_OFFSET_CORR_AB_Y
- 10536: ENC_ID_AB_ABS_VALUE
- 10537: ENC_ID_TRACK_CD_X
- 10538: ENC_ID_TRACK_CD_Y
- 10539: ENC_ID_TRACK_CD_ABS
- 10542: ENC_ID_AB_RAND_X
- 10543: ENC_ID_AB_RAND_Y
- 10544: ENC_ID_AB_RAND_ABS_VALUE
- 10545: ENC_ID_SUBTRACE_ABS_ARRAY
- 10546: ENC_ID_PROC_OFFSET_0
- 10547: ENC_ID_PROC_OFFSET_4
- 10550: ENC_ID_SUBTRACE_AMPL
- 10563: ENC_ID_ENCODER_TEMP

10564:	ENC_SELFTEMP_ACT
10565:	ENC_ID_MOTOR_TEMP_TOP
10566:	ENC_ID_MOTOR_TEMP_1
10567:	ENC_ID_MOTOR_TEMP_1_COD
10569:	ENC_ID_MOTOR_TEMP_2_COD
10571:	ENC_ID_MOTOR_TEMP_3_COD
10580:	ENC_ID_RESISTANCE_1
10590:	ENC_ID_ANA_CHAN_A
10591:	ENC_ID_ANA_CHAN_B
10592:	ENC_ID_ANA_CHAN_X
10593:	ENC_ID_ANA_CHAN_Y
10596:	ENC_ID_AB_ANGLE
10597:	ENC_ID_CD_ANGLE
10598:	ENC_ID_MECH_ANGLE_HI
10599:	ENC_ID_RM_POS_PHI_COMMU
10600:	ENC_ID_PHI_COMMU
10601:	ENC_ID_SUBTRACE_ANGLE
10612:	ENC_ID_DIFF_CD_INC
10613:	ENC_ID_RM_POS_PHI_COMMU_RFG
10628:	ENC_ID_MECH_ANGLE
10629:	ENC_ID_MECH_RM_POS
10644:	ENC_ID_INIT_VECTOR
10645:	FEAT_INIT_VECTOR
10660:	ENC_ID_SENSOR_STATE
10661:	ENC_ID_BASIC_SYSTEM
10662:	ENC_ID_REFMARK_STATUS
10663:	ENC_ID_DSA_STATUS1_SENSOR
10664:	ENC_ID_DSA_RMSTAT_HANDSHAKE
10665:	ENC_ID_DSA_CONTROL1_SENSOR
10667:	ENC_ID_SAFETY
10669:	ENC_ID_SUB_STATE
10676:	ENC_ID_COUNTCORR_SAW_VALUE
10677:	ENC_ID_COUNTCORR_ABS_VALUE
10678:	ENC_ID_SAWTOOTH_CORR
10680:	ENC_ID_SM_XIST1_CORRECTED_QUADRANTS
10692:	ENC_ID_RESISTANCE_CALIB_INSTANT
10693:	ENC_ID_SERPROT_POS
10700:	ENC_ID_AB_VIOL_COUNT
10723:	ENC_ID_ACT_STATEMACHINE_FUNCTION
10724:	ENC_ID_ACT_FUNMAN_FUNCTION
10725:	ENC_ID_SAFETY_COUNTER_CRC
10728:	ENC_ID_SUBTRACE_AREA
10740:	ENC_ID_POS_ABSOLUTE
10741:	ENC_ID_POS_REFMARK
10742:	ENC_ID_SAWTOOTH
10743:	ENC_ID_SAFETY_PULSE_COUNTER
10745:	ENC_ID_EIU_ZEROCTRL
10756:	ENC_ID_DSA_ACTUAL_SPEED
10757:	ENC_ID_SPEED_DEV_ABS

- 10772: ENC_ID_DSA_POS_XIST1
- 10788: ENC_ID_AB_CROSS_CORR
- 10789: ENC_ID_AB_GAIN_Y_CORR
- 10790: ENC_ID_AB_PEAK_CORR
- 11825: ENC_ID_RES_TRANSITION_RATIO
- 11826: ENC_ID_RES_PHASE_SHIFT
- 15150: ENC_ID_SPINDLE_S1_RAW
- 15151: ENC_ID_SPINDLE_S4_RAW
- 15152: ENC_ID_SPINDLE_S5_RAW
- 15155: ENC_ID_SPINDLE_S1_CAL
- 15156: ENC_ID_SPINDLE_S4_CAL
- 15157: ENC_ID_SPINDLE_S5_CAL

r7832[0...23] Telegram diagnostics numerical format / Telegr diag format

HLA_828, SERVO_828	Changeable: -	Calculation: -
	Data type: Integer16	Dynamic index: -
	P group: -	Unit group: -
	Not for motor type: -	Scaling: -
	Min: -1	Max: 14
		Default: -

Description: Displays the original numerical format of the signals contained in the telegram. The associated signal number is represented in the appropriate index of r7831.

- Value:**
- 1: Unknown
 - 0: Boolean
 - 1: Signed 1 byte
 - 2: Signed 2 byte
 - 3: Signed 4 byte
 - 4: Signed 8 byte
 - 5: Unsigned 1 byte
 - 6: Unsigned 2 byte
 - 7: Unsigned 4 byte
 - 8: Unsigned 8 byte
 - 9: Float 4 byte
 - 10: Double 8 byte
 - 11: mm dd yy HH MM SS MS DOW
 - 12: ASCII string
 - 13: SINUMERIK frame type
 - 14: SINUMERIK axis type

Dependency: See also: r7831

r7833[0...23] Telegram diagnostics unsigned / Telegr diag unsign

HLA_828, SERVO_828	Changeable: -	Calculation: -
	Data type: Unsigned32	Dynamic index: -
	P group: -	Unit group: -
	Not for motor type: -	Scaling: -
	Min: -	Max: -
		Default: -

Description: Parameter to display a DSA signal in the unsigned-integer format. The associated signal number is represented at the appropriate index in r7831.

r7834[0...23] Telegram diagnostics signed / Telegr diag sign

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Parameter to display a DSA signal in the signed-integer format.
The associated signal number is represented at the appropriate index in r7831.

r7835[0...23] Telegram diagnostics real / Telegr diag real

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Parameter to display a DSA signal in the float format.
The associated signal number is represented at the appropriate index in r7831.

r7836[0...23] Telegram diagnostics unit / Telegr diag unit

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-1	147	-

Description: Displays the units of a DSA signal.
The associated signal number is represented at the appropriate index in r7831.

Value:	-1:	Unknown
	0:	None
	1:	Millimeter or degrees
	2:	Millimeter
	3:	Degrees
	4:	mm/min or RPM
	5:	Millimeter / min
	6:	Revolutions / min
	7:	m/sec ² or U/sec ²
	8:	m/sec ²
	9:	U/sec ²
	10:	m/sec ³ or U/sec ³
	11:	m/sec ³
	12:	U/sec ³
	13:	sec
	14:	16.667 / sec
	15:	mm/revolution
	16:	ACX_UNIT_COMPENSATION_CORR
	18:	Newton
	19:	Kilogram

20:	Kilogram meter ²
21:	Percent
22:	Hertz
23:	Volt peak-to-peak
24:	Amps peak-to-peak
25:	Degrees Celsius
26:	Degrees
28:	Millimeter or degrees
29:	Meters / minute
30:	Meters / second
31:	ohm
32:	Millihenry
33:	Newton meter
34:	Newton meter/Ampere
35:	Volt/Ampere
36:	Newton meter second / rad
38:	31.25 microseconds
39:	Microseconds
40:	Milliseconds
42:	Kilowatt
43:	Micro amps peak-to-peak
44:	Volt seconds
45:	Microvolt seconds
46:	Micro newton meters
47:	Amps / volt seconds
48:	Per mille
49:	Hertz / second
53:	Micrometer or millidegrees
54:	Micrometer
55:	Millidegrees
59:	Nanometer
61:	Newton/Amps
62:	Volt seconds/meter
63:	Newton seconds/meter
64:	Micronewton
65:	Liters / minute
66:	Bar
67:	Cubic centimeters
68:	Millimeter / volt minute
69:	Newton/Volt
80:	Millivolts peak-to-peak
81:	Volt rms
82:	Millivolts rms
83:	Amps rms
84:	Micro amps rms
85:	Micrometers / revolution
90:	Tenths of a second
91:	Hundredths of a second
92:	10 microseconds

93:	Pulses
94:	256 pulses
95:	Tenths of a pulse
96:	Revolutions
97:	100 revolutions / minute
98:	10 revolutions / minute
99:	0.1 revolutions / minute
100:	Thousandth revolution / minute
101:	Pulses / second
102:	100 pulses / second
103:	10 revolutions / (minute x seconds)
104:	10000 pulses/second ²
105:	0.1 Hertz
106:	0.01 Hertz
107:	0.1 / seconds
108:	Factor 0.1
109:	Factor 0.01
110:	Factor 0.001
111:	Factor 0.0001
112:	0.1 Volt peak-to-peak
113:	0.1 Volt peak-to-peak
114:	0.1 amps peak-to-peak
115:	Watt
116:	100 Watt
117:	10 Watt
118:	0.01 percent
119:	1/second ³
120:	0.01 percent/millisecond
121:	Pulses / revolution
122:	Microfarads
123:	Milliohm
124:	0.01 Newton meter
125:	Kilogram millimeter ²
126:	Rad / (seconds newton meter)
127:	Henry
128:	Kelvin
129:	Hours
130:	Kilohertz
131:	Milliamperes peak-to-peak
132:	Millifarads
133:	Meter
135:	Kilowatt hours
136:	Percent
137:	Amps / Volt
138:	Volt
139:	Millivolts
140:	Microvolts
141:	Amps
142:	Milliamperes

- 143: Micro amps
- 144: Milliamperes rms
- 145: Millimeter
- 146: Nanometer
- 147: Joules

r7843[0...20]

Memory card serial number / Mem_card ser.no

CU_I_828,
CU_I_COMBI

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

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

r7844[0...2]

Memory card/device memory firmware version / Mem_crd/dev_mem FW

CU_I_828,
CU_I_COMBI

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the version of the firmware stored on the memory medium of the drive device.
Depending on the drive device being used, the memory medium is a memory card, or an internal non-volatile device memory.

Index:

- [0] = Internal
- [1] = External
- [2] = Parameter backup

Note

For index 0:

Displays the internal firmware version (e.g. 04402315).

This firmware version is the version of the memory card/device memory and not the CU firmware (r0018), however, normally they have the same versions.

For index 1:

Displays the external firmware version (e.g. 04040000 -> 4.4).

For automation systems with SINAMICS Integrated this is the runtime version of the automation system.

For index 2:

Displays the internal firmware version of the parameter backup.

With this CU firmware version, the parameter backup was saved, which was used when powering up.

r7850[0...n]	Drive object operational/not operational / DO ready for oper			
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4	
	Data type: Integer16	Dynamic index: r0095	Function plan: -	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: -32786	Max: 32767	Default: -	
Description:	Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed). 0: Drive object not ready for operation 1: Drive object ready for operation			
p7852	Number of indices for r7853 / Qty indices r7853			
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4	
	Data type: Unsigned16	Dynamic index: -	Function plan: -	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: 1	Max: 200	Default: 1	
Description:	Displays the number of indices for r7853[0...n]. This corresponds to the number of DRIVE-CLiQ components that are in the target topology.			
Dependency:	See also: r7853			
	Note			
	The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up.			
r7853[0...n]	Component available/not available / Comp present			
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4	
	Data type: Unsigned16	Dynamic index: p7852	Function plan: -	
	P group: -	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min: 0000 hex	Max: FFFF hex	Default: -	
Description:	Displays the component and whether this component is currently present. High byte: Component number Low byte: 0/1 (not available/available)			
Dependency:	See also: p7852			

Note

The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up.

p7857

Sub-boot mode / Sub-boot mode

A_INF_828,
B_INF_828, CU_LINK,
HLA_828, HUB,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI,
TM120, TM150,
TM54F_MA, TM54F_SL

Changeable: T, U
Data type: Integer16
P group: -
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
1

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
1

Description: Sets the mode for the sub-boot.
Value:
0: Sub-boot manual
1: Sub-boot automatic

Note

For p7857 = 0 (manual sub-boot) the following applies:
The parameter should be set to 1 to start the sub-boot.

p7859[0...199]

Component number global / Comp_no global

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: T, U
Data type: Integer16
P group: -
Not for motor type: -
Min:
-32786

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
32767

Access level: 4
Function plan: -
Unit selection: -
Expert list: 0
Default:
0

Description: Sets the global and unique component number in a drive system with several Control Units.
Each index of the parameter corresponds to a possible local component number on the corresponding Control Unit.
The indices are allocated to the global component numbers as follows:
p7859[0]: Not used
p7859[1]: Sets the global component number for the local component number 1
p7859[2]: Sets the global component number for the local component number 2
...
p7859[199]: Sets the global component number for the local component number 199

NOTICE

This parameter is preferably set via suitable commissioning software (e.g. UpdateAgent, STARTER, SCOUT).
Changing the parameter via the AOP (Advanced Operator Panel) or BOP (Basic Operator Panel) can destroy a valid unique setting.

Note

The parameter is not influenced by setting the factory setting.

r7867

Status/configuration changes global / Changes global

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -
Data type: Unsigned32
P group: -
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays status and configuration changes of all of the drive objects in the complete unit.
When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented.

Dependency: See also: r7868, r7869, r7870

r7868[0...24] **Configuration changes drive object reference / Config_chng DO ref**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Reference to the drive objects whose configuration has changed.
Index 0:
When changing one of the following indices, then the value in this index is increased.
Index 1...n:
The drive object with object number in p0101[n-1] has changed its configuration.
Example:
r7868[3] was incremented since the last time it was read.
--> the configuration of the drive object with object number in p0101[2] was changed.

Index:

- [0] = Sum of the following indices
- [1] = Object number in p0101[0]
- [2] = Object number in p0101[1]
- [3] = Object number in p0101[2]
- [4] = Object number in p0101[3]
- [5] = Object number in p0101[4]
- [6] = Object number in p0101[5]
- [7] = Object number in p0101[6]
- [8] = Object number in p0101[7]
- [9] = Object number in p0101[8]
- [10] = Object number in p0101[9]
- [11] = Object number in p0101[10]
- [12] = Object number in p0101[11]
- [13] = Object number in p0101[12]
- [14] = Object number in p0101[13]
- [15] = Object number in p0101[14]
- [16] = Object number in p0101[15]
- [17] = Object number in p0101[16]
- [18] = Object number in p0101[17]
- [19] = Object number in p0101[18]
- [20] = Object number in p0101[19]
- [21] = Object number in p0101[20]
- [22] = Object number in p0101[21]
- [23] = Object number in p0101[22]
- [24] = Object number in p0101[23]

Dependency: See also: p0101, r7867, r7871

r7869[0...24]	Status changes drive object reference / Status_chng DO ref		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Reference to the drive objects whose status has changed.
 Index 0:
 When changing one of the following indices, then the value in this index is increased.
 Index 1...n:
 The drive object with object number in p0101[n-1] has changed its status.
 Example:
 r7868[3] was incremented since the last time it was read.
 --> the status of the drive object with object number in p0101[2] was changed.

- Index:**
- [0] = Sum of the following indices
 - [1] = Object number in p0101[0]
 - [2] = Object number in p0101[1]
 - [3] = Object number in p0101[2]
 - [4] = Object number in p0101[3]
 - [5] = Object number in p0101[4]
 - [6] = Object number in p0101[5]
 - [7] = Object number in p0101[6]
 - [8] = Object number in p0101[7]
 - [9] = Object number in p0101[8]
 - [10] = Object number in p0101[9]
 - [11] = Object number in p0101[10]
 - [12] = Object number in p0101[11]
 - [13] = Object number in p0101[12]
 - [14] = Object number in p0101[13]
 - [15] = Object number in p0101[14]
 - [16] = Object number in p0101[15]
 - [17] = Object number in p0101[16]
 - [18] = Object number in p0101[17]
 - [19] = Object number in p0101[18]
 - [20] = Object number in p0101[19]
 - [21] = Object number in p0101[20]
 - [22] = Object number in p0101[21]
 - [23] = Object number in p0101[22]
 - [24] = Object number in p0101[23]

Dependency: See also: p0101, r7867, r7872

r7870[0...7]	Configuration changes global / Config_chng global		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the configuration changes of all of the drive objects in the complete unit.

Index:	[0] = Sum of the following indices [1] = r7871[0] of a drive object [2] = p0101 or r0102 [3] = PROFIBUS configuration (p0978) [4] = DRIVE-CLiQ actual topology (r9900 or r9901) [5] = DRIVE-CLiQ target topology (r9902 or r9903) [6] = DRIVE-CLiQ sockets (p0109) [7] = OA applications
Dependency:	See also: r7867, r7871

Note

For index 0:

When changing one of the following indices, then the value in this index is incremented.

For index 1:

Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented.

For index 2:

Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented.

For index 3:

PROFIBUS configuration unit. When changing p0978, the value in this index is incremented.

For index 4:

DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented.

For index 5:

DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented.

For index 6:

DRIVE-CLiQ sockets. When changing p0109, the value in this index is incremented.

For index 7:

OA applications. When changing OA applications, the value in this index is incremented.

r7871[0...15]	Configuration changes drive object / Config_chng DO		
CU_LINK, HUB, TM120, TM150	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:	[0] = Sum of the following indices [1] = p0010, p0107, p0108 [2] = Drive object name (p0199) [3] = Structure-relevant parameters (e.g. p0180) [4] = BICO interconnections [5] = Activate/de-activate drive object [6] = Data backup required [7] = Reserved [8] = Reference or changeover parameters (e.g. p2000) [9] = Parameter count through Drive Control Chart (DCC) [10] = p0107, p0108 [11] = Reserved [12] = Write protection and know-how protection status [13] = Reserved [14] = Reserved [15] = Reserved
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Dependency: See also: r7868, r7870

Note

For index 0:
When changing one of the following indices, then the value in this index is incremented.

For index 1:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.

For index 2:
Drive object name. When changing p0199, the value in this index is incremented.

For index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

For index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

For index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

For index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

For index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

For index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

For index 10:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

For index 12:
Drive object configuration. When activating/deactivating write protection or know-how protection, the value in this index is incremented.

r7871[0...15]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Configuration changes drive object / Config_chng DO

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the configuration changes on the drive object.

Index:

- [0] = Sum of the following indices
- [1] = p0107, p0108, p0171, p0172 or p0173
- [2] = Drive object name (p0199)
- [3] = Structure-relevant parameters (e.g. p0180)
- [4] = BICO interconnections
- [5] = Activate/de-activate drive object
- [6] = Data backup required
- [7] = Reserved
- [8] = Reference or changeover parameters (e.g. p2000)
- [9] = Parameter count through Drive Control Chart (DCC)
- [10] = p0107, p0108
- [11] = Reserved
- [12] = Write protection and know-how protection status
- [13] = Reserved
- [14] = Reserved
- [15] = Reserved

Dependency: See also: r7868, r7870

Note

For index 0:

When changing one of the following indices, then the value in this index is incremented.

For index 1:

Drive object commissioning: When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

For index 2:

Drive object name. When changing p0199, the value in this index is incremented.

For index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

For index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

For index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

For index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

For index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

For index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

For index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:

- [0] = Sum of the following indices
- [1] = p0010, p0107, p0108, p0171, p0172 or p0173
- [2] = Drive object name (p0199)
- [3] = Structure-relevant parameters (e.g. p0180)
- [4] = BICO interconnections
- [5] = Activate/de-activate drive object
- [6] = Data backup required
- [7] = Activate/de-activate component
- [8] = Reference or changeover parameters (e.g. p2000)
- [9] = Parameter count through Drive Control Chart (DCC)
- [10] = p0107, p0108, p0171, p0172 or p0173
- [11] = p0530 or p0531
- [12] = Write protection and know-how protection status
- [13] = Reserved
- [14] = Reserved
- [15] = SERVO or VECTOR (e.g. p0300)

Dependency: See also: r7868, r7870

Note

For index 0:
When changing one of the following indices, then the value in this index is incremented.

For index 1:
Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

For index 2:
Drive object name. When changing p0199, the value in this index is incremented.

For index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

For index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

For index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

For index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

For index 7:
Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

For index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

For index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

For index 10:
Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

For index 11:
Drive object bearing. When changing p0530 or p0531, the value in this index is incremented.

For index 12:
Drive object configuration. When activating/deactivating write protection or know-how protection, the value in this index is incremented.

For index 15:
SERVO/VECTOR configuration. When changing p0300, p0301 or p0400, the value in this index is incremented.

r7871[0...15]

Configuration changes drive object / Config_chng DO

A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI

Changeable: -
Data type: Unsigned32
P group: -
Not for motor type: -
Min:
-

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
-

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
-

Description: Displays the configuration changes on the drive object.

Index:	[0] = Sum of the following indices
	[1] = p0010, p0107, p0108
	[2] = Drive object name (p0199)
	[3] = Structure-relevant parameters (e.g. p0180)
	[4] = BICO interconnections
	[5] = Activate/de-activate drive object
	[6] = Data backup required
	[7] = Activate/de-activate component
	[8] = Reference or changeover parameters (e.g. p2000)
	[9] = Parameter count through Drive Control Chart (DCC)
	[10] = p0107, p0108
	[11] = Reserved
	[12] = Write protection and know-how protection status
	[13] = Reserved
	[14] = Reserved
	[15] = Reserved
Dependency:	See also: r7868, r7870

Note

For index 0:

When changing one of the following indices, then the value in this index is incremented.

For index 1:

Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

For index 2:

Drive object name. When changing p0199, the value in this index is incremented.

For index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

For index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

For index 5:

Drive object activity: When changing p0105, the value in this index is incremented.

For index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

For index 7:

Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

For index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

For index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

For index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the configuration changes on the drive object.

- Index:**
- [0] = Sum of the following indices
 - [1] = p0010, p0107, p0108
 - [2] = Drive object name (p0199)
 - [3] = Structure-relevant parameters (e.g. p0180)
 - [4] = BICO interconnections
 - [5] = Reserved
 - [6] = Data backup required
 - [7] = Reserved
 - [8] = Reference or changeover parameters (e.g. p2000)
 - [9] = Parameter count through Drive Control Chart (DCC)
 - [10] = p0107, p0108
 - [11] = Reserved
 - [12] = Write protection and know-how protection status
 - [13] = Reserved
 - [14] = Reserved
 - [15] = Reserved

Dependency: See also: r7868, r7870

Note

For index 0:

When changing one of the following indices, then the value in this index is incremented.

For index 1:

Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

For index 2:

Drive object name. When changing p0199, the value in this index is incremented.

For index 3:

Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

For index 4:

Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

For index 6:

Drive object, data save.

0: There are no parameter changes to save.

1: There are parameter changes to save.

For index 8:

Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

For index 9:

Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

For index 10:

Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.

r7872[0...3]	Drive object status changes / DO stat_chng		
A_INF_828,	Changeable: -	Calculation: -	Access level: 4
B_INF_828, CU_I_828,	Data type: Unsigned32	Dynamic index: -	Function plan: -
CU_I_COMBI,	P group: -	Unit group: -	Unit selection: -
CU_LINK, CU_NX_828,	Not for motor type: -	Scaling: -	Expert list: 1
HLA_828, HUB,	Min:	Max:	Default:
S_INF_828,	-	-	-
S_INF_COMBI,			
SERVO_828, TM120,			
TM150, TM54F_MA,			
TM54F_SL			

Description: Displays the status changes on the drive object.

Index: [0] = Sum of the following indices
 [1] = Faults (r0944)
 [2] = Alarms (r2121)
 [3] = Safety messages (r9744)

Dependency: See also: r7869

Note

For index 0:

When changing one of the following indices, then the value in this index is incremented.

For index 1:

Drive object faults. When changing r0944, the value in this index is incremented.

For index 2:

Drive object alarms. When changing r2121, the value in this index is incremented.

For index 3:

Drive object safety messages. When changing r9744, the value in this index is incremented.

p7900[0...23]	Drive objects priority / DO priority		
CU_I_828,	Changeable: T, U	Calculation: -	Access level: 4
CU_I_COMBI,	Data type: Unsigned16	Dynamic index: -	Function plan: -
CU_NX_828	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	65535	0

Description: Sets the priority for processing the existing drive objects in the system.
 The parameter enables a free sequence to be set for processing the drive objects. For this purpose all the drive object numbers existing in the system have to be written in the desired sequence into the corresponding indices of the parameter. After re-booting this sequence will be effective without a plausibility check.

With the factory setting the following priorities regarding processing are applicable:

- The drive objects are pre-sorted according to their type as follows: CONTROL UNIT, INFEED, SERVO, VECTOR, TM, HUB, CU_LINK

- If they are of the same type, they are sorted in ascending order according to their drive object number, i.e. the lower the number, the higher the priority for processing.

- Index:**
- [0] = Drive object number Control Unit
 - [1] = Drive object number object 1
 - [2] = Drive object number object 2
 - [3] = Drive object number object 3
 - [4] = Drive object number object 4
 - [5] = Drive object number object 5
 - [6] = Drive object number object 6
 - [7] = Drive object number object 7
 - [8] = Drive object number object 8
 - [9] = Drive object number object 9
 - [10] = Drive object number object 10
 - [11] = Drive object number object 11
 - [12] = Drive object number object 12
 - [13] = Drive object number object 13
 - [14] = Drive object number object 14
 - [15] = Drive object number object 15
 - [16] = Drive object number object 16
 - [17] = Drive object number object 17
 - [18] = Drive object number object 18
 - [19] = Drive object number object 19
 - [20] = Drive object number object 20
 - [21] = Drive object number object 21
 - [22] = Drive object number object 22
 - [23] = Drive object number object 23

NOTICE
This parameter may only be used by qualified service personnel.

Note

If the same drive object numbers are used and if the existing drive object numbers in the system are entered incompletely, the content of this parameter is ignored entirely. The behavior as with factory setting will then become effective.

r7901[0...81]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Sampling times / t_sample

Changeable: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [µs]

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
- [µs]

Access level: 4
Function plan: -
Unit selection: -
Expert list: 1
Default:
- [µs]

Description:

Displays the sampling times currently present on the drive unit.
r7901[0...63]: sampling times of hardware time slices.
r7901[64...82]: sampling times of software time slices.
r7901[x] = 0 means that in the associated time slice, no methods have been registered.

Note

The basis for the software time slices is T_NRK = p7901[15].

r7903	Hardware sampling times still assignable / HW t_samp free		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the number of hardware sampling times that can still be assigned.
These free sampling times can be used by OA applications such as DCC or FBLOCKS.

Note

OA: Open Architecture

p8500[0...7]	BI: Input signal bit-serially 0 / Input_sig bit 0		
CU_I_828, CU_I_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for bit-serial input signals.
These signals are available in binector output r8510.0 ... 7 for further interconnection.

Index: [0] = To BO: r8510.0
[1] = To BO: r8510.1
[2] = To BO: r8510.2
[3] = To BO: r8510.3
[4] = To BO: r8510.4
[5] = To BO: r8510.5
[6] = To BO: r8510.6
[7] = To BO: r8510.7

Dependency: See also: r8510

p8500[0...7]	BI: Send data transfer bit-serially 0 / Send trans bit 0		
CU_LINK, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for bitwise data transfer.
These signals are transferred to another Control Unit and are located in binector output: r8510.0 ... 7 for further interconnection.

Index: [0] = To BO: r8510.0
[1] = To BO: r8510.1
[2] = To BO: r8510.2
[3] = To BO: r8510.3
[4] = To BO: r8510.4
[5] = To BO: r8510.5
[6] = To BO: r8510.6
[7] = To BO: r8510.7

Dependency: See also: r8510

Note

Example:

Providing the operating signals calculated on this Control Unit for the infeeds on a different Control Unit.

p8500[0] = r0863.0 (operating signal infeed 1)

p8500[1] = r0863.0 (operating signal infeed 2) etc.

p8501[0...21]

CU_I_828,
CU_I_COMBI

BI: Input signal bit-serially 1 / Input_sig bit 1

Changeable: T, U

Data type: Unsigned32 / Binary

P group: -

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 2

Function plan: 2195

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the signal source for bit-serial input signals.

These signals are available in binector output r8511.0 ... 21 for further interconnection.

Index:

- [0] = To BO: r8511.0
- [1] = To BO: r8511.1
- [2] = To BO: r8511.2
- [3] = To BO: r8511.3
- [4] = To BO: r8511.4
- [5] = To BO: r8511.5
- [6] = To BO: r8511.6
- [7] = To BO: r8511.7
- [8] = To BO: r8511.8
- [9] = To BO: r8511.9
- [10] = To BO: r8511.10
- [11] = To BO: r8511.11
- [12] = To BO: r8511.12
- [13] = To BO: r8511.13
- [14] = To BO: r8511.14
- [15] = To BO: r8511.15
- [16] = To BO: r8511.16
- [17] = To BO: r8511.17
- [18] = To BO: r8511.18
- [19] = To BO: r8511.19
- [20] = To BO: r8511.20
- [21] = To BO: r8511.21

Dependency:

See also: r8511

p8501[0...21]	BI: Send data transfer bit-serially 1 / Send trans bit 1		
CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	[0] 722.0
			[1] 722.1
			[2] 722.2
			[3] 722.3
			[4...7] 0
			[8] 722.8
			[9] 722.9
			[10] 722.10
			[11] 722.11
			[12...15] 0
			[16] 722.16
			[17] 722.17
			[18...21] 0

Description: Sets the signal source for bitwise data transfer.
These signals are transferred to another Control Unit and are located in binector output: r8511.0 ... 21 for further interconnection.

Index:

- [0] = To BO: r8511.0
- [1] = To BO: r8511.1
- [2] = To BO: r8511.2
- [3] = To BO: r8511.3
- [4] = To BO: r8511.4
- [5] = To BO: r8511.5
- [6] = To BO: r8511.6
- [7] = To BO: r8511.7
- [8] = To BO: r8511.8
- [9] = To BO: r8511.9
- [10] = To BO: r8511.10
- [11] = To BO: r8511.11
- [12] = To BO: r8511.12
- [13] = To BO: r8511.13
- [14] = To BO: r8511.14
- [15] = To BO: r8511.15
- [16] = To BO: r8511.16
- [17] = To BO: r8511.17
- [18] = To BO: r8511.18
- [19] = To BO: r8511.19
- [20] = To BO: r8511.20
- [21] = To BO: r8511.21

Dependency: See also: r8511

p8501[0...21]	BI: Send data transfer bit-serially 1 / Send trans bit 1		
CU_LINK	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	[0] 722.0
			[1] 722.1
			[2] 722.2
			[3] 722.3
			[4] 722.4
			[5] 722.5
			[6] 722.6
			[7] 722.7
			[8] 722.8
			[9] 722.9
			[10] 722.10
			[11] 722.11
			[12] 722.12
			[13] 722.13
			[14] 722.14
			[15] 722.15
			[16] 722.16
			[17] 722.17
			[18] 0
			[19] 0
			[20] 722.20
			[21] 722.21

Description: Sets the signal source for bitwise data transfer.
 These signals are transferred to another Control Unit and are located in binector output: r8511.0 ... 21 for further interconnection.

Index:

- [0] = To BO: r8511.0
- [1] = To BO: r8511.1
- [2] = To BO: r8511.2
- [3] = To BO: r8511.3
- [4] = To BO: r8511.4
- [5] = To BO: r8511.5
- [6] = To BO: r8511.6
- [7] = To BO: r8511.7
- [8] = To BO: r8511.8
- [9] = To BO: r8511.9
- [10] = To BO: r8511.10
- [11] = To BO: r8511.11
- [12] = To BO: r8511.12
- [13] = To BO: r8511.13
- [14] = To BO: r8511.14
- [15] = To BO: r8511.15
- [16] = To BO: r8511.16
- [17] = To BO: r8511.17
- [18] = To BO: r8511.18
- [19] = To BO: r8511.19
- [20] = To BO: r8511.20
- [21] = To BO: r8511.21

Dependency: See also: r8511

p8502 **CI: Input signal word-serially 0 / Input_sig word 0**

CU_I_828, CU_I_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8512 for further interconnection.

Dependency: See also: r8512

p8502 **CI: Send data transfer wordwise 0 / Send trans word 0**

CU_LINK, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).
This signal value is transferred to another Control Unit and is located at connector output r8512 for further interconnection.

Dependency: See also: r8512

p8503	CI: Input signal word-serially 1 / Input_sig word 1		
CU_I_828, CU_I_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8513 for further interconnection.

Dependency: See also: r8513

p8503	CI: Send data transfer wordwise 1 / Send trans word 1		
CU_LINK, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).
This signal value is transferred to another Control Unit and is located at connector output r8513 for further interconnection.

Dependency: See also: r8513

p8504	CI: Input signal word-serially 2 / Input_sig word 2		
CU_I_828, CU_I_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for wordwise input signals.
This signal value is available in connector output r8514 for further interconnection.

Dependency: See also: r8514

p8504	CI: Send data transfer wordwise 2 / Send trans word 2		
CU_LINK, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).
This signal value is transferred to another Control Unit and is located at connector output r8514 for further interconnection.

Dependency: See also: r8514

p8505	CI: Input signal word-serially 3 / Input_sig word 3		
CU_I_828, CU_I_COMBI	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for wordwise input signals. This signal value is available in connector output r8515 for further interconnection.		
Dependency:	See also: r8515		

p8505	CI: Send data transfer wordwise 3 / Send trans word 3		
CU_LINK, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is transferred to another Control Unit and is located at connector output r8515 for further interconnection.		
Dependency:	See also: r8515		

r8510.0...7	BO: Output signal bit-serially 0 / Outp_sig bit 0				
CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Function plan: 2195		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Display and binector output for the signal interconnected via binector input p8500[0...7].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	From BI: p8500[0]	ON	OFF	-
	01	From BI: p8500[1]	ON	OFF	-
	02	From BI: p8500[2]	ON	OFF	-
	03	From BI: p8500[3]	ON	OFF	-
	04	From BI: p8500[4]	ON	OFF	-
	05	From BI: p8500[5]	ON	OFF	-
	06	From BI: p8500[6]	ON	OFF	-
	07	From BI: p8500[7]	ON	OFF	-
Dependency:	See also: p8500				

r8510.0...7	BO: Receive data transfer bit-serially 0 / Recv trans bit 0		
CU_LINK, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and binector output for the bit-serial received data.
 These signals were interconnected and transferred to another Control Unit via binector input p8500[0...7].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	From BI: p8500[0]	ON	OFF	-
	01	From BI: p8500[1]	ON	OFF	-
	02	From BI: p8500[2]	ON	OFF	-
	03	From BI: p8500[3]	ON	OFF	-
	04	From BI: p8500[4]	ON	OFF	-
	05	From BI: p8500[5]	ON	OFF	-
	06	From BI: p8500[6]	ON	OFF	-
	07	From BI: p8500[7]	ON	OFF	-

Dependency: See also: p8500

r8511.0...21 **BO: Output signal bit-serially 1 / Outp_sig bit 1**

CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Display and binector output for the signal interconnected via binector input p8501[0...21].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	From BI: p8501[0]	ON	OFF	-
	01	From BI: p8501[1]	ON	OFF	-
	02	From BI: p8501[2]	ON	OFF	-
	03	From BI: p8501[3]	ON	OFF	-
	04	From BI: p8501[4]	ON	OFF	-
	05	From BI: p8501[5]	ON	OFF	-
	06	From BI: p8501[6]	ON	OFF	-
	07	From BI: p8501[7]	ON	OFF	-
	08	From BI: p8501[8]	ON	OFF	-
	09	From BI: p8501[9]	ON	OFF	-
	10	From BI: p8501[10]	ON	OFF	-
	11	From BI: p8501[11]	ON	OFF	-
	12	From BI: p8501[12]	ON	OFF	-
	13	From BI: p8501[13]	ON	OFF	-
	14	From BI: p8501[14]	ON	OFF	-
	15	From BI: p8501[15]	ON	OFF	-
	16	From BI: p8501[16]	ON	OFF	-
	17	From BI: p8501[17]	ON	OFF	-
	18	From BI: p8501[18]	ON	OFF	-
	19	From BI: p8501[19]	ON	OFF	-
	20	From BI: p8501[20]	ON	OFF	-
	21	From BI: p8501[21]	ON	OFF	-

Dependency: See also: p8501

r8511.0...21 BO: Receive data transfer bit-serially 1 / Recv trans bit 1

CU_LINK, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and binector output for the bit-serial received data.
These signals were interconnected and transferred to another Control Unit via binector input p8501[0...21].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	From BI: p8501[0]	ON	OFF	-
	01	From BI: p8501[1]	ON	OFF	-
	02	From BI: p8501[2]	ON	OFF	-
	03	From BI: p8501[3]	ON	OFF	-
	04	From BI: p8501[4]	ON	OFF	-
	05	From BI: p8501[5]	ON	OFF	-
	06	From BI: p8501[6]	ON	OFF	-
	07	From BI: p8501[7]	ON	OFF	-
	08	From BI: p8501[8]	ON	OFF	-
	09	From BI: p8501[9]	ON	OFF	-
	10	From BI: p8501[10]	ON	OFF	-
	11	From BI: p8501[11]	ON	OFF	-
	12	From BI: p8501[12]	ON	OFF	-
	13	From BI: p8501[13]	ON	OFF	-
	14	From BI: p8501[14]	ON	OFF	-
	15	From BI: p8501[15]	ON	OFF	-
	16	From BI: p8501[16]	ON	OFF	-
	17	From BI: p8501[17]	ON	OFF	-
	18	From BI: p8501[18]	ON	OFF	-
	19	From BI: p8501[19]	ON	OFF	-
	20	From BI: p8501[20]	ON	OFF	-
	21	From BI: p8501[21]	ON	OFF	-

Dependency: See also: p8501

r8512 CO: Output signal wordwise 0 / Outp_sig word 0

CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8502.

Dependency: See also: p8502

r8512 **CO: Receive data transfer wordwise 0 / Recv trans word 0**

CU_LINK, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the wordwise received data (process signal).
This signal value is interconnected and transferred to another Control Unit via connector input p8502.

Dependency: See also: p8502

r8513 **CO: Output signal wordwise 1 / Outp_sig word 1**

CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8503.

Dependency: See also: p8503

r8513 **CO: Receive data transfer wordwise 1 / Recv trans word 1**

CU_LINK, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the wordwise received data (process signal).
This signal value is interconnected and transferred to another Control Unit via connector input p8503.

Dependency: See also: p8503

r8514 **CO: Output signal wordwise 2 / Outp_sig word 2**

CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8504.

Dependency: See also: p8504

r8514 **CO: Receive data transfer wordwise 2 / Recv trans word 2**

CU_LINK, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the wordwise received data (process signal).
This signal value is interconnected and transferred to another Control Unit via connector input p8504.

Dependency: See also: p8504

r8515 **CO: Output signal wordwise 3 / Outp_sig word 3**

CU_I_828, CU_I_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2195
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Display and connector output for the signal interconnected via connector input p8505.

Dependency: See also: p8505

r8515 **CO: Receive data transfer wordwise 3 / Recv trans word 3**

CU_LINK, CU_NX_828	Changeable: -	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Display and connector output for the wordwise received data (process signal).
This signal value is interconnected and transferred to another Control Unit via connector input p8505.

Dependency: See also: p8505

p8520[0...3] **Data transfer wordwise scaling / Trans word scal**

CU_LINK, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2194
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00010	10000.00000	1.00000

Description: Sets the scaling for wordwise data transfer 0 ... 3 (process signals).

Index: [0] = Signal 0 from CI: p8502
[1] = Signal 1 from CI: p8503
[2] = Signal 2 from CI: p8504
[3] = Signal 3 from CI: p8505

Dependency: See also: p8502, p8503, p8504, p8505

p8550 **AOP LOCAL/REMOTE / AOP LOCAL/REMOTE**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 0000 1001 bin

Description: Setting for saving the actual configuration of the Advanced Operator Panel (AOP).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	LOCAL save	Yes	No	-

01	Start in LOCAL	Yes	No	-
02	Change in oper	Yes	No	-
03	OFF acts like OFF1	Yes	No	-
04	OFF acts like OFF2	Yes	No	-
05	OFF acts like OFF3	Yes	No	-
06	Reserved	Yes	No	-
07	CW/CCW active	Yes	No	-
08	Jog active	Yes	No	-
09	Save speed setpoint	Yes	No	-
14	Inhibit operation	Yes	No	-
15	Inhibit parameterization	Yes	No	-

r8570[0...39]

Macro drive object / Macro DO

TM120, TM150

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Displays the macro file saved in the appropriate directory on the memory card/device memory.

Dependency: See also: p0015

Note

For a value = 9999999, the following applies: The read operation is still running.

r8571[0...39]

Macro Binector Input (BI) / Macro BI

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: See also: p0700

Note

For a value = 9999999, the following applies: The read operation is still running.

r8572[0...39]

Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min:	Max:	Default:
-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.

Dependency: See also: p1000

Note

For a value = 9999999, the following applies: The read operation is still running.

r8573[0...39]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 1 Function plan: - Unit selection: - Expert list: 0 Default: -
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Dependency:	See also: p1500		
Note			
For a value = 9999999, the following applies: The read operation is still running.			

r8585	Macro execution actual / Macro executed		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 1 Function plan: - Unit selection: - Expert list: 0 Default: -
Description:	Displays the macro currently being executed on the drive object.		
Dependency:	See also: p0015, p0700, p1000, p1500, r8570, r8571, r8572, r8573		

p8837	IF2 STW1.10 = 0 mode / IF2 STW1.10=0		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T Data type: Integer16 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 2
Description:	Sets the processing mode for PROFIdrive STW1.10 "master control by PLC". Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.		
Value:	0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Do not freeze setpoints		
Recommendation:	Do not change the setting p2037 = 0.		
Note			
If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.			

p8844	IF2 fault delay / IF2 F delay		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: Communications Not for motor type: - Min: 0 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 100 [s]	Access level: 3 Function plan: 2410 Unit selection: - Expert list: 1 Default: 0 [s]

Description: Sets the delay time to initiate fault F01910 after a setpoint failure.
 The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

Dependency: See also: r2043
 See also: F01910

p8848 IF2 PZD sampling time / IF2 PZD t_sample

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(3)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the cyclic interface 2 (IF2).

Note

The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set.

For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

r8850[0...19] CO: IF2 PZD receive word / IF2 PZD rcv word

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2485, 9204, 9206
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:

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

Dependency: See also: r8860, r8890, r8891, r8892, r8893

<p>NOTICE</p> <p>Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.</p> <p>A BICO interconnection for a single PZD can only take place either on r8850 or r8860.</p>
--

Note

IF2: Interface 2

PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

r8850[0...9]A_INF_828,
B_INF_828,
S_INF_828,
S_INF_COMBI**CO: IF2 PZD receive word / IF2 PZD recv word****Changeable:** -**Data type:** Integer16**P group:** Communications**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** 4000H**Max:**

-

Access level: 3**Function plan:** 2491**Unit selection:** -**Expert list:** 1**Default:**

-

Description:

Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:

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

Note

IF2: Interface 2

PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

r8850[0...4]

TM120, TM150

CO: IF2 PZD receive word / IF2 PZD recv word**Changeable:** -**Data type:** Integer16**P group:** Communications**Not for motor type:** -**Min:**

-

Calculation: -**Dynamic index:** -**Unit group:** -**Scaling:** 4000H**Max:**

-

Access level: 3**Function plan:** 2491**Unit selection:** -**Expert list:** 1**Default:**

-

Description:

Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:

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

Note

IF2: Interface 2

PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

p8851[0...27] CI: IF2 PZD send word / IF2 PZD send word

HLA_828, SERVO_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: 2487, 9208
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

- Index:**
- [0] = PZD 1
 - [1] = PZD 2
 - [2] = PZD 3
 - [3] = PZD 4
 - [4] = PZD 5
 - [5] = PZD 6
 - [6] = PZD 7
 - [7] = PZD 8
 - [8] = PZD 9
 - [9] = PZD 10
 - [10] = PZD 11
 - [11] = PZD 12
 - [12] = PZD 13
 - [13] = PZD 14
 - [14] = PZD 15
 - [15] = PZD 16
 - [16] = PZD 17
 - [17] = PZD 18
 - [18] = PZD 19
 - [19] = PZD 20
 - [20] = PZD 21
 - [21] = PZD 22
 - [22] = PZD 23
 - [23] = PZD 24
 - [24] = PZD 25
 - [25] = PZD 26
 - [26] = PZD 27
 - [27] = PZD 28

Dependency: See also: p8861

Note
IF2: Interface 2

p8851[0...9] CI: IF2 PZD send word / IF2 PZD send word

A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: 2493, 9210
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10

Note

IF2: Interface 2

p8851[0...4] CI: IF2 PZD send word / IF2 PZD send word

TM120, TM150

Changeable: T, U**Calculation:** -**Access level:** 3**Data type:** Unsigned32 / Integer16**Dynamic index:** -**Function plan:** 2493, 9210**P group:** Communications**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** 4000H**Expert list:** 1**Min:****Max:****Default:**

-

-

0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5

Note

IF2: Interface 2

r8853[0...27] IF2 diagnostics PZD send / IF2 diag PZD send

HLA_828, SERVO_828

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Function plan:** 2487, 9208, 9210**P group:** Communications**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description: Displays the sent PZD (actual values) sent via interface 2.

- Index:**
- [0] = PZD 1
 - [1] = PZD 2
 - [2] = PZD 3
 - [3] = PZD 4
 - [4] = PZD 5
 - [5] = PZD 6
 - [6] = PZD 7
 - [7] = PZD 8
 - [8] = PZD 9
 - [9] = PZD 10
 - [10] = PZD 11
 - [11] = PZD 12
 - [12] = PZD 13
 - [13] = PZD 14
 - [14] = PZD 15
 - [15] = PZD 16
 - [16] = PZD 17
 - [17] = PZD 18
 - [18] = PZD 19
 - [19] = PZD 20
 - [20] = PZD 21
 - [21] = PZD 22
 - [22] = PZD 23
 - [23] = PZD 24
 - [24] = PZD 25
 - [25] = PZD 26
 - [26] = PZD 27
 - [27] = PZD 28

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

Dependency: See also: p8851, p8861

Note
IF2: Interface 2

r8853[0...9]		IF2 diagnostics PZD send / IF2 diag PZD send			
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2493 Unit selection: - Expert list: 1 Default: -		
Description:	Displays the sent PZD (actual values) sent via interface 2.				
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note

IF2: Interface 2

r8853[0...4]		IF2 diagnostics PZD send / IF2 diag PZD send		
TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2493 Unit selection: - Expert list: 1 Default: -	
Description:	Displays the sent PZD (actual values) sent via interface 2.			

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

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

Note
 IF2: Interface 2

r8860[0...18] **CO: IF2 PZD receive double word / IF2 PZD recv DW**

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: 2485, 9204, 9206
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

Index:

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

Dependency: See also: r8850

NOTICE

Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
 A BICO interconnection for a single PZD can only take place either on r8850 or r8860.
 A maximum of 4 indices of the "trace" function can be used.

Note
 IF2: Interface 2

p8861[0...26]	CI: IF2 PZD send double word / IF2 PZD send DW		
HLA_828, SERVO_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Function plan: 2487, 9208, 9210
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Selects the PZD (actual values) to be sent via interface 2 in the double word format.		

- Index:**
- [0] = PZD 1 + 2
 - [1] = PZD 2 + 3
 - [2] = PZD 3 + 4
 - [3] = PZD 4 + 5
 - [4] = PZD 5 + 6
 - [5] = PZD 6 + 7
 - [6] = PZD 7 + 8
 - [7] = PZD 8 + 9
 - [8] = PZD 9 + 10
 - [9] = PZD 10 + 11
 - [10] = PZD 11 + 12
 - [11] = PZD 12 + 13
 - [12] = PZD 13 + 14
 - [13] = PZD 14 + 15
 - [14] = PZD 15 + 16
 - [15] = PZD 16 + 17
 - [16] = PZD 17 + 18
 - [17] = PZD 18 + 19
 - [18] = PZD 19 + 20
 - [19] = PZD 20 + 21
 - [20] = PZD 21 + 22
 - [21] = PZD 22 + 23
 - [22] = PZD 23 + 24
 - [23] = PZD 24 + 25
 - [24] = PZD 25 + 26
 - [25] = PZD 26 + 27
 - [26] = PZD 27 + 28

Dependency: See also: p8851

NOTICE
 A BICO interconnection for a single PZD can only take place either on p8851 or p8861.

Note
 IF2: Interface 2

r8863[0...26] IF2 diagnostics PZD send double word / IF2 diag send DW

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2487
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the PZD sent via interface 2 (actual values) with double word format.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16
 [15] = PZD 16 + 17
 [16] = PZD 17 + 18
 [17] = PZD 18 + 19
 [18] = PZD 19 + 20
 [19] = PZD 20 + 21
 [20] = PZD 21 + 22
 [21] = PZD 22 + 23
 [22] = PZD 23 + 24
 [23] = PZD 24 + 25
 [24] = PZD 25 + 26
 [25] = PZD 26 + 27
 [26] = PZD 27 + 28

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

23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

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

Note
IF2: Interface 2

r8867[0...1]	IF2 PZD maximum interconnected / IF2 PZDmaxIntercon		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Display for the maximum interconnected PZD in the receive/send direction Index 0: receive (r8850, r8860) Index 1: send (p8851, p8861)		

p8870[0...15]	SINAMICS Link receive telegram word PZD / Recv link word		
TM120 (PROFINET CBE20), TM150 (PROFINET CBE20)	Changeable: T Data type: Unsigned16 P group: Communications Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Assignment of a PZD to a telegram word from a SINAMICS Link receive telegram. For p8839[0] = 2 (COMM BOARD via interface 1), the following applies: - PZD p2050[index] is assigned by means of p8870[index], p8872[index]. For p8839[1] = 2 (COMM BOARD via interface 2), the following applies: - PZD p8850[index] is assigned by means of p8870[index], p8872[index].		

Index:	[0] = PZD 1
	[1] = PZD 2
	[2] = PZD 3
	[3] = PZD 4
	[4] = PZD 5
	[5] = PZD 6
	[6] = PZD 7
	[7] = PZD 8
	[8] = PZD 9
	[9] = PZD 10
	[10] = PZD 11
	[11] = PZD 12
	[12] = PZD 13
	[13] = PZD 14
	[14] = PZD 15
	[15] = PZD 16
Dependency:	See also: p8872

Note

Value range:

0: Not used

1 ... 16: Telegram word

A pair of values p8870[index], p8872[index] may only be used once in single a device.

A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8871[0...15]	SINAMICS Link send telegram word PZD / Send link word		
TM120 (PROFINET CBE20), TM150 (PROFINET CBE20)	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	16	0
Description:	Assigns a PZD to a telegram word in the SINAMICS Link send telegram. For p8839[0] = 2 (COMM BOARD via interface 1), the following applies: - p8871[index] assigns PZD p2051[index]. For p8839[1] = 2 (COMM BOARD via interface 2), the following applies: - p8871[index] assigns PZD p8851[index].		

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Dependency: See also: p2051, p8851
See also: A50002

Note

Value range:
 0: Not used
 1 ... 16: Send telegram word
 A specific telegram word send may only be used once within a single device.
 A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8872[0...15]

TM120 (PROFINET CBE20), TM150 (PROFINET CBE20)

SINAMICS Link address receive PZD / Link addr recv

Changeable: T	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	64	0

Description: Selects the address of the SINAMICS Link sender from which the process data (PZD) is received.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Dependency: See also: p8870

Note

Value range:

0: Not used

1 ... 64: Address

A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

r8874[0...19] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:

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

Note

IF2: Interface 2

Value range:

0 - 125: Bus address of the sender

255: Not assigned

r8874[0...9] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10

r8874[0...4] **IF2 diagnostics bus address PZD receive / IF2 diag addr recv**
 TM120, TM150

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5

r8875[0...19] **IF2 diagnostics telegram offset PZD receive / IF diag offs recv**
 HLA_828, SERVO_828

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Communications	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

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

Note

IF2: Interface 2
 Value range:
 0 - 242: Byte offset
 255: Not assigned

r8875[0...9]	IF2 diagnostics telegram offset PZD receive / IF diag offs recv		
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the byte offset of the PZD in the receive telegram.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10		

r8875[0...4]	IF2 diagnostics telegram offset PZD receive / IF diag offs recv		
TM120, TM150	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the byte offset of the PZD in the receive telegram.		
Index:	[0] = PZD 1		
	[1] = PZD 2		
	[2] = PZD 3		
	[3] = PZD 4		
	[4] = PZD 5		

r8876[0...27]	IF2 diagnostics telegram offset PZD send / IF2 diag offs send		
HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the byte offset of the PZD in the send telegram.		
Index:	[0] = PZD 1		
	[1] = PZD 2		
	[2] = PZD 3		
	[3] = PZD 4		
	[4] = PZD 5		
	[5] = PZD 6		
	[6] = PZD 7		
	[7] = PZD 8		
	[8] = PZD 9		
	[9] = PZD 10		
	[10] = PZD 11		
	[11] = PZD 12		
	[12] = PZD 13		
	[13] = PZD 14		
	[14] = PZD 15		
	[15] = PZD 16		
	[16] = PZD 17		
	[17] = PZD 18		
	[18] = PZD 19		
	[19] = PZD 20		
	[20] = PZD 21		
	[21] = PZD 22		
	[22] = PZD 23		
	[23] = PZD 24		
	[24] = PZD 25		
	[25] = PZD 26		
	[26] = PZD 27		
	[27] = PZD 28		

Note

IF2: Interface 2
 Value range:
 0 - 242: Byte offset
 255: Not assigned

r8876[0...9] IF2 diagnostics telegram offset PZD send / IF2 diag offs send			
A_INF_828, B_INF_828, S_INF_828, S_INF_COMBI	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the byte offset of the PZD in the send telegram.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10		

r8876[0...4] IF2 diagnostics telegram offset PZD send / IF2 diag offs send			
TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the byte offset of the PZD in the send telegram.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		

p8880[0...15] BI: IF2 binector-connector converter status word 1 / Bin/con ZSW1			
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2489 Unit selection: - Expert list: 1 Default: 0
Description:	Selects bits to be sent via interface 2. The individual bits are combined to form status word 1.		

Index:

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

Dependency: See also: p8888, r8889

p8881[0...15]

BI: IF2 binector-connector converter status word 2 / Bin/con ZSW2

A_INF_828,
 B_INF_828, HLA_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Communications
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 3
Function plan: 2489
Unit selection: -
Expert list: 1
Default:
 0

Description: Selects bits to be sent via interface 2.
 The individual bits are combined to form status word 2.

Index:

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

Dependency: See also: p8888, r8889

p8882[0...15]	BI: IF2 binector-connector converter status word 3 / Bin/con ZSW3		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2489 Unit selection: - Expert list: 1 Default: 0
Description:	Selects bits to be sent via interface 2. The individual bits are combined to form free status word 3.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	See also: p8888, r8889		

p8883[0...15]	BI: IF2 binector-connector converter status word 4 / Bin/con ZSW4		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: T, U Data type: Unsigned32 / Binary P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2489 Unit selection: - Expert list: 1 Default: 0
Description:	Selects bits to be sent via interface 2. The individual bits are combined to form free status word 4.		

Index:

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

Dependency: See also: p8888, r8889

p8884[0...15]

BI: IF2 binector-connector converter status word 5 / Bin/con ZSW5

A_INF_828,
 B_INF_828, HLA_828,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828,
 SERVO_COMBI

Changeable: T, U
Data type: Unsigned32 / Binary
P group: Communications
Not for motor type: -
Min:
 -

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
 -

Access level: 3
Function plan: 2489
Unit selection: -
Expert list: 1
Default:
 0

Description: Selects bits to be sent via interface 2.
 The individual bits are combined to form free status word 5.

Index:

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

Dependency: See also: p8888, r8889

p8888[0...4]		IF2 invert binector-connector converter status word / Bin/con ZSW inv			
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: T, U Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2489 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin		
Description:	Setting to invert the individual binector inputs of the binector connector converter.				
Index:	[0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4 [4] = Free status word 5				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-
Dependency:	See also: p8880, p8881, p8882, p8883, p8884, r8889				

r8889[0...4]		CO: IF2 send binector-connector converter status word / Bin/con ZSW send			
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -		
Description:	Connector output to interconnect the status words to a PZD send word.				
Index:	[0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4 [4] = Free status word 5				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-

03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: p8851, p8880, p8881, p8882, p8883, p8884, p8888

Note

r8889 together with p8880 to p8884 forms five binector-connector converters.

r8890.0...15

BO: IF2 PZD1 receive bit-serial / IF2 PZD1 recv bitw

A_INF_828,
B_INF_828, HLA_828,
S_INF_828,
S_INF_COMBI,
SERVO_828, TM120,
TM150

Changeable: -

Data type: Unsigned16

P group: Communications

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 2485, 2491, 9204, 9206

Unit selection: -

Expert list: 1

Default:

-

Description:

Binector output for bit-serial interconnection of PZD1 (normally control word 1) received via interface 2.

Bit field:

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

Dependency: See also: r8850

Note

IF2: Interface 2

r8891.0...15		BO: IF2 PZD2 receive bit-serial / IF2 PZD2 recv bitw			
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2485, 2491, 9204, 9206 Unit selection: - Expert list: 1 Default: -		
Description:	Binector output for bit-serial interconnection of PZD2 received via interface 2.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
Dependency:	See also: r8850				
	Note IF2: Interface 2				

r8892.0...15		BO: IF2 PZD3 receive bit-serial / IF2 PZD3 recv bitw			
HLA_828, SERVO_828	Changeable: - Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2485, 9204, 9206 Unit selection: - Expert list: 1 Default: -		
Description:	Binector output for bit-serial interconnection of PZD3 received via interface 2.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-

10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: r8850

Note

IF2: Interface 2

r8893.0...15

BO: IF2 PZD4 receive bit-serial / IF2 PZD4 recv bitw

HLA_828, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2485, 9204, 9206
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received via interface 2.

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

Dependency: See also: r8850

Note

IF2: Interface 2

r8894.0...15

BO: IF2 connector-binector converter binector output / Con/bin outp

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2485, 2491
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2. The PZD is selected via p8899[0].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
Dependency:	See also: p8899				

r8895.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2485, 2491
	P group: Communications	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2.
The PZD is selected via p8899[1].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
Dependency:	See also: p8898, p8899				

p8898[0...1] **IF2 invert connector-binector converter binector output / Con/bin outp inv**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: T, U Data type: Unsigned16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2485, 2491 Unit selection: - Expert list: 1 Default: 0000 0000 0000 0000 bin
--	---	---	---

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p8898[0], the signals of CI: p8899[0] are influenced.
Using p8898[1], the signals of CI: p8899[1] are influenced.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: See also: r8894, r8895, p8899

p8899[0...1] **CI: IF2 connector-binector converter signal source / Con/bin S_src**

A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: T, U Data type: Unsigned32 / Integer16 P group: Communications Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2485, 2491 Unit selection: - Expert list: 1 Default: 0
--	---	---	---

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: See also: r8850, r8894, r8895, p8898

Note

From the signal source set via the connector input, the corresponding lower 16 bits are converted. p8899[0...1] together with r8894.0...15 and r8895.0...15 forms two connector-binector converters:
Connector input p8899[0] to binector output in r8894.0...15
Connector input p8899[1] to binector output in r8895.0...15

r8960[0...2]	PN subslot controller assignment / PN subslot assign		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150	Changeable: - Data type: Unsigned8 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 8	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -

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

Note

Example:

If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

r8970[0...2]	CBE2x subslot controller assignment / CBE2x subslot		
TM120 (PROFINET CBE20), TM150 (PROFINET CBE20)	Changeable: - Data type: Unsigned8 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 8	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -

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

Note

Example:

If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

p9206[0...2]	Topology direct access / Topo access		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T Data type: Unsigned32 P group: Topology Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0

Description: Data setting to read topology properties.
 The result is displayed depending on the property in r9207 or r9208.
 For index 0:
 0: actual topology, 1: target topology
 For index 1:
 Sets the component number of the component involved.
 For index 2:
 7: Name (r9208)
 8: Component type (r9207)
 9: Number of DRIVE-CLiQ connections (r9207)
 11: Manufacturer (upper byte) and version (lower byte) (r9207)
 12: Serial number (r9208)
 13: Index (r9207)
 15: Comparison level (r9207)
 23: Order number (r9207)
 24: Hardware serial number (r9208)
 25: Collective order number (r9207)
 28: Firmware version (r9207)
 29: EEPROM version (r9207)
 30: Hardware version (r9207)
 1000: Name of DRIVE-CLiQ connection 0 (r9208)
 1001: Name of DRIVE-CLiQ connection 1 (r9208)
 ...
 1015: Name of DRIVE-CLiQ connection 15 (r9208)

Index: [0] = Actual topology/target topology
 [1] = Component number
 [2] = Identifier/property

Dependency: See also: r9207, r9208

r9207 **Topology direct access integer value / Topo access int**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the value for the property set in p9206.
 A value is only displayed for integer type properties.

Dependency: See also: p9206, r9208

r9208[0...50] **Topology direct access string / Topo access string**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the value for the property set in p9206.
 A value is only displayed for string type properties.

Dependency: See also: p9206, r9207

Note

An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

p9210	Flashing component number / Flash comp_no		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 499	Default: 0
Description:	Sets the component number for a component to get its status LED to flash.		
Dependency:	See also: p9211		

p9211	Flash function / Flash fct.		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1	Max: 1	Default: -1
Description:	Sets the function for the component selected in p9210. After initiating a function, the parameter is automatically reset again. Example: - Set the component number (p9210). - Select the "flashing on" function (set p9211 = 1).		
Value:	-1: Select function 0: Flashing off 1: Flashing on		
Dependency:	See also: p9210		

NOTICE

If a task cannot be executed (e.g. the component number in p9210 does not exist), the following applies:
- There is no negative feedback signal.
- The value is reset anyway.

r9220	Statistic number of entries / Statistic size		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Supplies the number of entries in p9222.		
Dependency:	In p9221, the component Id is set whose statistic entries are to be displayed. See also: p9221		

p9221 CU_I_828, CU_I_COMBI, CU_NX_828	Statistic components Id / Statistic compld Changeable: T Data type: Unsigned8 P group: - Not for motor type: - Min: 0000 hex	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 00FF hex	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0002 hex
Description:	Selects the component Id whose statistics are to be displayed in p9222.		

r9222[0...n] CU_I_828, CU_I_COMBI, CU_NX_828	Statistic Drive-CLiQ acyclic communication / Statistic Changeable: - Data type: Unsigned32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: r9220 Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Represents the statistic of acyclic Drive-CLiQ communication.		

The component is preset in p9221.

The entry comprises the following elements:

Index 0: Parameter Id

Index 1: Number of messages sent.

Index 2: Minimum time of all acyclic requests referred to the parameter Id (index 0).

Index 3: Maximum time of all acyclic requests referred to the parameter Id (index 0).

Index 4: Average of all acyclic requests referred to the parameter Id (index 0).

The time unit is 10us.

Dependency: The number of statistic entries is displayed in p9220.
In p9221, the component Id can be set whose statistic is to be displayed.
See also: r9220, p9221

Note

As a statistic entry comprises 5 data, when calling the entries via the terminal, a size that represents a multiple of 5 must be specified.

Example: the 2nd entry must be called:

```
rdp 1 9222 5 5
or
rdpa 1 9222 5 5.
```

p9300 HLA_828, SERVO_828, SERVO_COMBI	SI Motion monitoring clock cycle (Motor Module) / SI Mtn clock MM Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 500.00 [µs]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 25000.00 [µs]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 12000.00 [µs]
Description:	Sets the monitoring clock cycle for safe motion monitoring.		

Dependency: See also: p9500, p9511
See also: F01652

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The monitoring clock cycle must be a multiple of the actual value sensing clock cycle in p9311 or of the DP clock cycle. A change only becomes effective after a POWER ON.

p9301

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion enable safety functions (Motor Module) / SI Mtn enable MM

Changeable: C2(95)

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description: Sets the enable signals for the safe motion monitoring.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable SOS/SLS	Enable	Inhibit	-
	01	Enable SLP	Enable	Inhibit	-
	02	Enable absolute position	Enable	Inhibit	-
	03	Enable actual value synchronization	Enable	Inhibit	-
	16	Enable SSM hysteresis and filtering	Enable	Inhibit	2823
	17	Enable SDI	Enable	Inhibit	2824
	24	Enable transfer SLS limit value via PROFIsafe	Enable	Inhibit	-
	25	Enable transfer safe position via PROFIsafe	Enable	Inhibit	-
	26	Enable safe gearbox switchover	Enable	Inhibit	-
	27	Enable referencing via SCC	Enable	Inhibit	-

Dependency: See also: p9501
See also: F01682, F01683

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.

SDI: Safe Direction (safe motion direction)

SLP: Safely-Limited Position

SLS: Safely-Limited Speed

SOS: Safe Operating Stop

SP: Safe Position

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9302

SERVO_828,
SERVO_COMBI

SI Motion axis type (Motor Module) / SI Mtn AxisType MM

Changeable: C2(95)

Data type: Integer16

P group: Safety Integrated

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description: Sets the axis type (linear axis or rotary axis/spindle).

Value: 0: Linear axis
1: Rot axis/spindle

Dependency: See also: p9502

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload.
A change only becomes effective after a POWER ON.

p9305

SERVO_828,
SERVO_COMBI

SI Motion SP modulo value (Motor Module) / SI mtn SP mod MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0 [°]	Max: 737280 [°]	Default: 0 [°]

Description: Sets the modulo value in degrees for rotary axes of the "Safe position" function.
This modulo value is taken into account when safely referencing as well as when transferring the safe position via PROFIsafe when the absolute position is enabled.
The value should be set, so that it is precisely at 2ⁿ revolutions, so that when the range that can be represented (+/-2048) overflows, this does not cause the position actual value to jump.
The modulo function is deactivated for a value = 0.

Dependency: See also: F01681

NOTICE
When the "SLP" function is activated, the modulo function must be deactivated as otherwise fault F30681 will be output.
If the absolute position is not enabled, then the parameterized modulo value is not taken into account.
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
SLP: Safely-Limited Position
SP: Safe Position

p9306

SERVO_828,
SERVO_COMBI

SI Motion function specification (Motor Module) / SI Mtn fct_spc MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 3	Default: 0

Description: Sets the function specification for the safe motion monitoring.

Value: 0: Safety with encoder and accel_monitoring(SAM) / delay time
1: Safety without encoder and braking ramp(SBR)
3: Safety without encoder with accel_monitoring(SAM) / delay time

Dependency: See also: C30711

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9307	SI Motion function configuration MM / SI mtn config MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0010 bin

Description: Sets the function configuration for the safe motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Extended message acknowledgment	Yes	No	-
	01	Setpoint velocity limit for STOP F	No	Yes	-
	02	Actual value sensing sensorless motor type	Synchronous motor	Induction motor	-
	03	SS1 with OFF3 (brake response)	SS1E external stop	SS1 with OFF3	-
	05	Actual value sensing sensorless edge modulation	Yes	No	-
	06	Configuration test stop motion monitoring functions	Test automatic	Test manual	-

Dependency: See also: C01711

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

For bit 00:

When the function is activated, a safety-relevant acknowledgment (internal event acknowledge) can be performed by selecting/deselecting STO.

For bit 01:

When the function is activated, the active setpoint velocity limit (CO: r9733) is set to zero when STOP F is active.

For bit 02:

This bit defines the type of motor, which the sensorless actual value sensing evaluates.

For bit = 0, the actual velocity is calculated for an induction motor.

For bit = 1, the actual velocity is calculated for a synchronous motor. This value depends on the setting in p0300.

Bit = 0 should be set if no motor is defined (p0300 = 0).

For bit 03:

When the bit is activated – when selecting function SS1 or activating a STOP B – an SS1E or a STOP B with Stop, which should be externally initiated, is triggered instead of SS1 with a drive-based braking response. As a consequence, brake monitoring (SBR, SAM) is deactivated.

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

For bit 05:

This bit defines the type of modulation, which the sensorless actual value sensing evaluates.

For bit = 0, the actual velocity is calculated for space vector modulation.

For bit = 1, the actual velocity is calculated for edge modulation. This value depends on the setting in p1802.

p9309	SI Motion behavior during pulse suppression (Motor Module) / SI Mtn behav IL MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 1111 1111 bin

Description: Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SSM during pulse suppression and sensorless	Becomes inactive	Remains active	-
	08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-

Dependency: See also: C01711

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

For bit 00:
 If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.

Note

SDI: Safe Direction (safe motion direction)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

For bit 00:

For bit = 1 and with the SSM safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.

For bit = 0 and with the SSM safety function activated, the following applies:

- Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.

For bit 08:

For bit = 1 and with the SDI safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the status signal indicates inactive.

For bit = 0 and with the SDI safety function activated, the following applies:

- Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.

p9311

HLA_828

SI Motion actual value sensing clock cycle (Motor Module) / SI Mtn act clk MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0000 [µs]

25000.0000 [µs]

0.0000 [µs]

Description:

Sets the clock cycle time of the actual value sensing for safe motion monitoring.

Setting criteria if the motion monitoring functions are executed with an encoder.

- A slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for safe actual value sensing.

- The maximum permissible velocity which, when exceeded, can mean that errors occur during safe actual value sensing, is displayed in r9730.

- The isochronous PROFIBUS clock cycle is used as a clock cycle time for actual value sensing with a setting of 0 ms; the setting is 1 ms if isochronous operation is not being used.

Dependency:

See also: p0115, p9300, p9511

See also: F01652

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The parameter is only active for drive-based motion monitoring functions (p9801.2 = 1).

The monitoring clock cycle from p9300 must be an integer multiple of this parameter.

In the case of motion monitoring functions with encoder, the clock cycle time for actual value sensing must be an integer multiple of the current controller clock cycle and at least 4 times slower than the current controller clock cycle. A factor of at least 8 is recommended.

The clock cycle time of the actual value sensing should not be set to more than 8 ms.

A change only becomes effective after a POWER ON.

p9311	SI Motion actual value sensing clock cycle (Motor Module) / SI Mtn act clk MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [µs]	Max: 25000.0000 [µs]	Default: 0.0000 [µs]
Description:	Sets the clock cycle time of the actual value sensing for safe motion monitoring. Setting criteria if the motion monitoring functions are executed with an encoder. - A slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for safe actual value sensing. - The maximum permissible velocity which, when exceeded, can mean that errors occur during safe actual value sensing, is displayed in r9730. - The isochronous PROFIBUS clock cycle is used as a clock cycle time for actual value sensing with a setting of 0 ms; the setting is 1 ms if isochronous operation is not being used. Setting criteria if the motion monitoring functions are executed without an encoder: - The actual value sensing clock cycle must be set to the same value as the current controller clock cycle (p0115).		
Dependency:	See also: p0115, p9300, p9511 See also: F01652		
NOTICE			
This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note			
The parameter is only active for drive-based motion monitoring functions (p9801.2 = 1). The monitoring clock cycle from p9300 must be an integer multiple of this parameter. In the case of motion monitoring functions with encoder, the clock cycle time for actual value sensing must be an integer multiple of the current controller clock cycle and at least 4 times slower than the current controller clock cycle. A factor of at least 8 is recommended. The clock cycle time of the actual value sensing should not be set to more than 8 ms. A change only becomes effective after a POWER ON.			

p9312	Select SI Motion safety functions without selection (MM) / SI Mtn w/o sel MM				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: 0000 0000 0001 0000 bin		
Description:	Sets the safety functions without selection. The safety functions without selection are enabled with p9601.5/p9801.5. Using this parameter, the individual motion monitoring functions can then be selected (e.g. SLS, SDI positive, SDI negative), which should then be permanently selected.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	SLS static (MM)	Statically active	Statically inactive	-
	12	SDI positive static (MM)	Statically active	Statically inactive	-
	13	SDI negative static (MM)	Statically active	Statically inactive	-
Dependency:	See also: p9601, p9801 See also: F01682, F30682				
NOTICE					
This parameter is overwritten by the copy function of the safety functions integrated in the drive.					

Note

A change becomes immediately effective after exiting the safety commissioning mode.

SDI: Safe Direction (safe motion direction).

SLS: Safely-Limited Speed

p9313

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion non safety-relevant measuring steps POS1 (MM) / nsrPOS1 MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

4294967295

22000

Description:

Sets the non safety-relevant measuring steps of position value POS1.

The encoder that is used for the safe motion monitoring functions on processor 2, must be parameterized in this parameter.

Dependency:

See also: p9513

p9314

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion absolute encoder linear measuring steps (MM) / EncLinMeasStep MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0 [nm]

4294967295 [nm]

100 [nm]

Description:

Sets the resolution of the absolute position for a linear absolute encoder.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency:

See also: p9514

p9315

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion coarse position value configuration (Motor Module) / SI Mtn s config MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description:

Sets the encoder configuration for the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-
16	DRIVE-CLiQ encoder	Yes	No	-
17	EnDat-2.2 converter	Yes	No	-

Dependency:

See also: r0474, p9515

p9316	SI Motion encoder configuration, safety functions (Motor Module) / SI Mtn enc_cfg MM				
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0001 bin		
Description:	Sets the configuration for the encoder and position actual value. The encoder that is used for the safe motion monitoring functions on the Hydraulic Module must be parameterized in this parameter.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder rotating/linear	Linear	Rotating	-
	01	Position actual value sign change	Yes	No	-
Dependency:	See also: p0404, p0410, p9516				
p9316	SI Motion encoder configuration, safety functions (Motor Module) / SI Mtn enc_cfg MM				
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	0000 bin		
Description:	Sets the configuration for the encoder and position actual value. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder rotating/linear	Linear	Rotating	-
	01	Position actual value sign change	Yes	No	-
Dependency:	See also: p0404, p0410, p9516				
p9317	SI Motion linear scale grid division (Motor Module) / SI Mtn grid MM				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	0.00 [nm]	250000000.00 [nm]	10000.00 [nm]		
Description:	Sets the grid division for a linear encoder. The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.				
Dependency:	See also: p0407, p9316				
p9318	SI Motion encoder pulses per revolution (Motor Module) / SI Mtn p/rev MM				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	0	16777215	2048		

Description: Sets the number of encoder pulses per revolution for rotary encoders.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: p0408, p9316

p9319 **SI Motion fine resolution G1_XIST1 (Motor Module) / SI Mtn G1_XIST1 MM**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	2	18	11

Description: Sets the fine resolution for G1_XIST1 in bits.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: p0418
See also: F01670, F01671

Note

For safety functions that have not been enabled (p9301 = 0), the following applies: When booting, p9319 is automatically set the same as p0418.
For safety functions that are enabled (p9301 > 0), the following applies: p9319 is checked for agreement with p0418.
G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)

p9320 **SI Motion spindle pitch (Motor Module) / SI Mtn sp_pitch MM**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.1000 [mm]	8388.0000 [mm]	10.0000 [mm]

Description: Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: p9520

NOTICE

The fourth decimal point can be rounded-off depending on the size of the entered number (from 3 places before the decimal point).

p9321[0...7] **SI Motion gearbox encoder (motor)/load denom (Motor Module) / SI Mtn gearDenomMM**

HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2147000000	1

Description: Sets the denominator for the gearbox between the encoder and load.
The active gearbox stage can be switched over via PROFIsafe.

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: See also: p9322

p9321[0...7] **SI Motion gearbox encoder (motor)/load denom (Motor Module) / SI Mtn gearDenomMM**
 SERVO_828, **Changeable:** C2(95) **Calculation:** - **Access level:** 3
 SERVO_COMBI **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
 P group: Safety Integrated **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 1 2147000000 1

Description: Sets the denominator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: See also: p9322

p9322[0...7] **SI Motion gearbox encoder (motor)/load numerator (Motor Module) / SI Mtn gear num MM**
 HLA_828 **Changeable:** C2(95) **Calculation:** - **Access level:** 3
 Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
 P group: Safety Integrated **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 1 2147000000 1

Description: Sets the numerator for the gearbox between the encoder and load. The active gearbox stage can be switched over via PROFIsafe.

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: See also: p9321

Note

In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.

Example:

Gearbox ratio 1:4, pole pair number (r0313) = 2

--> p9321 = 1, p9322 = 8 (4 x 2)

p9322[0...7]

SERVO_828,
SERVO_COMBI

SI Motion gearbox encoder (motor)/load numerator (Motor Module) / SI Mtn gear num MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1	Max: 2147000000	Default: 1

Description: Sets the numerator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index:
[0] = Gearbox 1
[1] = Gearbox 2
[2] = Gearbox 3
[3] = Gearbox 4
[4] = Gearbox 5
[5] = Gearbox 6
[6] = Gearbox 7
[7] = Gearbox 8

Dependency: See also: p9321

Note

In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.

Example:

Gearbox ratio 1:4, pole pair number (r0313) = 2

--> p9321 = 1, p9322 = 8 (4 x 2)

p9323

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion red. coarse position value valid bits (Motor Module) / Valid bits MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 16	Default: 9

Description: Sets the number of valid bits of the redundant coarse position value.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: r0470, p9523

p9324

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion redundant coarse pos. value fine resolution bits (MM) / SI Mtn fine bit MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -16	Max: 16	Default: -2

Description: Sets the number of valid bits for the fine resolution of the redundant coarse position value.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: r0471, p9524

p9325 **SI Motion redundant coarse pos. value relevant bits (MM) / Relevant bits MM**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	16	16

Description: Sets the number of relevant bits for the redundant coarse position value.
The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: p0414, r0472, p9525

p9326 **SI Motion encoder assignment (Motor Module) / SI Mtn encoder MM**

HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	3	2

Description: Sets the number of the encoder, which is used on the Motor Module for safe motion monitoring functions.

Dependency: For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1).
See also: p0187, p0188, p0189, p0430, p9526

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

- For p9526 = 1, the encoder for the closed-loop speed control is used for the second channel of the motion monitoring functions (1-encoder system). This setting is only permissible when using a DQI encoder.
- A change only becomes effective after a POWER ON.

p9326 **SI Motion encoder assignment (Motor Module) / SI Mtn encoder MM**

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	3	1

Description: Sets the number of the encoder, which is used on the Motor Module for safe motion monitoring functions.

Dependency: For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1).
See also: p0187, p0188, p0189, p0430, p9526

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.

For p9326 = 1, the following applies:

Motor Module uses an encoder for closed-loop speed control, it involves a 1-encoder system.

p9328[0...11]

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion Sensor Module Node Identifier (Motor Module) / SI Mtn SM Ident MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0000 hex	Max: 00FF hex	Default: 0000 hex

Description: Sets the node identifier of the Sensor Module that is used by the Motor Module/Hydraulic Module for the motion monitoring functions.

Dependency: See also: r9881

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9329

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion Gx_XIST1 coarse pos safe most significant bit (MM) / Gx_XIST1 MSB MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 31	Default: 14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position. The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Dependency: See also: p0415, r0475, p9529

Note

MSB: Most Significant Bit

p9330

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.000 [mm]	Max: 100.000 [mm]	Default: 1.000 [mm]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).

Dependency: See also: p9530
See also: C01707

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SOS: Safe Operating Stop

p9330	SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [°]	Max: 100.000 [°]	Default: 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	See also: p9530 See also: C01707		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SOS: Safe Operating Stop

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [mm/min]	Max: 1000000.00 [mm/min]	Default: 2000.00 [mm/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLS4		
Dependency:	See also: p9363, p9531 See also: C01714		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SLS: Safely-Limited Speed

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 1000000.00 [rpm]	Default: 2000.00 [rpm]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLS4		
Dependency:	See also: p9363, p9531 See also: C01714		

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
SLS: Safely-Limited Speed

p9334[0...1]	SI Motion SLP upper limit values (Motor Module) / SI Mtn SLP uplimMM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [mm]	Max: 2147000.000 [mm]	Default: 100000.000 [mm]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	See also: p9501, p9535, p9562 See also: C01715		

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
The following applies to the setting of these limits:
- p9334[x] > p9335[x]
- p9334[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9334[0...1]	SI Motion SLP upper limit values (Motor Module) / SI Mtn SLP uplimMM		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [°]	Max: 2147000.000 [°]	Default: 100000.000 [°]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	See also: p9501, p9535, p9562 See also: C01715		

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
The following applies to the setting of these limits:
- p9334[x] > p9335[x]
- p9334[x] must lie in the valid traversing range (-737280 ... 737280).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9335[0...1] SI Motion SLP lower limit values (Motor Module) / SI Mtn SLPlowLimMM			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [mm]	Max: 2147000.000 [mm]	Default: -100000.000 [mm]
Description:	Sets the lower limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	See also: p9501, p9534, p9562 See also: C01715		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The following applies to the setting of these limits:

- p9334[x] > p9335[x]
 - p9335[x] must lie in the valid traversing range (-737280 ... 737280).
- SLP: Safely-Limited Position / SE: Safe software limit switches

p9335[0...1] SI Motion SLP lower limit values (Motor Module) / SI Mtn SLPlowLimMM			
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [°]	Max: 2147000.000 [°]	Default: -100000.000 [°]
Description:	Sets the lower limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	See also: p9501, p9534, p9562 See also: C01715		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The following applies to the setting of these limits:

- p9334[x] > p9335[x]
 - p9335[x] must lie in the valid traversing range (-737280 ... 737280).
- SLP: Safely-Limited Position / SE: Safe software limit switches

p9339[0...7] SI Motion gearbox direction of rotation reversal (Motor Module) / SI Mtn grbx rev MM			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0

Description: Sets the direction of rotation reversal for the gearbox.
 0: No direction of rotation reversal
 1: Direction of rotation reversal
 The active gearbox stage can be switched over via PROFIsafe.

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: See also: p9321

p9341 **SI Motion encoder comparison algorithm (Motor Module) / Enc comp algo MM**

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 255	Default: 255

Description: Sets the comparison algorithm for the encoder position monitoring functions.
 The encoder that is used for the safe motion monitoring functions on the Motor Module/Hydraulic Module must be parameterized in this parameter.

Value: 0: SMx20 safety algorithm
 10: DQL binary safety algorithm
 11: DQL linear non-binary safety algorithm
 12: SMC30 safety algorithm
 255: Safety algorithm unknown

Dependency: See also: p9541

p9342 **SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM**

HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0010 [mm]	Max: 360.0000 [mm]	Default: 0.1000 [mm]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.

Dependency: See also: p9542
 See also: C01711

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
 For a linear axis, the tolerance is internally limited to 10 mm.
 For a "linear axis with rotating motor" and factory setting of p9320, p9321 and p9322, the factory setting of p9342 corresponds to a position tolerance of 36 ° on the motor side.

p9342	SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0010 [mm]	Max: 360.0000 [mm]	Default: 0.1000 [mm]
Description:	Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels. For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).		
Dependency:	See also: p9542 See also: C01711		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

For a linear axis, the tolerance is internally limited to 10 mm.
For a "linear axis with rotating motor" and factory setting of p9320, p9321 and p9322, the factory setting of p9342 corresponds to a position tolerance of 36 ° on the motor side.

p9342	SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0010 [°]	Max: 360.0000 [°]	Default: 0.1000 [°]
Description:	Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels. For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).		
Dependency:	See also: p9542 See also: C01711		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

For a linear axis, the tolerance is internally limited to 10 mm.
For a "linear axis with rotating motor" and factory setting of p9320, p9321 and p9322, the factory setting of p9342 corresponds to a position tolerance of 36 ° on the motor side.

p9343	SI Motion gearbox switching position tolerance (MM) / SI Mtn grbx tol MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 1000	Default: 1

Description: Sets the factor to increase the tolerance for the crosswise data comparison of the actual position between the two monitoring channels while the gearbox stage is being switched over.
 This factor is effective when actual value synchronization is activated and when deactivated.
 Depending on the following tolerance, the following is obtained:
 - actual value synchronization activated: p9549 * p9543
 - actual value synchronization deactivated: p9542 * p9543

NOTICE
 This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9344 SI Motion actual value comparison tolerance (referencing) (MM) / SI mtn ref tol MM

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [mm]	Max: 36.0000 [mm]	Default: 0.0100 [mm]

Description: Sets the tolerance for checking the actual values.
 For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.

Dependency: See also: C01711

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.
 For linear axes, the maximum value is limited to 1 mm.

p9344 SI Motion actual value comparison tolerance (referencing) (MM) / SI mtn ref tol MM

SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [°]	Max: 36.0000 [°]	Default: 0.0100 [°]

Description: Sets the tolerance for checking the actual values.
 For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.

Dependency: See also: C01711

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.
 For linear axes, the maximum value is limited to 1 mm.

p9345	SI Motion SSM filter time (Motor Module) / SI Mtn SSM filt MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2823
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 100000.00 [µs]	Default: 0.00 [µs]
Description:	Sets the filter time for the SSM feedback signal to detect standstill.		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The filter time is effective only if the function is enabled (p9301.16 = p9501.16 = 1).
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
The parameter is included in the crosswise data comparison of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9346	SI Motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2823
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [mm/min]	Max: 1000000.00 [mm/min]	Default: 20.00 [mm/min]
Description:	Sets the velocity limit for the SSM feedback signal to detect standstill ($n < nx$). When this limit value is undershot, the signal "SSM feedback signal active" is set. For p9368 = p9568 = 0 the value in p9346/p9546 is also applicable for the function "SAM".		
Dependency:	See also: p9546		

CAUTION

The "SAM" function is switched out if the selected threshold value is undershot.


NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9346	SI Motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2823
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 1000000.00 [rpm]	Default: 20.00 [rpm]
Description:	Sets the velocity limit for the SSM feedback signal to detect standstill ($n < nx$). When this limit value is undershot, the signal "SSM feedback signal active" is set. For p9368 = p9568 = 0 the value in p9346/p9546 is also applicable for the function "SAM".		
Dependency:	See also: p9546		

 CAUTION
The "SAM" function is switched out if the selected threshold value is undershot.

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9347

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2823
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0010 [mm/min]	Max: 500.0000 [mm/min]	Default: 10.0000 [mm/min]

Description:

Sets the velocity hysteresis for the SSM feedback signal to detect standstill ($n < nx$).

Dependency:

See also: C01711

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The velocity hysteresis is effective only if the function is enabled ($p9301.16 = p9501.16 = 1$).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9347

SERVO_828 (Safety
rot), SERVO_COMBI
(Safety rot)

SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2823
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0010 [rpm]	Max: 500.0000 [rpm]	Default: 10.0000 [rpm]

Description:

Sets the velocity hysteresis for the SSM feedback signal to detect standstill ($n < nx$).

Dependency:

See also: C01711

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The velocity hysteresis is effective only if the function is enabled ($p9301.16 = p9501.16 = 1$).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9348

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SAM actual velocity tolerance (Motor Module) / SI Mtn SAM tol MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [mm/min]	Max: 120000.00 [mm/min]	Default: 300.00 [mm/min]

Description: Sets the velocity tolerance for the "SAM" function.

Dependency: See also: p9548

See also: C01706

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9348

SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)

SI Motion SAM actual velocity tolerance (Motor Module) / SI Mtn SAM tol MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [rpm]

120000.00 [rpm]

300.00 [rpm]

Description: Sets the velocity tolerance for the "SAM" function.

Dependency: See also: p9548

See also: C01706

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9349

HLA_828, SERVO_828, SERVO_COMBI

SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [mm/min]

6000.00 [mm/min]

6.00 [mm/min]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.

Dependency: See also: p9301, p9342, p9549

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the crosswise data comparison.

p9349

SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)

SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [rpm]

6000.00 [rpm]

6.00 [rpm]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.

Dependency: See also: p9301, p9342, p9549

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the crosswise data comparison.

p9351

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SLS(SG) changeover/SOS (SBH) delay time (MM) / SI SLS/SOS t MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819, 2820
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [µs]	Max: 600000000.00 [µs]	Default: 100000.00 [µs]

Description:

Sets the delay time for the SLS changeover and for the activation of SOS for the functions "Safely-Limited Speed" (SLS) and "Safe operating stop" (SOS).
When transitioning from a higher to a lower safely-limited speed level, and when activating safe operating stop (SOS), within this delay time, the "old" speed level remains active.
This delay is also applicable when activating SLS from the state "SOS and SLS inactive" and activating SOS from the state "SOS inactive".

Dependency:

See also: p9551

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SLS: Safely-Limited Speed
SOS: Safe Operating Stop

p9352

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion transition time STOP C to SOS (Motor Module) / SI Mtn t C->SOS MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [µs]	Max: 600000000.00 [µs]	Default: 100000.00 [µs]

Description:

Sets the transition time from STOP C to "Safe Operating Stop" (SOS).

Dependency:

See also: p9552

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SOS: Safe Operating Stop

p9353	SI Motion transition time STOP D to SOS (Motor Module) / SI Mtn t D->SOS MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 600000000.00 [µs]	Default: 100000.00 [µs]
Description:	Sets the transition time from STOP D to "Safe Operating Stop" (SOS).		
Dependency:	See also: p9553		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SOS: Safe Operating Stop

p9354	SI Motion transition time STOP E to SOS (Motor Module) / SI Mtn t E->SOS MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 600000000.00 [µs]	Default: 100000.00 [µs]
Description:	Sets the transition time from STOP E to "Safe Operating Stop" (SOS).		
Dependency:	See also: p9554		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SOS: Safe Operating Stop

p9355	SI Motion transition time STOP F to STOP B (Motor Module) / SI Mtn t F->B MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 600000000.00 [µs]	Default: 0.00 [µs]
Description:	Sets the transition time from STOP F to STOP B.		
Dependency:	See also: C01711		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9356
HLA_828

SI Motion STOP A delay time (Motor Module) / SI Mtn IL t_del MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [µs]	Max: 3600000000.00 [µs]	Default: 100000.00 [µs]

Description: Sets the delay time for STOP A after STOP B / SS1.

Dependency: See also: p9360, p9556
See also: C01701

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9356
SERVO_828,
SERVO_COMBI

SI Motion STOP A delay time (Motor Module) / SI Mtn IL t_del MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [µs]	Max: 3600000000.00 [µs]	Default: 100000.00 [µs]

Description: Sets the delay time for STOP A after STOP B / SS1.
In the case of encoderless motion monitoring functions with safe brake ramp monitoring (p9306 = 1) and the OFF3 ramp enabled at the same time (p9507.3 = 0), the parameter has no effect.

Dependency: See also: p9360, p9556
See also: C01701

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9357
HLA_828

SI Motion STO test time (Motor Module) / SI Mtn IL t MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [µs]	Max: 10000000.00 [µs]	Default: 500000.00 [µs]

Description: Sets the time after which STO must be active when initiating the test stop.

Dependency: See also: p9557
See also: C01798

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9357	SI Motion STO test time (Motor Module) / SI Mtn IL t MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 10000000.00 [µs]	Default: 100000.00 [µs]
Description:	Sets the time after which STO must be active when initiating the test stop.		
Dependency:	See also: p9557 See also: C01798		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9358	SI Motion acceptance test mode time limit (Motor Module) / SI Mtn acc t MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 5000000.00 [µs]	Max: 100000000.00 [µs]	Default: 40000000.00 [µs]
Description:	Sets the maximum time for the acceptance test mode. If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.		
Dependency:	See also: p9558 See also: C01799		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9360	SI Motion STO shutdown velocity (Motor Module) / SI Mtn IL v_sh MM		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [mm/min]	Max: 6000.00 [mm/min]	Default: 0.00 [mm/min]
Description:	Sets the shutdown velocity for activating STO. Below this velocity "standstill" is assumed and for STOP B / SS1, STO is selected.		
Dependency:	See also: p9356, p9560		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The shutdown velocity has no effect for a value = 0.

SS1: Safe Stop 1

p9360	SI Motion STO shutdown velocity (Motor Module) / SI Mtn IL v_sh MM		
	SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [mm/min]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 6000.00 [mm/min]

Description: Sets the shutdown velocity for activating STO.
Below this velocity "standstill" is assumed and for STOP B / SS1, STO is selected.
In the case of encoderless motion monitoring functions, the parameter must be > 0 (recommended value: 10).

Dependency: See also: p9356, p9560

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
The shutdown velocity has no effect for a value = 0.
SS1: Safe Stop 1

p9360	SI Motion pulse suppression shutdown speed (Motor Module) / SI Mtn IL n_sh MM		
	SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [rpm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 6000.00 [rpm]

Description: Sets the shutdown speed for the pulse suppression.
Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).

Dependency: See also: p9356, p9560

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
The shutdown speed has no effect for a value = 0.
SS1: Safe Stop 1

p9362[0...1]	SI Motion SLP stop response (Motor Module) / SI mtn SLP stop MM		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: Integer16 P group: Safety Integrated Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 14

Description: Sets the stop response for the function "Safely-Limited Position" (SLP).

Value:

- 0: STOP A
- 1: STOP B
- 2: STOP C
- 3: STOP D
- 4: STOP E
- 10: STOP A with delayed STO when the bus fails
- 11: STOP B with delayed STO when the bus fails

- 12: STOP C with delayed STO when the bus fails
 13: STOP D with delayed STO when the bus fails
 14: STOP E with delayed STO when the bus fails

Index: [0] = Limit value SLP1 (SE1)
 [1] = Limit value SLP2 (SE2)

Dependency: See also: p9534, p9535

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SLP: Safely-Limited Position

p9363[0...3]

HLA_828,
 SERVO_828,
 SERVO_COMBI

SI Motion SLS stop response (Motor Module) / SI Mtn SLS Stop MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

14

2

Description: Sets the stop response for the function "Safely-Limited Speed" (SLS).
 These settings apply to the individual limit values for SLS.

In the case of encoderless motion monitoring (p9506/p9306 = 1, 3), only a value of 0 or 1 is permitted.

Value: 0: STOP A
 1: STOP B
 2: STOP C
 3: STOP D
 4: STOP E

- 10: STOP A with delayed STO when the bus fails
 11: STOP B with delayed STO when the bus fails
 12: STOP C with delayed STO when the bus fails
 13: STOP D with delayed STO when the bus fails
 14: STOP E with delayed STO when the bus fails

Index: [0] = Limit value SLS1
 [1] = Limit value SLS2
 [2] = Limit value SLS3
 [3] = Limit value SLS4

Dependency: See also: p9331, p9380, p9563

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SLS: Safely-Limited Speed

p9364 **SI Motion SDI tolerance (Motor Module) / SI Mtn SDI tol MM**
 HLA_828, SERVO_828, SERVO_COMBI
Changeable: C2(95) **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** 2824
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.001 [mm] 360.000 [mm] 12.000 [mm]

Description: Sets the tolerance for the function "Safe motion direction" (SDI).
 This motion in the monitored direction is still permissible before safety message C30716 is initiated.

Dependency: See also: p9365, p9366
 See also: C30716

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
 SDI: Safe Direction (safe motion direction)

p9364 **SI Motion SDI tolerance (Motor Module) / SI Mtn SDI tol MM**
 SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)
Changeable: C2(95) **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** 2824
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.001 [°] 360.000 [°] 12.000 [°]

Description: Sets the tolerance for the function "Safe motion direction" (SDI).
 This motion in the monitored direction is still permissible before safety message C30716 is initiated.

Dependency: See also: p9365, p9366
 See also: C30716

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
 SDI: Safe Direction (safe motion direction)

p9365 **SI Motion SDI delay time (Motor Module) / SI Mtn SDI t MM**
 HLA_828, SERVO_828, SERVO_COMBI
Changeable: C2(95) **Calculation:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** - **Function plan:** 2824
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0.00 [µs] 600000000.00 [µs] 100000.00 [µs]

Description: Sets the delay time for the function "Safe motion direction" (SDI).
 After selecting the SDI function, then for a maximum of this time, motion in the monitored direction is permissible. This time can therefore be used for braking any motion.

Dependency: See also: p9364, p9366
 See also: C30716

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SDI: Safe Direction (safe motion direction)

p9366	SI Motion SDI stop response (Motor Module) / SI Mtn SDI Stop MM		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2824
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	14	1
Description:	Sets the stop response for the function "Safe motion direction" (SDI). This setting applies to both directions of motion.		
Value:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed STO when the bus fails 11: STOP B with delayed STO when the bus fails 12: STOP C with delayed STO when the bus fails 13: STOP D with delayed STO when the bus fails 14: STOP E with delayed STO when the bus fails		
Dependency:	See also: p9364, p9365 See also: C30716		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
SDI: Safe Direction (safe motion direction)

p9366	SI Motion SDI stop response (Motor Module) / SI Mtn SDI Stop MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2824
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	14	1
Description:	Sets the stop response for the function "Safe motion direction" (SDI). This setting applies to both directions of motion. In the case of encoderless motion monitoring (p9306 = 1), only a value of 0 or 1 is permitted.		
Value:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed STO when the bus fails 11: STOP B with delayed STO when the bus fails		

- 12: STOP C with delayed STO when the bus fails
- 13: STOP D with delayed STO when the bus fails
- 14: STOP E with delayed STO when the bus fails

Dependency: See also: p9364, p9365
See also: C30716

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
SDI: Safe Direction (safe motion direction)

p9368

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SAM velocity limit (Motor Module) / SI Mtn SAM v_limMM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [mm/min]	Max: 1000.00 [mm/min]	Default: 0.00 [mm/min]

Description: Sets the velocity tolerance limit for the "SAM" function.
SAM is de-activated once the set velocity limit has been undershot.

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)
For p9568 = p9368 = 0, the following applies:
The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9368

SERVO_828 (Safety
rot), SERVO_COMBI
(Safety rot)

SI Motion SAM velocity limit (Motor Module) / SI Mtn SAM v_limMM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [rpm]	Max: 1000.00 [rpm]	Default: 0.00 [rpm]

Description: Sets the velocity tolerance limit for the "SAM" function.
SAM is de-activated once the set velocity limit has been undershot.

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)
For p9568 = p9368 = 0, the following applies:
The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9370	SI Motion acceptance test mode (Motor Module) / SI Mtn acc_mod MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00AC hex	Default: 0000 hex
Description:	Setting to select and de-select the acceptance test mode.		
Value:	0: [00 hex] De-select the acceptance test mode 172: [AC hex] Select the acceptance test mode		
Dependency:	See also: p9358, r9371 See also: C01799		
	Note Acceptance test mode can only be selected if the motion monitoring functions, which are integrated in the drives, are enabled (p9601.2/p9801.2).		

r9371	SI Motion acceptance test status (Motor Module) / SI Mtn acc_stat MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00AC hex	Default: -
Description:	Displays the status of the acceptance test mode.		
Value:	0: [00 hex] Acc_mode inactive 12: [0C hex] Acc_mode not possible due to POWER ON fault 13: [0D hex] Acc_mode not possible due to incorrect ID in p9370 15: [0F hex] Acc_mode not possible due to expired Acc_timer 172: [AC hex] Acc_mode active		
Dependency:	See also: p9358, p9370 See also: C01799		

p9374	SI Motion safe position scaling (Motor Module) / SI mtn SP scal MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 100000	Default: 1000
Description:	Sets the scaling factor to transfer the safe position via PROFIsafe in the 16-bit notation.		
Dependency:	See also: r9713		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The parameter is only effective when PROFIsafe telegram 901 is selected.

By selecting a suitable scaling of the 32 bit position actual value (r9713[0]), it must be ensured that the scaled position actual value is not greater than 16 bit. The scaling is realized by dividing r9713[0] with this scaling factor.

If, during operation, a position actual value is determined, which cannot be scaled to the 16 bits, then message C30711 with value 7001 is output and safety stop response STOP F.

p9377	SI Motion SLP delay time (Motor Module) / SI mtn SLP t MM		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [µs]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 600000000.00 [µs]

Description: Setting the delay time:
-between selecting and activating the "Safety-limited Position" (SLP) function
-when changing between the two active SLP ranges, if the new range is not completely contained in the old range.

Dependency: See also: p9301, p9334, p9335

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SLP: Safely-Limited Position

p9380	SI Motion STO delay bus failure (Motor Module) / SI Mtn t to IL MM		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [µs]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 800000.00 [µs]

Description: Sets the delay time after which STO is executed when the bus fails.

Dependency: See also: p9363

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
The main use of the wait time is the ESR function (Extended Stop and Retract).
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9381	SI Motion brake ramp reference value (Motor Module) / SI Mtn ramp ref MM		
	SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 600.0000 [mm/min]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 240000.0000 [mm/min]

Description: Sets the reference value to define the brake ramp.
The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).

Dependency: See also: p9382, p9383

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9381	SI Motion brake ramp reference value (Motor Module) / SI Mtn ramp ref MM		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 600.0000 [rpm]	Max: 240000.0000 [rpm]	Default: 1500.0000 [rpm]
Description:	Sets the reference value to define the brake ramp. The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).		
Dependency:	See also: p9382, p9383		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9382	SI Motion brake ramp delay time (Motor Module) / SI Mtn rp t_del MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10000.00 [µs]	Max: 99000000.00 [µs]	Default: 250000.00 [µs]
Description:	Sets the delay time for monitoring the brake ramp. Monitoring of the brake ramp starts once the delay time has elapsed.		
Dependency:	See also: p9381, p9383		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle. Internally, the set time is limited downwards to 2 safety monitoring clock cycles (2 * p9500/p9300).

p9383	SI Motion brake ramp monitoring time (Motor Module) / SI Mtn rp t_mon MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 500.00 [ms]	Max: 3600000.00 [ms]	Default: 10000.00 [ms]
Description:	Sets the monitoring time to define the brake ramp. The rate of rise of the brake ramp depends upon p9381 (reference value) and p9383 (monitoring time).		
Dependency:	See also: p9381, p9382		

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9385 SI Motion actual value sensing sensorless fault tolerance (MM) / ActVal sl tol MM

SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Integer32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-1	4	-1

Description: Sets the tolerance of the plausibility monitoring of the current and voltage angle.
A higher value results in a higher degree of ruggedness when reversing at low speeds, as well as in the field weakening range for load steps.

An increase is advantageous, if the current or voltage at the motor become small.

Dependency: See also: p9507
See also: F30681, C30711

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.
Reducing this value can adversely affect the actual value sensing and the plausibility check.
When the value is increased, this results in a longer evaluation delay and a higher velocity deviation (r9787).

Note
This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
For synchronous motors, the value 4 must be set.
For a value = -1:
- for synchronous motors, the calculation is automatically made with the value 4.
- for induction motors, the calculation is automatically made with a value of 0 (if the code number of the power unit p0201[0] < 14000, otherwise with a value of 2).


p9386 SI Motion actual value sensing sensorless delay time (MM) / ActVal sl t_del MM

SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
5.00 [ms]	1000.00 [ms]	100.00 [ms]

Description: Sets the delay time to evaluate the encoderless actual value sensing after the pulses have been enabled.
The value must be greater than or equal to the motor magnetizing time (p0346).

Dependency: See also: C30711

 **CAUTION**

The safety functionality is only completely guaranteed after this time has expired.

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.
If this value is reduced, this can have a negative impact on the actual value acquisition and plausibility check – and result in Safety message C30711 with the message value 1041 or 1042.

Note
This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9387	SI Motion actual value sensing sensorless filter time (MM) / Actv sl t_filt MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 100000.00 [µs]	Default: 25000.00 [µs]

Description: Sets the filter time for smoothing the actual value with sensorless actual value sensing.

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.
A longer filter time results in a longer response time.

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
The smoothing is realized with a 1st order lowpass filter
For p9387 = minimum value, the filter is deactivated.
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9388	SI Motion actual value sensing sensorless minimum current (MM) / ActVal sl I_min MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [%]	Max: 1000.00 [%]	Default: 10.00 [%]

Description: Sets the minimum current for encoderless actual value sensing referred to 1 A (i.e. 1 % = 10 mA).
- The value must be increased if C30711 has occurred with message value 1042.
- The value must be decreased if C30711 has occurred with message value 1041.

For synchronous motors, the following condition must be fulfilled:
|p0305 x p9783| >= p9388 x 1.2

Recommendation: If required, the correct value of the motor minimum current should be determined by making the appropriate measurements.

Dependency: See also: r9785
See also: C30711

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.
If this percentage value is reduced excessively, then this can result in a safety message and an inaccurate actual value.

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

p9389	SI Motion actual value sensing sensorless accel. limit (MM) / ActVal sl a_lim MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.00 [%]	Max: 3300.00 [%]	Default: 100.00 [%]

Description: Sets the acceleration limit to filter velocity fluctuations.
 If this percentage value is increased, when accelerating, velocity peaks that do not reflect the real velocity characteristic can occur.
 If this value is decreased, and this dampens the velocity peaks when accelerating.
 - The value must be increased if C30711 with message value 1043 has occurred.
 - The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

Recommendation: The setting of this parameter depends on the motor and closed-loop control, and must be newly determined for each configuration.
 To do this, a measurement should be performed while the actual value jumps, and the limit in r9785[0] must be set so low using p9389, so that it is exceeded by the value in r9785[1] a maximum of four times per second. The actual value correction filter intervenes at this instant in time. The step is no longer so drastic.

Dependency: See also: r9784
 See also: C30711

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
 This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
 For p9389 = maximum value, the filter is deactivated.
 Diagnostics parameter p9784 must be used to correctly set this parameter.

r9390[0...3] SI Motion version safety motion monitoring (Motor Module) / SI Mtn Version MM

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the Safety Integrated version for the safe monitoring functions.

Index: [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)
 [3] = Safety Version (hotfix)

Dependency: See also: r9590, r9770, r9870, r9890

Note
 Example:
 r9390[0] = 2, r9390[1] = 60, r9390[2] = 1, r9390[3] = 0 --> SI Motion version V02.60.01.00

r9398[0...1] SI Motion actual checksum SI parameters (Motor Module) / SI Mtn act CRC MM

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the checksum for the checked Safety Integrated parameters of the motion monitoring function (actual checksum) on the Motor Module/Hydraulic Module.

Index: [0] = Checksum over SI parameters for motion monitoring
 [1] = Checksum over SI parameters with hardware reference

Dependency: See also: p9399

Note

SI: Safety Integrated

p9399[0...1] SI Motion reference checksum SI parameters (Motor Module) / SI Mtn setp CRC MMHLA_828,
SERVO_828,
SERVO_COMBI**Changeable:** C2(95)**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0000 hex

FFFF FFFF hex

0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters of the motion monitoring function (reference checksum) on the Motor Module/Hydraulic Module.**Index:** [0] = Checksum over SI parameters for motion monitoring
[1] = Checksum over SI parameters with hardware reference**Dependency:** See also: r9398**Note**

SI: Safety Integrated

r9406[0...19] PS file parameter number parameter not transferred / PS par_no n transf

All objects

Changeable: -**Calculation:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description: Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the non-volatile memory (e.g. memory card).

r9406[0] = 0

--> All of the parameter values were able to be transferred error-free.

r9406[0...x] > 0

--> indicates the parameter number in the following cases:

- parameter, whose value was not able to be completely accepted.

- indexed parameter, where at least 1 index was not able to be accepted. The first index that is not transferred is displayed in r9407.

Dependency: See also: r9407, r9408**Note**

All indices from r9406 to r9408 designate the same parameter.

r9406[x] parameter number, parameter not accepted

r9407[x] parameter index, parameter not accepted

r9408[x] fault code, parameter not accepted

r9407[0...19] PS file parameter index parameter not transferred / PS parameter index

All objects

Changeable: -**Calculation:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** -**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description: Displays the first index of the parameters that could not be transferred when the parameter backup files (PS files) were read from the non-volatile memory (e.g. memory card).
 If, from an indexed parameter, at least one index was not able to be transferred, then the parameter number is displayed in r9406[n] and the first index that was not transferred is displayed in r9407[n].
 r9406[0] = 0
 --> All of the parameter values were able to be transferred error-free.
 r9406[n] > 0
 --> Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.

Dependency: See also: r9406, r9408

Note

All indices from r9406 to r9408 designate the same parameter.
 r9406[x] parameter number, parameter not accepted
 r9407[x] parameter index, parameter not accepted
 r9408[x] fault code, parameter not accepted

r9408[0...19] PS file fault code parameter not transferred / PS fault code

All objects

Changeable: -	Calculation: -	Access level: 1
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Only for internal Siemens service purposes.

Dependency: See also: r9406, r9407

Note

All indices from r9406 to r9408 designate the same parameter.
 r9406[x] parameter number, parameter not accepted
 r9407[x] parameter index, parameter not accepted
 r9408[x] fault code, parameter not accepted

r9409 Number of parameters to be saved / Qty par to save

A_INF_828,
 B_INF_828, CU_I_828,
 CU_I_COMBI,
 CU_LINK, CU_NX_828,
 HLA_828, HUB,
 S_INF_828,
 S_INF_COMBI,
 SERVO_828, TM120,
 TM150, TM54F_MA,
 TM54F_SL

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the number of modified parameters and those that have still not be saved for this drive object.

Dependency: See also: p0971, p0977

NOTICE

Inherent to the system, the list of the parameters to be backed up is empty after the following actions:

- Download
- Warm restart
- Factory setting

In these cases, a new parameter backup must be initiated, which is then the starting point for the list of modified parameters.

Note

The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

r9450[0...29]	Reference value change parameter with unsuccessful calculation / Ref_chg par n poss		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: - Data type: Unsigned32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the parameters for which the re-calculation was unsuccessful after an internal system reference value change.		
Dependency:	See also: F07086		

r9451[0...29]	Units changeover adapted parameters / Unit_chngov par		
A_INF_828, B_INF_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828	Changeable: - Data type: Unsigned32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 1 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the parameters whose parameter would have to be changed during a units changeover.		
Dependency:	See also: F07088		

r9481	Number of BICO interconnections / BICO count		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned16 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: -
Description:	Displays the number of BICO interconnections (signal sinks).		
Dependency:	See also: r9482, r9483		
	Note		
	The selected BICO interconnections should be entered into r9482 and r9483.		

r9482[0...n]	BICO interconnections BI/CI parameters / BICO BI/CI par		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: r9481 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: -
Description:	Displays the signal sinks (binector/connector inputs, BI/CI parameters). The number of BICO interconnections is displayed in r9481.		
Dependency:	See also: r9481, r9483		

Note

The list is sorted according to signal sources and is structured as follows:
 r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
 r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
 ...

r9483[0...n] BICO interconnections BO/CO parameters / BICO BO/CO par

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: r9481 Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: -
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Description: Displays the signal sources (binector/connector outputs, BO/CO parameters).
 The number of BICO interconnections is displayed in r9481.

Dependency: See also: r9481, r9482

Note

The list is sorted according to signal sources and is structured as follows:
 r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
 r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
 ...

p9484 BICO interconnections search signal source / BICO S_src srch

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T, U Data type: Unsigned32 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: 0
--	--	--	--

Description: Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks.
 The question is answered:
 How often is a connection made to a signal source in the drive object and from which index are these interconnections saved (r9482 and r9483)?

Dependency: See also: r9481, r9482, r9483, r9485, r9486

r9485 BICO interconnections signal source search count / BICO S_src srchQty

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, SERVO_COMBI, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned16 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: -
--	---	---	--

Description: Displays the number of BICO interconnections to the signal sink being searched for.

Dependency: See also: r9481, r9482, r9483, 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).

r9486**BICO interconnections signal source search first index / BICO S_src srchIdx**

A_INF_828,	Changeable: -	Calculation: -	Access level: 3
B_INF_828, CU_I_828,	Data type: Unsigned16	Dynamic index: -	Function plan: -
CU_I_COMBI,	P group: -	Unit group: -	Unit selection: -
CU_LINK, CU_NX_828,	Not for motor type: -	Scaling: -	Expert list: 0
HLA_828, S_INF_828,	Min:	Max:	Default:
S_INF_COMBI,	-	-	-
SERVO_828,			
SERVO_COMBI,			
TM120, TM150,			
TM54F_MA, TM54F_SL			

Description: Displays the first index of the signal source being searched for.

Dependency: See also: r9481, r9482, r9483, p9484, r9485

Note

The signal source to be searched is set in p9484 (BICO-coded).
The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9490**Number of BICO interconnections to other drives / Qty BICO to drive**

A_INF_828,	Changeable: -	Calculation: -	Access level: 3
B_INF_828, CU_I_828,	Data type: Unsigned16	Dynamic index: -	Function plan: -
CU_I_COMBI,	P group: Commands	Unit group: -	Unit selection: -
CU_LINK, CU_NX_828,	Not for motor type: -	Scaling: -	Expert list: 1
HLA_828, HUB,	Min:	Max:	Default:
S_INF_828,	-	-	-
S_INF_COMBI,			
SERVO_828, TM120,			
TM150, TM54F_MA,			
TM54F_SL			

Description: Displays the number of signal sources from this drive to other drives/drive objects (Binector Output/Connector Output, BO/CO).

Dependency: See also: r9491, r9492, p9493

r9491[0...9]**BI/CI of BICO interconnections to other drives / BI/CI to drive**

A_INF_828,	Changeable: -	Calculation: -	Access level: 3
B_INF_828, CU_I_828,	Data type: Unsigned32	Dynamic index: -	Function plan: -
CU_I_COMBI,	P group: Commands	Unit group: -	Unit selection: -
CU_LINK, CU_NX_828,	Not for motor type: -	Scaling: -	Expert list: 1
HLA_828, HUB,	Min:	Max:	Default:
S_INF_828,	-	-	-
S_INF_COMBI,			
SERVO_828, TM120,			
TM150, TM54F_MA,			
TM54F_SL			

Description: Displays the signal receiver list (Binector Input/Connector Input, BI/CI) for the first interconnections between this drive and other drives/drive objects.

Dependency: See also: r9490, r9492, p9493

NOTICE

A drive cannot be deleted if this list is not empty!
Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note

All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

r9492[0...9] BO/CO of BICO interconnections to other drives / BO/CO to drive

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: - Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
--	--	---	--

Description: Displays the signal source list (Binector Output/Connector Output, BO/CO) for the first interconnections between this drive and other drives/drive objects.

Dependency: See also: r9490, r9491, p9493

NOTICE
A drive cannot be deleted if this list is not empty!
Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note

All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9493[0...9] Reset BICO interconnections to other drives / Reset BICO to drv

A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, HUB, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150, TM54F_MA, TM54F_SL	Changeable: T Data type: Integer16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 15	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 15
--	--	--	---

Description: Setting to reset the BICO interconnections to other drives.
Each interconnection can be individually reset.

Value:
0: Set connection to 0
1: Set connection to 1 (100 %)
2: Set connection to factory setting
15: Finished

Dependency: See also: r9490, r9491, r9492

Note

All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9495	BICO behavior for de-activated drive objects / Behav for deact DO		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150	Changeable: T Data type: Integer16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the behavior for BICO interconnections to drive objects that are either not capable of operation or have been deactivated. BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).		
Value:	0: Inactive 1: Save interconnections 2: Save interconnections and establish the factory setting		
Dependency:	See also: p9496, p9497, p9498, p9499 See also: A01318, A01507		
Note			
For p9495 = 0, the following applies: - the number of interconnections is zero (p9497 = 0). For p9495 not equal to 0, the following applies: - the BI/CI parameters involved are listed in p9498[0...29] (signal sink). - the associated BO/CO parameters are listed in p9499[0...29] (signal source).			
p9496	BICO behavior when activating drive objects / Behav when act DO		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150	Changeable: T Data type: Integer16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 2	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the behavior when activating BICO interconnections to drive objects that are either not capable of operation or have been deactivated.		
Value:	0: Inactive 1: Restore the interconnections from the list 2: Delete the interconnections from the list		
Dependency:	See also: p9495, p9497, p9498, p9499 See also: A01318, A01507		
Note			
The BI/CI parameters involved are listed in p9498[0...29] (signal sink). The associated BO/CO parameters are listed in p9499[0...29] (signal source). After p9496 = 1, 2 the following applies: - p9497 = 0 - p9496 = 0			

p9497	BICO interconnections to de-activated drive objects number / Interconn obj qty		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150	Changeable: T Data type: Unsigned16 P group: Commands Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 65535	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Displays the number of saved BICO interconnections to drive objects that are either not capable of operation or have been deactivated. BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).		
Dependency:	See also: p9495, p9496, p9498, p9499 See also: A01318, A01507		

p9498[0...29]	BICO BI/CI parameters to de-activated drive objects / BI/CI to deact obj		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150	Changeable: T Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Displays the saved BI/CI parameters (signal sink), whose source is located on drive objects that are either not capable of operation or have been deactivated.		
Dependency:	See also: p9495, p9496, p9497, p9499 See also: A01318, A01507		

Note

A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

p9499[0...29]	BICO BO/CO parameters to de-activated drive objects / BO/CO to deact obj		
A_INF_828, B_INF_828, CU_I_828, CU_I_COMBI, CU_LINK, CU_NX_828, HLA_828, S_INF_828, S_INF_COMBI, SERVO_828, TM120, TM150	Changeable: T Data type: Unsigned32 P group: Commands Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Displays the saved BO/CO parameters (signal source), which are located on drive objects that are either not capable of operation or have been deactivated.		
Dependency:	See also: p9495, p9496, p9497, p9498 See also: A01318, A01507		

Note

A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

p9500	SI Motion monitoring clock cycle (Control Unit) / SI Mtn clock CU				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0.50000 [ms]	Max: 25.00000 [ms]	Default: 12.00000 [ms]		
Description:	Sets the monitoring clock cycle for safe motion monitoring.				
Dependency:	See also: r2064, p9511 See also: F01652				
	Note A change only becomes effective after a POWER ON. The monitoring clock cycle must be a multiple of the actual value sensing clock cycle (see the parameter description for p9511).				
p9501	SI Motion enable safety functions (Control Unit) / SI Mtn enable CU				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: 0000 0000 0000 0000 0000 0000 0000 0000 bin		
Description:	Sets the enable signals for the safe motion monitoring.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable SOS/SLS (SBH/SG)	Enable	Inhibit	-
	01	Enable SLP (SE)	Enable	Inhibit	-
	02	Enable absolute position	Enable	Inhibit	-
	03	Enable actual value synchronization	Enable	Inhibit	-
	16	Enable SSM (n < nx) hysteresis and filtering	Enable	Inhibit	2823
	17	Enable SDI	Enable	Inhibit	2824
	24	Enable transfer SLS (SG) limit value via PROFIsafe	Enable	Inhibit	-
	25	Enable transfer safe position via PROFIsafe	Enable	Inhibit	-
	26	Enable safe gearbox switchover	Enable	Inhibit	-
	27	Enable referencing via SCC	Enable	Inhibit	-
Dependency:	See also: F01682, F01683				
	Note A change only becomes effective after a POWER ON. SDI: Safe Direction (safe motion direction) SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)				

p9502

SERVO_828,
SERVO_COMBI

SI Motion axis type (Control Unit) / SI Mtn ax type CU

Changeable: C2(95)

Data type: Integer16

P group: Safety Integrated

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the axis type (linear axis or rotary axis/spindle).

Value:

0: Linear axis

1: Rot axis/spindle

Note

For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload.

A change only becomes effective after a POWER ON.

p9503

SERVO_828,
SERVO_COMBI

SI Motion SCA (SN) enable (Control Unit) / SI Mtn SCA enab

Changeable: T, U

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description:

Setting to enable the function "Safe Cam" (SCA).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable SCA1 (SN1)	Enable	Inhibit	-
01	Enable SCA2 (SN2)	Enable	Inhibit	-
02	Enable SCA3 (SN3)	Enable	Inhibit	-
03	Enable SCA4 (SN4)	Enable	Inhibit	-
04	Enable SCA5 (SN5)	Enable	Inhibit	-
05	Enable SCA6 (SN6)	Enable	Inhibit	-
06	Enable SCA7 (SN7)	Enable	Inhibit	-
07	Enable SCA8 (SN8)	Enable	Inhibit	-
08	Enable SCA9 (SN9)	Enable	Inhibit	-
09	Enable SCA10 (SN10)	Enable	Inhibit	-
10	Enable SCA11 (SN11)	Enable	Inhibit	-
11	Enable SCA12 (SN12)	Enable	Inhibit	-
12	Enable SCA13 (SN13)	Enable	Inhibit	-
13	Enable SCA14 (SN14)	Enable	Inhibit	-
14	Enable SCA15 (SN15)	Enable	Inhibit	-
15	Enable SCA16 (SN16)	Enable	Inhibit	-
16	Enable ESCA17 (SN17)	Enable	Inhibit	-
17	Enable SCA18 (SN18)	Enable	Inhibit	-
18	Enable SCA19 (SN19)	Enable	Inhibit	-
19	Enable SCA20 (SN20)	Enable	Inhibit	-
20	Enable SCA21 (SN21)	Enable	Inhibit	-
21	Enable SCA22 (SN22)	Enable	Inhibit	-
22	Enable SCA23 (SN23)	Enable	Inhibit	-
23	Enable SCA24 (SN24)	Enable	Inhibit	-

24	Enable SCA25 (SN25)	Enable	Inhibit	-
25	Enable SCA26 (SN26)	Enable	Inhibit	-
26	Enable SCA27 (SN27)	Enable	Inhibit	-
27	Enable SCA28 (SN28)	Enable	Inhibit	-
28	Enable SCA29 (SN29)	Enable	Inhibit	-
29	Enable SCA30 (SN30)	Enable	Inhibit	-

Dependency: See also: p9501
See also: F01686

Note

The "Safe Cam" function (SCA) can either be enabled using p9501 or p9503.
SCA: Safe Cam / SN: Safe software cam

p9505**SI Motion SP modulo value (Control Unit) / SI mtn SP mod CU**

SERVO_828,
SERVO_COMBI

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0 [°]

737280 [°]

0 [°]

Description:

Sets the modulo value in degrees for rotary axes of the "Safe position" function.

This modulo value is taken into account when safely referencing as well as when transferring the safe position via PROFIsafe when the absolute position is enabled.

The value should be set, so that it is precisely at 2^n revolutions, so that when the range that can be represented (± 2048) overflows, this does not cause the position actual value to jump.

The modulo function is deactivated for a value = 0.

Dependency:

See also: p9501
See also: F01681

NOTICE

When the "SLP" function is activated, the modulo function must be deactivated as otherwise fault F01681 will be output.

If the absolute position is not enabled, then the parameterized modulo value is not taken into account.

Note

SLP: Safely-Limited Position
SP: Safe Position

p9506**SI Motion function specification (Control Unit) / SI Mtn fct_spc CU**

SERVO_828,
SERVO_COMBI

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

3

0

Description:

Sets the function specification for the safe motion monitoring.

Value:

0: Safety with encoder and accel_monitoring(SAM) / delay time

1: Safety without encoder with braking ramp (SBR)

3: Safety without encoder with accel_monitoring(SAM) / delay time

Dependency:

See also: C01711

p9507 **SI Motion function specification (Control Unit) / SI Mtn config CU**
 HLA_828, SERVO_828, SERVO_COMBI
Changeable: C2(95) **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: - **Max:** - **Default:** 0000 0010 bin

Description: Sets the function configuration for the safe motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Extended message acknowledgment	Yes	No	-
	01	Setpoint velocity limit for STOP F	No	Yes	-
	02	Actual value sensing sensorless motor type	Synchronous motor	Induction motor	-
	03	SS1 with OFF3 (brake response)	SS1E external stop	SS1 with OFF3	-
	05	Actual value sensing sensorless edge modulation	Yes	No	-
	06	Configuration test stop motion monitoring functions	Test automatic	Test manual	-

Dependency: See also: C01711

Note

For bit 00:
 When the function is activated, a safety-relevant acknowledgment (internal event acknowledge) can be performed by selecting/deselecting STO.

For bit 01:
 When the function is activated, the active setpoint velocity limit (CO: r9733) is set to zero when STOP F is active.

For bit 02:
 This bit defines the type of motor, which the sensorless actual value sensing evaluates.
 For bit = 0, the actual velocity is calculated for an induction motor.
 For bit = 1, the actual velocity is calculated for a synchronous motor. This value depends on the setting in p0300.
 Bit = 0 should be set if no motor is defined (p0300 = 0).

For bit 03:
 When the bit is activated – when selecting function SS1 or activating a STOP B – an SS1E or a STOP B with Stop, which should be externally initiated, is triggered instead of SS1 with a drive-based braking response. As a consequence, brake monitoring (SBR, SAM) is deactivated.
 SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

For bit 05:
 This bit defines the type of modulation, which the sensorless actual value sensing evaluates.
 For bit = 0, the actual velocity is calculated for space vector modulation.
 For bit = 1, the actual velocity is calculated for edge modulation. This value depends on the setting in p1802.

For bit 06:
 For the automatic test stop, the test stop can still be initiated via binector input p9705.
 The automatic test stop is executed after power up, partial power up or a warm restart.

p9509 **SI Motion behavior during pulse suppression (Control Unit) / SI Mtn behav IL CU**
 HLA_828, SERVO_828, SERVO_COMBI
Changeable: C2(95) **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: - **Max:** - **Default:** 0000 0000 1111 1111 bin

Description: Sets the behavior of safety functions and their feedback during pulse suppression in encoderless operation.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SSM during pulse suppression and sensorless	Becomes inactive	Remains active	-
	08	SDI during pulse suppression and sensorless	Becomes inactive	Remains active	-

Dependency: See also: C01711

NOTICE
For bit 00: If the OFF1 or the OFF3 ramp-down time is too low, or there is an insufficient clearance between the SSM limit speed, and the shutdown speed, then it is possible that the "speed under limit value" signal does not change to 1, because no speed actual value below the SSM limit was able to be identified before pulse cancellation. In this case, the OFF1 or the OFF3 ramp-down time or the clearance between the SSM limit speed and shutdown speed must be increased.

Note

SDI: Safe Direction (safe motion direction)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

For bit 00:

For bit = 1 and with the SSM safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the feedback signal has a 0 signal level.

For bit = 0 and with the SSM safety function activated, the following applies:

- Monitoring continues during pulse suppression. The feedback signal last displayed before pulse suppression is kept and the system goes into the STO state.

For bit 08:

For bit = 1 and with the SDI safety function activated, the following applies:

- During pulse suppression, monitoring is switched off and the status signal indicates inactive.

For bit = 0 and with the SDI safety function activated, the following applies:

- Monitoring continues during pulse suppression. The status signal indicates active and the system goes into the STO state.

p9510HLA_828,
SERVO_828,
SERVO_COMBI**SI Motion clock-cycle synchronous PROFIBUS master / SI Mtn sync master****Changeable:** C2(95)**Calculation:** -**Access level:** 4**Data type:** Integer16**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

1

0

Description:

Setting for clock cycle synchronous communication between PROFIdrive controller and Control Unit.

The parameter is only relevant, if the safety-relevant motion monitoring functions integrated in the drive have been enabled (p9601.2 =1).

If a PROFIdrive controller exchanges process data in clock cycle synchronism with the Control Unit, then p9510 must be set to 1. This also applies if the drive itself does not exchange process data in clock cycle synchronism.

Examples for clock cycle synchronous communication:

- clock-cycle synchronous control for the motion control (e.g. SIMOTION).

- clock-cycle synchronous PROFIsafe master (e.g. SIMATIC S7-400F).

Value:

0: Communication not isochronous

1: Communication isochronous

Dependency:

See also: C01711, A01796

NOTICE
As of firmware version 2.6, the parameter has no effect.

p9511

HLA_828

SI Motion actual value sensing cycle clock (Control Unit) / SI Mtn act clk CU**Changeable:** C2(95)**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0.00000 [ms]

25.00000 [ms]

0.00000 [ms]

Description: Sets the clock cycle time of the actual value sensing for safe motion monitoring.
 Setting criteria if the motion monitoring functions are executed with an encoder.
 - A slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for safe actual value sensing.
 - The maximum permissible velocity which, when exceeded, can mean that errors occur during safe actual value sensing, is displayed in r9730.
 - The isochronous PROFIBUS clock cycle is used as a clock cycle time for actual value sensing with a setting of 0 ms; the setting is 1 ms if isochronous operation is not being used.

Dependency: See also: p0115
 See also: F01652

Note
 The parameter is only active for drive-based motion monitoring functions (p9601.2 = 1).
 The monitoring clock cycle from p9500 must be an integer multiple of this parameter.
 In the case of motion monitoring functions with encoder, the clock cycle time for actual value sensing must be an integer multiple of the current controller clock cycle and at least 4 times slower than the current controller clock cycle. A factor of at least 8 is recommended.
 The clock cycle time of the actual value sensing should not be set to more than 8 ms.
 A change only becomes effective after a POWER ON.

p9511

SERVO_828,
 SERVO_COMBI

SI Motion actual value sensing cycle clock (Control Unit) / SI Mtn act clk CU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00000 [ms]	Max: 25.00000 [ms]	Default: 0.00000 [ms]

Description: Sets the clock cycle time of the actual value sensing for safe motion monitoring.
 Setting criteria if the motion monitoring functions are executed with an encoder.
 - A slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for safe actual value sensing.
 - The maximum permissible velocity which, when exceeded, can mean that errors occur during safe actual value sensing, is displayed in r9730.
 - The isochronous PROFIBUS clock cycle is used as a clock cycle time for actual value sensing with a setting of 0 ms; the setting is 1 ms if isochronous operation is not being used.
 Setting criteria if the motion monitoring functions are executed without an encoder:
 - The actual value sensing clock cycle must be set to the same value as the current controller clock cycle (p0115).

Dependency: See also: p0115
 See also: F01652

Note
 The parameter is only active for drive-based motion monitoring functions (p9601.2 = 1).
 The monitoring clock cycle from p9500 must be an integer multiple of this parameter.
 In the case of motion monitoring functions with encoder, the clock cycle time for actual value sensing must be an integer multiple of the current controller clock cycle and at least 4 times slower than the current controller clock cycle. A factor of at least 8 is recommended.
 The clock cycle time of the actual value sensing should not be set to more than 8 ms.
 A change only becomes effective after a POWER ON.

p9512	Select SI Motion safety functions without selection (CU) / SI Mtn w/o sel CU			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Function plan: -	
	P group: Safety Integrated	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	0000 0000 0001 0000 bin	
Description:	Sets the safety functions without selection. The safety functions without selection are enabled with p9601.5/p9801.5. Using this parameter, the individual motion monitoring functions can then be selected (e.g. SLS, SDI positive, SDI negative), which should then be permanently selected.			
Bit field:	Bit	Signal name	1 signal	0 signal
	04	SLS static (CU)	Statically active	Statically inactive
	12	SDI positive static (CU)	Statically active	Statically inactive
	13	SDI negative static (CU)	Statically active	Statically inactive
Dependency:	See also: p9601, p9801 See also: F01682			
	Note A change becomes immediately effective after exiting the safety commissioning mode. SDI: Safe Direction (safe motion direction). SLS: Safely-Limited Speed			

p9513	SI Motion non safety-relevant measuring steps POS1 (CU) / nsrPOS1			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Function plan: -	
	P group: Safety Integrated	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0	4294967295	22000	
Description:	Sets the non safety-relevant measuring steps of position value POS1. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.			
Dependency:	See also: p0416, r0473, p9313 See also: F01670			
	Note For safe functions that are not enabled (p9501 = 0), the following applies: - p9513 is automatically set the same as r0416 when the system boots. For safety functions that are enabled (p9501 > 0), the following applies: - p9513 is checked to see that it matches r0416.			

p9514	SI Motion absolute encoder linear measuring steps (CU) / Enc lin meas step			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Function plan: -	
	P group: Safety Integrated	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	0 [nm]	4294967295 [nm]	100 [nm]	
Description:	Sets the resolution of the absolute position for a linear absolute encoder. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.			

Dependency: See also: p0422, r0469, p9314

Note

For safe functions that are not enabled (p9501 = 0), the following applies:

- p9514 is automatically set the same as r0422 when the system boots.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9514 is checked to see that it matches r0422.

p9515

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion encoder coarse position value config (Control Unit) / SI Mtn s config CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0000 0000 0000 0000 0000 0000
0000 0000 bin

Description:

Sets the encoder configuration for the redundant coarse position value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-
16	DRIVE-CLiQ encoder	Yes	No	-
17	EnDat-2.2 converter	Yes	No	-

Dependency:

See also: r0474, p9315

Note

- after starting the copy function (p9700 = 57 hex), p9515.0...4 are set the same as r0474.

For safe functions that are not enabled (p9501 = 0), the following applies:

- when the system boots, p9515.16 is automatically set the same as p0404.10, p9515.17 the same as p0404.8 & 11.

For safety functions that are enabled (p9501 > 0), the following applies:

- p9515.16 is checked to identify whether it coincides with p0404.10, p9515.17 with p0404.8 & 11

p9516

HLA_828

SI Motion encoder configuration safety functions (Control Unit) / SI Mtn enc_cfg CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0001 bin

Description:

Sets the configuration for the encoder and position actual value.

The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder rotating/linear	Linear	Rotating	-
01	Position actual value sign change	Yes	No	-

Dependency:

See also: p0404, p0410

See also: F01671

Note

For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9516.0 is automatically set the same as p0404.0 when the system boots.
 - p9516.1 is automatically set the same as p0410.1 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9516.0 is checked to identify whether it coincides with p0404.0.

p9516

SERVO_828,
SERVO_COMBI

SI Motion encoder configuration safety functions (Control Unit) / SI Mtn enc_cfg CU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	0000 bin

Description:

Sets the configuration for the motor encoder and position actual value.
 The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Motor encoder rotating/linear	Linear	Rotating	-
01	Position actual value sign change	Yes	No	-

Dependency:

See also: p0404, p0410
 See also: F01671

Note

For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9516.0 is automatically set the same as p0404.0 when the system boots.
 - p9516.1 is automatically set the same as p0410.1 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9516.0 is checked to identify whether it coincides with p0404.0.

p9517

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion linear encoder grid division (Control Unit) / SI Mtn grid CU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0.00 [nm]	250000000.00 [nm]	10000.00 [nm]

Description:

Sets the grid division for a linear encoder.
 The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency:

See also: p0407, p9516
 See also: F01671

Note

For safety functions that have not been enabled (p9501 = 0), the following applies: When booting p9517 is automatically set the same as p0407.
 For safety functions that are enabled (p9501 > 0), the following applies: p9517 is checked whether it coincides with p0407.

p9518	SI Motion encoder pulses per revolution (Control Unit) / SI Mtn puls/rev CU		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16777215
Description:	Sets the number of encoder pulses per revolution for rotary encoders. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Dependency:	See also: p0408, p9516 See also: F01671		
	Note For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9518 is automatically set the same as p0408. For safety functions that are enabled (p9501 > 0), the following applies: p9518 is checked whether it coincides with p0408.		

p9519	SI Motion fine resolution G1_XIST1 (Control Unit) / SI Mtn G1_XIST1 CU		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: 2	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 18
Description:	Sets the fine resolution for G1_XIST1 in bits. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Dependency:	See also: p0418 See also: F01671		
	Note For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9519 is automatically set the same as p0418. For safety functions that are enabled (p9501 > 0), the following applies: p9519 is checked whether it coincides with p0418. G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)		

p9520	SI Motion spindle pitch (Control Unit) / SI Mtn Sp_pitch CU		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.1000 [mm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 8388.0000 [mm]
Description:	Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder.		
	NOTICE The fourth decimal point can be rounded-off depending on the size of the entered number (from 3 places before the decimal point).		

p9521[0...7]	SI Motion gearbox encoder/load denominator (Control Unit) / SI Mtn gear den CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2147000000	1
Description:	Sets the denominator for the gearbox between the encoder and load. The active gearbox stage can be switched over via PROFIsafe.		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	See also: p9522		
p9521[0...7]	SI Motion gearbox enc (motor)/load denominator (Control Unit) / SI Mtn gear den CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2147000000	1
Description:	Sets the denominator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	See also: p9522		
p9522[0...7]	SI Motion gearbox encoder/load numerator (Control Unit) / SI Mtn gear num CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	2147000000	1
Description:	Sets the numerator for the gearbox between the encoder and load. The active gearbox stage can be switched over via PROFIsafe.		

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: See also: p9521

p9522[0...7] SI Motion gearbox encoder (motor)/load numerator (Control Unit) / SI Mtn gear num CU

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 2147000000	Default: 1

Description: Sets the numerator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load. The active gearbox stage can be switched over via PROFIsafe.

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: See also: p9521

Note

In the case of encoderless monitoring functions, the pole pair number must be multiplied by the numerator of the gearbox ratio.

Example:

Gearbox ratio 1:4, pole pair number (r0313) = 2

--> p9521 = 1, p9522 = 8 (4 x 2)

p9523 SI Motion redundant coarse pos. value valid bits (Control Unit) / Valid bits CU

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 16	Default: 9

Description: Sets the number of valid bits of the redundant coarse position value.
 The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: See also: r0470, p9323

Note

- after starting the copy function (p9700 = 57 hex), p9523 is set the same as r0470.

p9524	SI Motion Redundant coarse pos. value fine resolution bits (CU) / SI Mtn fine bit CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: Integer16 P group: Safety Integrated Not for motor type: - Min: -16	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -2
Description:	Sets the number of valid bits for the fine resolution of the redundant coarse position value. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Dependency:	See also: r0471, p9324		
	Note - after starting the copy function (p9700 = 57 hex), p9524 is set the same as r0471.		
p9525	SI Motion Redundant coarse pos. value relevant bits (CU) / Relevant bits CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: Unsigned16 P group: Safety Integrated Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 16	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 16
Description:	Sets the number of relevant bits for the redundant coarse position value. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Dependency:	See also: p0414, r0472, p9325		
	Note For safe functions that are not enabled (p9501 = 0), the following applies: - p9525 is automatically set the same as r0472 when the system boots. For safety functions that are enabled (p9501 > 0), the following applies: - p9525 is checked to see that it matches r0472.		
p9526	SI Motion encoder assignment second channel / SI Mtn enc chan 2		
HLA_828	Changeable: C2(95) Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: 1	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 3	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 2
Description:	Sets the number of the encoder, which is used by the second channel for safe motion monitoring functions.		
Dependency:	For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1). See also: p0187, p0188, p0189, p0430		
	Note - For p9526 = 1, the encoder for the closed-loop speed control is used for the second channel of the motion monitoring functions (1-encoder system). This setting is only permissible when using a DQI encoder. - A change only becomes effective after a POWER ON.		

p9526	SI Motion encoder assignment second channel / SI Mtn enc chan 2		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 3	Default: 1
Description:	Sets the number of the encoder that the second channel (control, Motor Module) uses for safe motion monitoring functions.		
Dependency:	For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1). See also: p0187, p0188, p0189, p0430		
	Note For p9526 = 1, the encoder for the closed-loop speed control is used for the second channel of the motion monitoring functions (1-encoder system). A change only becomes effective after a POWER ON.		

p9529	SI Motion Gx_XIST1 coarse pos. safe most significant bit (CU) / Gx_XIST1 MSB CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 31	Default: 14
Description:	Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Dependency:	See also: p0415, r0475, p9329		
	Note For safe functions that are not enabled (p9501 = 0), the following applies: - p9529 is automatically set the same as r0475 when the system boots. For safety functions that are enabled (p9501 > 0), the following applies: - p9529 is checked to see that it matches r0475. MSB: Most Significant Bit		

p9530	SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [mm]	Max: 100.000 [mm]	Default: 1.000 [mm]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	See also: C01707		
	Note SOS: Safe Operating Stop / SBH: Safe operating stop		

p9530	SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [°]	Max: 100.000 [°]	Default: 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	See also: C01707		
	Note SOS: Safe Operating Stop / SBH: Safe operating stop		

p9531[0...3]	SI Motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [mm/min]	Max: 1000000.00 [mm/min]	Default: 2000.00 [mm/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLS4		
Dependency:	See also: p9532, p9561, p9563 See also: C01714		
	Note SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9531[0...3]	SI Motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 1000000.00 [rpm]	Default: 2000.00 [rpm]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLS4		
Dependency:	See also: p9532, p9561, p9563 See also: C01714		
	Note SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9532[0...15]	SI Motion SLS (SG) override factor (Control Unit) / SI Mtn SLS over CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [%]	Max: 100.000 [%]	Default: 100.000 [%]
Description:	Sets the override factor for the limit value for SLS2 and SLS4 for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = SLS (SG) override factor 0 [1] = SLS (SG) override factor 1 [2] = SLS (SG) override factor 2 [3] = SLS (SG) override factor 3 [4] = SLS (SG) override factor 4 [5] = SLS (SG) override factor 5 [6] = SLS (SG) override factor 6 [7] = SLS (SG) override factor 7 [8] = SLS (SG) override factor 8 [9] = SLS (SG) override factor 9 [10] = SLS (SG) override factor 10 [11] = SLS (SG) override factor 11 [12] = SLS (SG) override factor 12 [13] = SLS (SG) override factor 13 [14] = SLS (SG) override factor 14 [15] = SLS (SG) override factor 15		
Dependency:	See also: p9501, p9531		
	Note		
	The actual override factor for SLS2 and SLS4 is selected using the safety-relevant inputs (SGE).		
	SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9533	SI Motion SLS setpoint velocity limiting (Control Unit) / SI Mtn SLS set_lim		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [%]	Max: 100.000 [%]	Default: 80.000 [%]
Description:	This is an evaluation factor to define the setpoint limit from the selected actual speed limit. The active SLS limit value is evaluated with this factor and is made available as setpoint limit in r9733.		
Dependency:	This parameter only has to be parameterized for the motion monitoring functions integrated in the drive (p9601.2 = 1) $r9733[0] = p9531[x] \times p9533$ (converted from the load side to the actuator side) $r9733[1] = - p9531[x] \times p9533$ (converted from the load side to the actuator side) [x] = Selected SLS stage Conversion factor from the actuator side to the load side: - actuator type = rotary and axis type = linear: $p9522 / (p9521 \times p9520)$ - otherwise: $p9522 / p9521$ See also: p9501, p9531, p9601		
	Note		
	The active actual speed limit is selected via safety-relevant inputs (SGE).		
	When selecting SOS or a STOP A ... D, setpoint 0 is specified in r9733.		
	SLS: Safely-Limited Speed		

p9533	SI Motion SLS setpoint velocity limiting (Control Unit) / SI Mtn SLS set_lim		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.000 [%]	Max: 100.000 [%]	Default: 80.000 [%]
Description:	This is an evaluation factor to define the setpoint limit from the selected actual speed limit. The active SLS limit value is evaluated with this factor and is made available as setpoint limit in r9733.		
Dependency:	This parameter only has to be parameterized for the motion monitoring functions integrated in the drive (p9601.2 = 1) r9733[0] = p9531[x] x p9533 (converted from the load side to the motor side) r9733[1] = - p9531[x] x p9533 (converted from the load side to the motor side) [x] = Selected SLS stage Conversion factor from the motor side to the load side: - motor type = rotary and axis type = linear: p9522 / (p9521 x p9520) - otherwise: p9522 / p9521 See also: p9501, p9531, p9601		
	Note The active actual speed limit is selected via safety-relevant inputs (SGE). When selecting SOS or a STOP A ... D, setpoint 0 is specified in r9733. SLS: Safely-Limited Speed		

p9534[0...1]	SI Motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [mm]	Max: 2147000.000 [mm]	Default: 100000.000 [mm]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	See also: p9501, p9535, p9562 See also: C01715		
	Note The following applies to the setting of these limits: - p9534[x] > p9535[x] - p9534[x] must lie in the valid traversing range (-737280 ... 737280). SLP: Safely-Limited Position / SE: Safe software limit switches		

p9534[0...1]	SI Motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [°]	Max: 2147000.000 [°]	Default: 100000.000 [°]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		

Dependency: See also: p9501, p9535, p9562
See also: C01715

Note

The following applies to the setting of these limits:
 - p9534[x] > p9535[x]
 - p9534[x] must lie in the valid traversing range (-737280 ... 737280).
 SLP: Safely-Limited Position / SE: Safe software limit switches

p9535[0...1]

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -2147000.000 [mm]	Max: 2147000.000 [mm]	Default: -100000.000 [mm]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index: [0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: See also: p9501, p9534, p9562
See also: C01715

Note

The following applies to the setting of these limits:
 - p9534[x] > p9535[x]
 - p9535[x] must lie in the valid traversing range (-737280 ... 737280).
 SLP: Safely-Limited Position / SE: Safe software limit switches

p9535[0...1]

SERVO_828 (Safety
rot), SERVO_COMBI
(Safety rot)

SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -2147000.000 [°]	Max: 2147000.000 [°]	Default: -100000.000 [°]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index: [0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: See also: p9501, p9534, p9562
See also: C01715

Note

The following applies to the setting of these limits:
 - p9534[x] > p9535[x]
 - p9535[x] must lie in the valid traversing range (-737280 ... 737280).
 SLP: Safely-Limited Position / SE: Safe software limit switches

p9536[0...29]	SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [mm]	Max: 2147000.000 [mm]	Default: 10.000 [mm]
Description:	Sets the plus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15) [15] = Cam position SCA16 (SN16) [16] = Cam position SCA17 (SN17) [17] = Cam position SCA18 (SN18) [18] = Cam position SCA19 (SN19) [19] = Cam position SCA20 (SN20) [20] = Cam position SCA21 (SN21) [21] = Cam position SCA22 (SN22) [22] = Cam position SCA23 (SN23) [23] = Cam position SCA24 (SN24) [24] = Cam position SCA25 (SN25) [25] = Cam position SCA26 (SN26) [26] = Cam position SCA27 (SN27) [27] = Cam position SCA28 (SN28) [28] = Cam position SCA29 (SN29) [29] = Cam position SCA30 (SN30)		
Dependency:	See also: p9501, p9503, p9537		
	Note		
	A change only becomes effective after a POWER ON.		
	SCA: Safe Cam / SN: Safe software cam		

p9536[0...29]	SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [°]	Max: 2147000.000 [°]	Default: 10.000 [°]

Description: Sets the plus cam position for the function "Safe Cam" (SCA).

- Index:**
- [0] = Cam position SCA1 (SN1)
 - [1] = Cam position SCA2 (SN2)
 - [2] = Cam position SCA3 (SN3)
 - [3] = Cam position SCA4 (SN4)
 - [4] = Cam position SCA5 (SN5)
 - [5] = Cam position SCA6 (SN6)
 - [6] = Cam position SCA7 (SN7)
 - [7] = Cam position SCA8 (SN8)
 - [8] = Cam position SCA9 (SN9)
 - [9] = Cam position SCA10 (SN10)
 - [10] = Cam position SCA11 (SN11)
 - [11] = Cam position SCA12 (SN12)
 - [12] = Cam position SCA13 (SN13)
 - [13] = Cam position SCA14 (SN14)
 - [14] = Cam position SCA15 (SN15)
 - [15] = Cam position SCA16 (SN16)
 - [16] = Cam position SCA17 (SN17)
 - [17] = Cam position SCA18 (SN18)
 - [18] = Cam position SCA19 (SN19)
 - [19] = Cam position SCA20 (SN20)
 - [20] = Cam position SCA21 (SN21)
 - [21] = Cam position SCA22 (SN22)
 - [22] = Cam position SCA23 (SN23)
 - [23] = Cam position SCA24 (SN24)
 - [24] = Cam position SCA25 (SN25)
 - [25] = Cam position SCA26 (SN26)
 - [26] = Cam position SCA27 (SN27)
 - [27] = Cam position SCA28 (SN28)
 - [28] = Cam position SCA29 (SN29)
 - [29] = Cam position SCA30 (SN30)

Dependency: See also: p9501, p9503, p9537

Note

A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9537[0...29]

SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-

SERVO_828,
SERVO_COMBI

Changeable: T, U

Calculation: -

Access level: 4

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-2147000.000 [mm]

2147000.000 [mm]

-10.000 [mm]

Description: Sets the minus cam position for the function "Safe Cam" (SCA).

Index:	[0] = Cam position SCA1 (SN1)
	[1] = Cam position SCA2 (SN2)
	[2] = Cam position SCA3 (SN3)
	[3] = Cam position SCA4 (SN4)
	[4] = Cam position SCA5 (SN5)
	[5] = Cam position SCA6 (SN6)
	[6] = Cam position SCA7 (SN7)
	[7] = Cam position SCA8 (SN8)
	[8] = Cam position SCA9 (SN9)
	[9] = Cam position SCA10 (SN10)
	[10] = Cam position SCA11 (SN11)
	[11] = Cam position SCA12 (SN12)
	[12] = Cam position SCA13 (SN13)
	[13] = Cam position SCA14 (SN14)
	[14] = Cam position SCA15 (SN15)
	[15] = Cam position SCA16 (SN16)
	[16] = Cam position SCA17 (SN17)
	[17] = Cam position SCA18 (SN18)
	[18] = Cam position SCA19 (SN19)
	[19] = Cam position SCA20 (SN20)
	[20] = Cam position SCA21 (SN21)
	[21] = Cam position SCA22 (SN22)
	[22] = Cam position SCA23 (SN23)
	[23] = Cam position SCA24 (SN24)
	[24] = Cam position SCA25 (SN25)
	[25] = Cam position SCA26 (SN26)
	[26] = Cam position SCA27 (SN27)
	[27] = Cam position SCA28 (SN28)
	[28] = Cam position SCA29 (SN29)
	[29] = Cam position SCA30 (SN30)

Dependency: See also: p9501, p9503, p9536

Note

A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9537[0...29]	SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -2147000.000 [°]	Max: 2147000.000 [°]	Default: -10.000 [°]
Description:	Sets the minus cam position for the function "Safe Cam" (SCA).		

- Index:**
- [0] = Cam position SCA1 (SN1)
 - [1] = Cam position SCA2 (SN2)
 - [2] = Cam position SCA3 (SN3)
 - [3] = Cam position SCA4 (SN4)
 - [4] = Cam position SCA5 (SN5)
 - [5] = Cam position SCA6 (SN6)
 - [6] = Cam position SCA7 (SN7)
 - [7] = Cam position SCA8 (SN8)
 - [8] = Cam position SCA9 (SN9)
 - [9] = Cam position SCA10 (SN10)
 - [10] = Cam position SCA11 (SN11)
 - [11] = Cam position SCA12 (SN12)
 - [12] = Cam position SCA13 (SN13)
 - [13] = Cam position SCA14 (SN14)
 - [14] = Cam position SCA15 (SN15)
 - [15] = Cam position SCA16 (SN16)
 - [16] = Cam position SCA17 (SN17)
 - [17] = Cam position SCA18 (SN18)
 - [18] = Cam position SCA19 (SN19)
 - [19] = Cam position SCA20 (SN20)
 - [20] = Cam position SCA21 (SN21)
 - [21] = Cam position SCA22 (SN22)
 - [22] = Cam position SCA23 (SN23)
 - [23] = Cam position SCA24 (SN24)
 - [24] = Cam position SCA25 (SN25)
 - [25] = Cam position SCA26 (SN26)
 - [26] = Cam position SCA27 (SN27)
 - [27] = Cam position SCA28 (SN28)
 - [28] = Cam position SCA29 (SN29)
 - [29] = Cam position SCA30 (SN30)

Dependency: See also: p9501, p9503, p9536

Note

A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9538[0...29]	SI Motion SCA (SN) cam track assignment (Control Unit) / SI Mtn SCA assign.		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	100	414	[0] 100
			[1] 101
			[2] 102
			[3] 103
			[4] 104
			[5] 105
			[6] 106
			[7] 107
			[8] 108
			[9] 109
			[10] 110
			[11] 111
			[12] 112
			[13] 113
			[14] 114
			[15] 200
			[16] 201
			[17] 202
			[18] 203
			[19] 204
			[20] 205
			[21] 206
			[22] 207
			[23] 208
			[24] 209
			[25] 210
			[26] 211
			[27] 212
			[28] 213
			[29] 214

Description: Assigns the individual cams to the maximum of 4 cam tracks and defines the numerical value for the SGA "cam range".
p9538[0...29] = CBA dec
C = Assignment of the cam to the cam track.
Valid values are 1, 2, 3, 4.
BA = Numerical value for the SGA "cam range".
If the position lies in the range of this cam, the value BA is signaled to the safety-relevant logic via the SGA "cam range" of the cam track set using C.
Valid values are 0 ... 14. Each numerical value may only be used once for each cam track.
Examples:
p9538[0] = 207
Cam 1 (index 0) is assigned cam track 2. If the position lies within the range of this cam, a value of 7 is entered in the SGA "cam range" of the second cam track.
p9538[5] = 100
Cam 6 (index 5) is assigned cam track 1. If the position lies within the range of this cam, a value of 0 is entered in the SGA "cam range" of the first cam track.

- Index:**
- [0] = Track assignment SCA1
 - [1] = Track assignment SCA2
 - [2] = Track assignment SCA3
 - [3] = Track assignment SCA4
 - [4] = Track assignment SCA5
 - [5] = Track assignment SCA6
 - [6] = Track assignment SCA7
 - [7] = Track assignment SCA8
 - [8] = Track assignment SCA9
 - [9] = Track assignment SCA10
 - [10] = Track assignment SCA11
 - [11] = Track assignment SCA12
 - [12] = Track assignment SCA13
 - [13] = Track assignment SCA14
 - [14] = Track assignment SCA15
 - [15] = Track assignment SCA16
 - [16] = Track assignment SCA17
 - [17] = Track assignment SCA18
 - [18] = Track assignment SCA19
 - [19] = Track assignment SCA20
 - [20] = Track assignment SCA21
 - [21] = Track assignment SCA22
 - [22] = Track assignment SCA23
 - [23] = Track assignment SCA24
 - [24] = Track assignment SCA25
 - [25] = Track assignment SCA26
 - [26] = Track assignment SCA27
 - [27] = Track assignment SCA28
 - [28] = Track assignment SCA29
 - [29] = Track assignment SCA30

Dependency: See also: p9501, p9503
See also: F01681

Note

A change only becomes effective after a POWER ON.
SCA: Safe Cam / SN: Safe software cam

p9539[0...7] SI Motion gearbox direction of rotation reversal (Control Unit) / SI Mtn grbx rev CU

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

1

0

Description: Sets the direction of rotation reversal for the gearbox.
0: No direction of rotation reversal
1: Direction of rotation reversal
The active gearbox stage can be switched over via PROFIsafe.

Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8
Dependency:	See also: p9521

p9540	SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol CU		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0010 [mm]	Max: 10.0000 [mm]	Default: 0.1000 [mm]
Description:	Sets the tolerance for the function "Safe Cam" (SCA). Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.		
	Note A change only becomes effective after a POWER ON.		

p9540	SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol CU		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: T, U	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0010 [°]	Max: 10.0000 [°]	Default: 0.1000 [°]
Description:	Sets the tolerance for the function "Safe Cam" (SCA). Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.		
	Note A change only becomes effective after a POWER ON.		

p9541	SI Motion encoder comparison algorithm (CU) / Enc comp algo		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 255	Default: 255
Description:	Sets the comparison algorithm for the encoder position monitoring functions. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Value:	0: SMx20 safety algorithm 10: DQL binary safety algorithm 11: DQL linear non-binary safety algorithm 12: SMC30 safety algorithm 255: Safety algorithm unknown		

Dependency: See also: p0417, p9341

Note

For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9541 is automatically set the same as r0417 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9541 is checked to see that it matches r0417.

p9542

SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act tol CU

HLA_828

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0010 [mm]	Max: 360.0000 [mm]	Default: 0.1000 [mm]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.

Dependency: See also: C01711

Note

For a linear axis, the tolerance is internally limited to 10 mm.

p9542

SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act tol CU

SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0010 [mm]	Max: 360.0000 [mm]	Default: 0.1000 [mm]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.
 For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).

Dependency: See also: C01711

Note

For a linear axis, the tolerance is internally limited to 10 mm.
 For a "linear axis with rotating motor" and factory setting of p9520, p9521 and p9522, the factory setting of p9542 corresponds to a position tolerance of 36 ° on the motor side.

p9542

SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act tol CU

SERVO_828 (Safety rot),
SERVO_COMBI (Safety rot)

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.0010 [°]	Max: 360.0000 [°]	Default: 0.1000 [°]

Description: Sets the tolerance for the crosswise data comparison of the actual position between the two monitoring channels.
 For encoderless motion monitoring functions, the tolerance must be set to a higher value (12 degrees rotary, 1 mm linear).

Dependency: See also: C01711

Note

For a linear axis, the tolerance is internally limited to 10 mm.
 For a "linear axis with rotating motor" and factory setting of p9520, p9521 and p9522, the factory setting of p9542 corresponds to a position tolerance of 36 ° on the motor side.

p9543	SI Motion gearbox switching position tolerance factor (CU) / SI Mtn grbx tol CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1	Max: 1000	Default: 1
Description:	Sets the factor to increase the tolerance for the crosswise data comparison of the actual position between the two monitoring channels while the gearbox stage is being switched over. This factor is effective when actual value synchronization is activated and when deactivated. Depending on the following tolerance, the following is obtained: - actual value synchronization activated: p9549 * p9543 - actual value synchronization deactivated: p9542 * p9543		
p9544	SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [mm]	Max: 36.0000 [mm]	Default: 0.0100 [mm]
Description:	Sets the tolerance for checking the actual values. For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.		
Dependency:	See also: C01711		
	Note A change only becomes effective after a POWER ON. For linear axes, the maximum value is limited to 1 mm.		
p9544	SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.0000 [°]	Max: 36.0000 [°]	Default: 0.0100 [°]
Description:	Sets the tolerance for checking the actual values. For an incremental encoder, the actual values are checked after referencing; for an absolute encoder, when switching on.		
Dependency:	See also: C01711		
	Note A change only becomes effective after a POWER ON. For linear axes, the maximum value is limited to 1 mm.		

p9545	SI Motion SSM (SGA n < nx) filter time (Control Unit) / SI Mtn SSM filt CU		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [ms]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 100.00 [ms]


Description: Sets the filter time for the SSM feedback signal to detect standstill.

Note

The filter time is effective only if the function is enabled (p9501.16 = 1).
The parameter is included in the crosswise data comparison of the two monitoring channels.
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9546	SI Motion SSM (SGA n < nx) velocity limit (CU) / SI Mtn SSM v_limCU		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [mm/min]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1000000.00 [mm/min]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).
When this limit value is undershot, the signal "SSM feedback signal active" (SGA n < n_x) is set.
For p9568 = 0, the value in p9546 is also applicable for the function "SAM".


 **CAUTION**
The following applies for p9506 = 3:
The "SAM" function is switched out if the selected threshold value is undershot.

Note

F-DO: Failsafe Digital Output / SGA: Safety-related output
SAM: Safe Acceleration Monitor (safe acceleration monitoring)
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

p9546	SI Motion SSM (SGA n < nx) velocity limit (CU) / SI Mtn SSM v_limCU		
	SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [rpm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1000000.00 [rpm]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).
When this limit value is undershot, the signal "SSM feedback signal active" (SGA n < n_x) is set.
For p9568 = 0, the value in p9546 is also applicable for the function "SAM".

 **CAUTION**
The following applies for p9506 = 3:
The "SAM" function is switched out if the selected threshold value is undershot.

Note

F-DO: Failsafe Digital Output / SGA: Safety-related output

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

p9547

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2823

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0010 [mm/min]

500.0000 [mm/min]

10.0000 [mm/min]

Description:

Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency:

See also: C01711

Note

The velocity hysteresis is effective only if the function is enabled (p9501.16 = 1).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9547

SERVO_828 (Safety
rot), SERVO_COMBI
(Safety rot)

SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2823

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.0010 [rpm]

500.0000 [rpm]

10.0000 [rpm]

Description:

Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency:

See also: C01711

Note

The velocity hysteresis is effective only if the function is enabled (p9501.16 = 1).

The parameter is included in the crosswise data comparison of the two monitoring channels.

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9548

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SAM actual velocity tolerance (Control Unit) / SI Mtn SAM tol CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [mm/min]

120000.00 [mm/min]

300.00 [mm/min]

Description:

Sets the velocity tolerance for the "SAM" function.

Dependency:

See also: C01706

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9548	SI Motion SAM actual velocity tolerance (Control Unit) / SI Mtn SAM tol CU		
	SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [rpm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 120000.00 [rpm]

Description: Sets the velocity tolerance for the "SAM" function.
Dependency: See also: C01706

Note
 SAM: Safe Acceleration Monitor (safe acceleration monitoring)

p9549	SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [mm/min]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 6000.00 [mm/min]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.
Dependency: See also: p9501, p9542

Note
 If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the crosswise data comparison.

p9549	SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
	SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95) Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [rpm]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 6000.00 [rpm]

Description: Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.
Dependency: See also: p9501, p9542

Note
 If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the crosswise data comparison.

p9550	SI Motion SGE changeover tolerance time (Control Unit) / SI Mtn SGE_chg tol		
	HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: 0.00 [ms]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 10000.00 [ms]

Description: Sets the tolerance time for the changeover of the safety-related inputs (SGE).

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9551

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion SLS(SG) changeover/SOS (SBH) delay time (CU) / SI SLS/SOS t CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2819, 2820

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [ms]

600000.00 [ms]

100.00 [ms]

Description:

Sets the delay time for the SLS changeover and for the activation of SOS for the functions "Safely-Limited Speed" (SLS) and "Safe operating stop" (SOS).

When transitioning from a higher to a lower safely-limited speed level, and when activating safe operating stop (SOS), within this delay time, the "old" speed level remains active.

This delay is also applicable when activating SLS from the state "SOS and SLS inactive" and activating SOS from the state "SOS inactive".

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SLS: Safely-Limited Speed / SG: Safely reduced speed

SOS: Safe Operating Stop / SBH: Safe operating stop

p9552

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion transition time STOP C to SOS (SBH) (Control Unit) / SI Mtn t C->SOS CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2819

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [ms]

600000.00 [ms]

100.00 [ms]

Description:

Sets the transition time from STOP C to "Safe Operating Stop" (SOS).

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop / SBH: Safe operating stop

p9553

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion transition time STOP D to SOS (SBH) (Control Unit) / SI Mtn t D->SOS CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: 2819

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [ms]

600000.00 [ms]

100.00 [ms]

Description:

Sets the transition time from STOP D to "Safe Operating Stop" (SOS).

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

SOS: Safe Operating Stop / SBH: Safe operating stop

p9554 SI Motion transition time STOP E to SOS (SBH) (Control Unit) / SI Mtn t E->SOS CU

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 600000.00 [ms]	Default: 100.00 [ms]

Description: Sets the transition time from STOP E to "Safe Operating Stop" (SOS).
Dependency: See also: p9354

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.
SOS: Safe Operating Stop / SBH: Safe operating stop

p9555 SI Motion transition time STOP F to STOP B (Control Unit) / SI Mtn t F->B CU

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 600000.00 [ms]	Default: 0.00 [ms]

Description: Sets the transition time from STOP F to STOP B.
Dependency: See also: C01711

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9556 SI Motion STOP A delay time (Control Unit) / SI Mtn IL t_del CU

HLA_828

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 3600000.00 [ms]	Default: 100.00 [ms]

Description: Sets the delay time for STOP A after STOP B.
Dependency: See also: p9560
See also: C01701

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9556 SI Motion STOP A delay time (Control Unit) / SI Mtn IL t_del CU

SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2819
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 3600000.00 [ms]	Default: 100.00 [ms]

Description: Sets the delay time for STOP A after STOP B.
In the case of encoderless motion monitoring functions with safe brake ramp monitoring (p9506 = 1) and the OFF3 ramp enabled at the same time (p9507.3 = 0), the parameter has no effect.

Dependency: See also: p9560
See also: C01701

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9557 SI Motion STO test time (Control Unit) / SI Mtn IL t_test

HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 10000.00 [ms]	Default: 500.00 [ms]

Description: Sets the time after which STO must be active when initiating the test stop.

Dependency: See also: C01798

Note

A change only becomes effective after a POWER ON.

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9557 SI Motion STO test time (Control Unit) / SI Mtn IL t_test

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 10000.00 [ms]	Default: 100.00 [ms]

Description: Sets the time after which STO must be active when initiating the test stop.

Dependency: See also: C01798

Note

A change only becomes effective after a POWER ON.

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9558 SI Motion acceptance test mode time limit (Control Unit) / SI Mtn acc t CU

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 5000.00 [ms]	Max: 100000.00 [ms]	Default: 40000.00 [ms]

Description: Sets the maximum time for the acceptance test mode.
If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

Dependency: See also: C01799

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9559	SI Motion forced checking procedure timer (Control Unit) / SI Mtn dyn timer		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [h]	Max: 9000.00 [h]	Default: 8.00 [h]
Description:	Sets the time interval for carrying out the forced checking procedure and testing the safety motion monitoring functions integrated in the drives. Within the parameterized time, the safety functions must have been tested at least once (including de-selection of the "STO" function). This monitoring time is reset each time the test is carried out. The signal source to initiate the forced checking procedure is set in p9705.		
Dependency:	See also: p9705 See also: A01697, C01798		
	Note STO: Safe Torque Off		

p9560	SI Motion STO shutdown velocity (Control Unit) / SI Mtn IL v_shutCU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [mm/min]	Max: 6000.00 [mm/min]	Default: 0.00 [mm/min]
Description:	Sets the shutdown velocity for activating STO. Below this velocity "standstill" is assumed and for STOP B / SS1, STO is selected.		
Dependency:	See also: p9556		
	Note The shutdown velocity has no effect for a value = 0. SS1: Safe Stop 1		

p9560	SI Motion STO shutdown velocity (Control Unit) / SI Mtn IL v_shutCU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [mm/min]	Max: 6000.00 [mm/min]	Default: 0.00 [mm/min]
Description:	Sets the shutdown velocity for activating STO. Below this velocity "standstill" is assumed and for STOP B / SS1, STO is selected. In the case of encoderless motion monitoring functions, the parameter must be > 0 (recommended value: 10).		
Dependency:	See also: p9556		
	Note The shutdown velocity has no effect for a value = 0. SS1: Safe Stop 1		

p9560	SI Motion pulse suppression shutdown speed (Control Unit) / SI Mtn IL n_shutCU		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [rpm]	Max: 6000.00 [rpm]	Default: 0.00 [rpm]
Description:	Sets the shutdown speed for the pulse suppression. Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).		
Dependency:	See also: p9556		
	Note The shutdown speed has no effect for a value = 0. SS1: Safe Stop 1		

p9561	SI Motion SLS (SG) stop response (Control Unit) / SI Mtn SLS resp		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 14	Default: 5
Description:	Sets the stop response for the function "Safely-Limited Speed" (SLS). This setting applies for all SLS limit values. An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection. This parameter can only be used for SINUMERIK Safety Integrated. For motion monitoring functions integrated in the drive, only a value of 5 is permissible. Other settings result in the safety message C01711/C30711 with message value 44.		
Value:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 5: Sets the stop response via p9563 (SLS-specific) 10: STOP A with delayed STO when the bus fails 11: STOP B with delayed STO when the bus fails 12: STOP C with delayed STO when the bus fails 13: STOP D with delayed STO when the bus fails 14: STOP E with delayed STO when the bus fails		
Dependency:	See also: p9531, p9563, p9580		
	Note SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9562[0...1]	SI Motion SLP (SE) stop response (Control Unit) / SI Mtn SLP Stop CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 14	Default: 2

Description: Sets the stop response for the function "Safely-Limited Position" (SLP).

Value:

- 0: STOP A
- 1: STOP B
- 2: STOP C
- 3: STOP D
- 4: STOP E
- 10: STOP A with delayed STO when the bus fails
- 11: STOP B with delayed STO when the bus fails
- 12: STOP C with delayed STO when the bus fails
- 13: STOP D with delayed STO when the bus fails
- 14: STOP E with delayed STO when the bus fails

Index: [0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: See also: p9534, p9535

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
SLP: Safely-Limited Position / SE: Safe software limit switches

p9563[0...3] SI Motion SLS (SG)-specific stop response (Control Unit) / SI Mtn SLS stop CU

HLA_828

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0	14	2

Description: Sets the SLS-specific stop response for the function "Safely-Limited Speed" (SLS).

These settings apply to the individual limit values for SLS.

An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.

Value:

- 0: STOP A
- 1: STOP B
- 2: STOP C
- 3: STOP D
- 4: STOP E
- 10: STOP A with delayed STO when the bus fails
- 11: STOP B with delayed STO when the bus fails
- 12: STOP C with delayed STO when the bus fails
- 13: STOP D with delayed STO when the bus fails
- 14: STOP E with delayed STO when the bus fails

Index: [0] = Limit value SLS1
[1] = Limit value SLS2
[2] = Limit value SLS3
[3] = Limit value SLS4

Dependency: See also: p9531, p9561, p9580

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).
SLS: Safely-Limited Speed / SG: Safely reduced speed

p9563[0...3]	SI Motion SLS (SG)-specific stop response (Control Unit) / SI Mtn SLS stop CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 14	Default: 2
Description:	Sets the SLS-specific stop response for the function "Safely-Limited Speed" (SLS). These settings apply to the individual limit values for SLS. An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.		
Value:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed STO when the bus fails 11: STOP B with delayed STO when the bus fails 12: STOP C with delayed STO when the bus fails 13: STOP D with delayed STO when the bus fails 14: STOP E with delayed STO when the bus fails		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLS4		
Dependency:	See also: p9531, p9561, p9580		

NOTICE

In the case of encoderless motion monitoring (p9506/p9306 = 1, 3), only a value of 0 or 1 is permitted.

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SLS: Safely-Limited Speed / SG: Safely reduced speed

p9564	SI Motion SDI tolerance (Control Unit) / SI Mtn SDI tol CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2824
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [mm]	Max: 360.000 [mm]	Default: 12.000 [mm]
Description:	Sets the tolerance for the function "Safe motion direction" (SDI). This motion in the monitored direction is still permissible before safety message C01716 is initiated.		
Dependency:	See also: p9565, p9566 See also: C01716		
	Note SDI: Safe Direction (safe motion direction)		

p9564	SI Motion SDI tolerance (Control Unit) / SI Mtn SDI tol CU		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2824
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [°]	Max: 360.000 [°]	Default: 12.000 [°]
Description:	Sets the tolerance for the function "Safe motion direction" (SDI). This motion in the monitored direction is still permissible before safety message C01716 is initiated.		
Dependency:	See also: p9565, p9566 See also: C01716		
	Note SDI: Safe Direction (safe motion direction)		

p9565	SI Motion SDI delay time (Control Unit) / SI Mtn SDI t CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2824
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 600000.00 [ms]	Default: 100.00 [ms]
Description:	Sets the delay time for the function "Safe motion direction" (SDI). After selecting the SDI function, then for a maximum of this time, motion in the monitored direction is permissible. This time can therefore be used for braking any motion.		
Dependency:	See also: p9564, p9566 See also: C01716		
	Note The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle. SDI: Safe Direction (safe motion direction)		

p9566	SI Motion SDI stop response (Control Unit) / SI Mtn SDI Stop CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2824
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 14	Default: 1
Description:	Sets the stop response for the function "Safe motion direction" (SDI). This setting applies to both directions of motion.		
Value:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed STO when the bus fails 11: STOP B with delayed STO when the bus fails 12: STOP C with delayed STO when the bus fails 13: STOP D with delayed STO when the bus fails 14: STOP E with delayed STO when the bus fails		

Dependency: See also: p9564, p9565
See also: C01716

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SDI: Safe Direction (safe motion direction)

p9566

SERVO_828,
SERVO_COMBI

SI Motion SDI stop response (Control Unit) / SI Mtn SDI Stop CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: 2824

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

14

1

Description: Sets the stop response for the function "Safe motion direction" (SDI).
This setting applies to both directions of motion.

Value:

0:	STOP A
1:	STOP B
2:	STOP C
3:	STOP D
4:	STOP E
10:	STOP A with delayed STO when the bus fails
11:	STOP B with delayed STO when the bus fails
12:	STOP C with delayed STO when the bus fails
13:	STOP D with delayed STO when the bus fails
14:	STOP E with delayed STO when the bus fails

Dependency: See also: p9564, p9565
See also: C01716

NOTICE

In the case of encoderless motion monitoring (p9506 = 1), only a value of 0 or 1 is permitted.

Note

In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).

SDI: Safe Direction (safe motion direction)

p9567

HLA_828

SI Motion switchover velocity to SOS (Control Unit) / SI Mtn v_sw SOS CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [mm/min]

1000.00 [mm/min]

0.00 [mm/min]

Description: Sets the switch over velocity to SOS.
Below this velocity limit, for a transition to SOS, standstill (zero velocity) is assumed.
The transition times from STOP C, D, E and the delay time when selecting SOS are canceled if this velocity threshold is fallen below. The wait time from p9569 is started, and after it has expired, SOS is active.
For a STOP C, this switchover velocity is the only criterion for prematurely activating an SOS. In the other cases mentioned here, it must first have been signaled that the axis had correctly braked.

Dependency: See also: p9501, p9551, p9552, p9553, p9554

Note

With p9567 = 0, reducing the wait time for the transition to SOS is deactivated.
 SOS: Safe Operating Stop

p9568

HLA_828,
 SERVO_828,
 SERVO_COMBI

SI Motion SAM velocity limit (Control Unit) / SI Mtn SAM v_limCU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [mm/min]	Max: 1000.00 [mm/min]	Default: 0.00 [mm/min]

Description: Sets the velocity tolerance limit for the "SAM" function.
 SAM is de-activated once the set velocity limit has been undershot.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)
 SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)
 For p9568 = p9368 = 0, the following applies:
 The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9568

SERVO_828 (Safety
 rot), SERVO_COMBI
 (Safety rot)

SI Motion SAM velocity limit (Control Unit) / SI Mtn SAM v_limCU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [rpm]	Max: 1000.00 [rpm]	Default: 0.00 [rpm]

Description: Sets the velocity tolerance limit for the "SAM" function.
 SAM is de-activated once the set velocity limit has been undershot.

Note

SAM: Safe Acceleration Monitor (safe acceleration monitoring)
 SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)
 For p9568 = p9368 = 0, the following applies:
 The value in p9546/p9346 (SSM) is applied as the velocity limit for SAM.

p9570

HLA_828,
 SERVO_828,
 SERVO_COMBI

SI Motion acceptance test mode (Control Unit) / SI Mtn Acc_mode

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0000 hex	Max: 00AC hex	Default: 0000 hex

Description: Setting to select and de-select the acceptance test mode.

Value:
 0: [00 hex] De-select the acceptance test mode
 172: [AC hex] Select the acceptance test mode

Dependency: See also: p9558, r9571, p9601
 See also: C01799

Note

Acceptance test mode can only be selected if the safe motion monitoring functions are enabled.

r9571	SI Motion acceptance test status (Control Unit) / SI Mtn acc_status		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00AC hex	Default: -
Description:	Displays the status of the acceptance test mode.		
Value:	0: [00 hex] Acc_mode inactive 12: [0C hex] Acc_mode not possible due to POWER ON fault 13: [0D hex] Acc_mode not possible due to incorrect ID in p9570 15: [0F hex] Acc_mode not possible due to expired Acc_timer 172: [AC hex] Acc_mode active		
Dependency:	See also: p9558, p9570 See also: C01799		
p9572	SI Motion reference position (Control Unit) / SI mtn rel_pos		
HLA_828	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -737280.000 [mm]	Max: 737280.000 [mm]	Default: 0.000 [mm]
Description:	The reference position entered in this parameter, is used as safe absolute position when setting p9573. If errors are identified when performing the plausibility checks, then message C01711 is output with message value 1003		
p9572	SI Motion reference position (Control Unit) / SI mtn rel_pos		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -737280.000 [mm]	Max: 737280.000 [mm]	Default: 0.000 [mm]
Description:	The reference position entered in this parameter, is used as safe absolute position when setting p9573. If errors are identified when performing the plausibility checks, then message C01711 is output with message value 1003		
	Note The unit depends on the selected axis type, linear or rotary axis, in p9502		
p9572	SI Motion reference position (Control Unit) / SI mtn rel_pos		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -737280.000 [°]	Max: 737280.000 [°]	Default: 0.000 [°]

Description: The reference position entered in this parameter, is used as safe absolute position when setting p9573.
If errors are identified when performing the plausibility checks, then message C01711 is output with message value 1003

Note

The unit depends on the selected axis type, linear or rotary axis, in p9502

p9573

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion accept reference position (Control Unit) / SI mtn set_ref_pos

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 263	Default: 0

Description: The safe absolute position is rejected or newly set using this parameter.
If errors are identified when performing the plausibility checks, then message C1711 is output with message value 1003

Value:

0:	No action
89:	Set reference position at standstill
122:	Declare reference position invalid
263:	Referencing via SCC

Dependency: See also: p9572

Note

SCC: Safety Control Channel

p9574

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion safe position scaling (Control Unit) / SI mtn SP scal CU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Integer32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 1	Max: 100000	Default: 1000

Description: Sets the scaling factor to transfer the safe position via PROFIsafe in the 16-bit notation.

Dependency: See also: r9713

Note

The parameter is only effective when PROFIsafe telegram 901 is selected.
By selecting a suitable scaling of the 32 bit position actual value (r9713[0]), it must be ensured that the scaled position actual value is not greater than 16 bit. The scaling is realized by dividing r9713[0] with this scaling factor.
If, during operation, a position actual value is determined, which cannot be scaled to the 16 bits, then message C0711 with value 7001 is output and safety stop response STOP F.

p9575

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion acceptance test SLP (SE) (Control Unit) / SI Mtn accept SLP

Changeable: T, U	Calculation: -	Access level: 3
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0000 hex	Max: 00AC hex	Default: 0000 hex

Description: Setting to select and de-select the acceptance test for SLP (SE).

Value: 0: [00 hex] deselect acceptance test SLP (SE)

	172: [AC hex] select acceptance test SLP (SE)
Dependency:	See also: p9358, p9370, p9558, p9570, p9601
	Note
	Acceptance test SLP (SE) can only be selected, if the safe motion monitoring functions have been enabled, and the acceptance test mode was activated in p9570/p9370.
	SLP: Safely-Limited Position / SE: Safe software limit switches

p9577	SI Motion SLP delay time (Control Unit) / SI Mtn SLP t CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	600000.00 [ms]	0.00 [ms]
Description:	Setting the delay time:		
	-between selecting and activating the "Safety-limited Position" (SLP) function		
	-when changing between the two active SLP ranges, if the new range is not completely contained in the old range.		
Dependency:	See also: p9501, p9534, p9535		
	Note		
	The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.		
	SLP: Safely-Limited Position		

p9580	SI Motion STO delay bus failure (Control Unit) / SI Mtn t to IL CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	800.00 [ms]	0.00 [ms]
Description:	Sets the delay time after which STO is executed when the bus fails.		
Dependency:	See also: p9561, p9563		
	Note		
	In the extended sense, a bus failure should be seen here as a communication error in the control signals of the safety functions (e.g. via PROFIsafe or TM54F).		
	The main use of the wait time is the ESR function (Extended Stop and Retract).		
	The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.		

p9581	SI Motion brake ramp reference value (Control Unit) / SI Mtn ramp ref CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	600.0000 [mm/min]	240000.0000 [mm/min]	1500.0000 [mm/min]
Description:	Sets the reference value to define the brake ramp.		
	The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).		
Dependency:	See also: p9582, p9583		

p9581	SI Motion brake ramp reference value (Control Unit) / SI Mtn ramp ref CU		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 600.0000 [rpm]	Max: 240000.0000 [rpm]	Default: 1500.0000 [rpm]
Description:	Sets the reference value to define the brake ramp. The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).		
Dependency:	See also: p9582, p9583		

p9582	SI Motion brake ramp delay time (Control Unit) / SI Mtn rp t_del CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 10.00 [ms]	Max: 99000.00 [ms]	Default: 250.00 [ms]
Description:	Sets the delay time for monitoring the brake ramp. Monitoring of the brake ramp starts once the delay time has elapsed.		
Dependency:	See also: p9581, p9583		

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle. Internally, the set time is limited downwards to 2 safety monitoring clock cycles (2 * p9500/p9300).

p9583	SI Motion brake ramp monitoring time (Control Unit) / SI Mtn rp t_mon CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.50 [s]	Max: 3600.00 [s]	Default: 10.00 [s]
Description:	Sets the monitoring time to define the brake ramp. The rate of rise of the brake ramp depends upon p9581 (reference value) and p9583 (monitoring time).		
Dependency:	See also: p9581, p9582		

Note

The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9585	SI Motion actual value sensing sensorless fault tolerance (CU) / ActVal sl tol CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -1	Max: 4	Default: -1
Description:	Sets the tolerance of the plausibility monitoring of the current and voltage angle. A higher value results in a higher degree of ruggedness when reversing at low speeds, as well as in the field weakening range for load steps. An increase is advantageous, if the current or voltage at the motor become small.		

Dependency: See also: r9787
See also: F01681, C01711

NOTICE

Reducing this value can adversely affect the actual value sensing and the plausibility check.
When the value is increased, this results in a longer evaluation delay and a higher velocity deviation (r9787).

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
For synchronous motors, the value 4 must be set.
For a value = -1:
- for synchronous motors, the calculation is automatically made with the value 4.
- for induction motors, the calculation is automatically made with a value of 0 (if the code number of the power unit p0201[0] < 14000, otherwise with a value of 2).

p9586

SERVO_828,
SERVO_COMBI

SI Motion actual value sensing sensorless delay time (CU) / ActVal sl t_del CU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 5.00 [ms]	Max: 1000.00 [ms]	Default: 100.00 [ms]

Description: Sets the delay time to evaluate the encoderless actual value sensing after the pulses have been enabled.
The value must be greater than or equal to the motor magnetizing time (p0346).

Dependency: See also: C01711

CAUTION

The safety functionality is only completely guaranteed after this time has expired.

NOTICE

If this value is reduced, this can have a negative impact on the actual value acquisition and plausibility check – and result in Safety message C01711 with the message value 1041 or 1042.

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9587

SERVO_828,
SERVO_COMBI

SI Motion actual value sensing sensorless filter time (CU) / Actv sl t_filt CU

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [ms]	Max: 100.00 [ms]	Default: 25.00 [ms]

Description: Sets the filter time for smoothing the actual value with sensorless actual value sensing.

NOTICE

A longer filter time results in a longer response time.

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
The smoothing is realized with a 1st order lowpass filter
For p9587 = minimum value, the filter is deactivated.
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p9588 SI Motion actual value sensing sensorless minimum current (CU) / ActVal sl I_min CU

SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0.00 [%]	Max: 1000.00 [%]	Default: 10.00 [%]

Description: Sets the minimum current for encoderless actual value sensing referred to 1 A (i.e. 1 % = 10 mA).
 - The value must be increased if C01711 has occurred with message value 1042.
 - The value must be decreased if C01711 has occurred with message value 1041.
 For synchronous motors, the following condition must be fulfilled:
 $|p0305 \times p9783| \geq p9588 \times 1.2$

Recommendation: If required, the correct value of the motor minimum current should be determined by making the appropriate measurements.

Dependency: See also: r9785
See also: C01711

NOTICE

If this percentage value is reduced excessively, then this can result in a safety message and an inaccurate actual value.

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).

p9589 SI Motion act. value sensing sensorless acceleration limit (CU) / ActVal sl a_lim CU

SERVO_828,
SERVO_COMBI

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 10.00 [%]	Max: 3300.00 [%]	Default: 100.00 [%]

Description: Sets the acceleration limit to filter velocity fluctuations.
 If this percentage value is increased, when accelerating, velocity peaks that do not reflect the real velocity characteristic can occur.
 If this value is decreased, and this dampens the velocity peaks when accelerating.
 - The value must be increased if C01711 with message value 1043 has occurred.
 - The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

Recommendation: The setting of this parameter depends on the motor and closed-loop control, and must be newly determined for each configuration.
 To do this, a measurement should be performed while the actual value jumps, and the limit in r9785[0] must be set so low using p9589, so that it is exceeded by the value in r9785[1] a maximum of four times per second. The actual value correction filter intervenes at this instant in time. The step is no longer so drastic.

Dependency: See also: r9784
See also: C01711

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
 For p9589 = maximum value, the filter is deactivated.
 Diagnostics parameter p9784 must be used to correctly set this parameter.

r9590[0...3]	SI Motion version safety motion monitoring (Control Unit) / SI Mtn version CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the Safety Integrated version for the safe monitoring functions.		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch) [3] = Safety Version (hotfix)		
Dependency:	See also: r9770, r9870, r9890		
	Note		
	Example: r9590[0] = 2, r9590[1] = 60, r9590[2] = 1, r9590[3] = 0 --> SI Motion version V02.60.01.00		

p9601	SI enable functions integrated in the drive (Control Unit) / SI enable fct CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 bin
Description:	Sets the enable signals for the safety functions integrated in the drive and the type of selection on the Control Unit. The following settings are permitted: 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). 0004 hex: Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1). 0005 hex: Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 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). 000C hex: Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1). 000D hex: Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1). 0024 hex: Extended functions without selection are enabled (permissible for r9771.16 = 1). 0025 hex: Extended functions without selection and basic functions via onboard terminals are enabled (permissible for r9771.16 = 1).		
Bit field:	Bit	Signal name	1 signal 0 signal FP
	00	STO (SH) via terminals (CU) enable	Enable Inhibit 2810

02	Enable motion monitoring functions integrated in drive (CU)	Enable	Inhibit	-
03	Enable PROFIsafe (CU)	Enable	Inhibit	-
05	Enab motion monit functions integr in drive w/out selection (CU)	Enable	Inhibit	-
06	Basic functions via TM54F	Enable	Inhibit	-

Dependency: See also: r9771, p9801

Note

A change always becomes effective only after a POWER ON. Exception: Changes to p9601.0 become effective immediately.

CU: Control Unit

STO: Safe Torque Off / SH: Safe standstill

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

SI: Safety Integrated

SMM: Safe Motion Monitoring

p9601

SERVO_828,
SERVO_COMBI

SI enable functions integrated in the drive (Control Unit) / SI enable fct CU

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

0000 0000 bin

Description:

Sets the enable signals for the safety functions integrated in the drive and the type of selection on the Control Unit.

Not all of the settings listed below will be permissible, depending on the Control Unit and Motor Module or 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).

0004 hex:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9771.5 = 1).

0005 hex:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9771.5 = 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).

000C hex:

Extended functions are enabled via PROFIsafe (permissible for r9771.4 = 1).

000D hex:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9771.4 = 1).

0024 hex:

Extended functions without selection are enabled (permissible for r9771.16 = 1).

0025 hex:

Extended functions without selection and basic functions via onboard terminals are enabled (permissible for r9771.16 = 1).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO (SH) via terminals (CU) enable	Enable	Inhibit	2810
02	Enable motion monitoring functions integrated in drive (CU)	Enable	Inhibit	-
03	Enable PROFIsafe (CU)	Enable	Inhibit	-

05	Enab motion monit functions integr in drive w/out selection (CU)	Enable	Inhibit	-
06	Basic functions via TM54F	Enable	Inhibit	-

Dependency:

See also: r9771, p9801

Note

A change always becomes effective only after a POWER ON. Exception: Changes to p9601.0 become effective immediately.

CU: Control Unit

STO: Safe Torque Off / SH: Safe standstill

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

SI: Safety Integrated

SMM: Safe Motion Monitoring

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

p9602SERVO_828,
SERVO_COMBI**SI enable Safe Brake Control (Control Unit) / SI enable SBC CU****Changeable:** C2(95)**Calculation:** -**Access level:** 3**Data type:** Integer16**Dynamic index:** -**Function plan:** 2814**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

1

0

Description:

Sets the enable signal for the function "Safe Brake Control" (SBC) on the Control Unit.

Value:

0: Inhibit SBC

1: Enable SBC

Dependency:

See also: p9802

Note

The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9601 not equal to 0).

It does not make sense to parameterize "no motor holding brake available" and enable "Safe Brake Control" (p1215 = 0, p9602 = p9802 = 1) if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).

CU: Control Unit

SBC: Safe Brake Control

SI: Safety Integrated

p9610HLA_828,
SERVO_828,
SERVO_COMBI**SI PROFIsafe address (Control Unit) / SI PROFIsafe CU****Changeable:** C2(95)**Calculation:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0000 hex

FFFE hex

0000 hex

Description:

Sets the PROFIsafe address for the Control Unit.

Dependency:

See also: p9810

p9611	SI PROFIsafe telegram selection (Control Unit) / SI Ps telegram CU		
SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	998	998

Description: Sets the PROFIsafe telegram number for the Control Unit.

Value:

- 0: No PROFIsafe telegram selected
- 30: PROFIsafe standard telegram 30, PZD-1/1
- 31: PROFIsafe standard telegram 31, PZD-2/2
- 900: PROFIsafe SIEMENS telegram 900, PZD-2/2
- 901: PROFIsafe SIEMENS telegram 901, PZD-3/5
- 902: PROFIsafe SIEMENS telegram 902, PZD-3/6
- 998: Compatibility mode (as for firmware version < 4.5)

Dependency: See also: p9811, p60022

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

p9620[0...7]	BI: SI signal source for STO (SH)/SS1 (Control Unit) / SI S_srcSTO/SS1 CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2810
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the following functions on the Control Unit:

STO: Safe Torque Off / SH: Safe standstill
 SS1: Safe Stop 1 (time monitored)

Dependency: See also: p9601

NOTICE

Indices 1 to 8 are reserved, and must retain the factory setting.

Note

The following signal sources are permitted:

- fixed zero (standard setting).
- digital inputs DI 0 ... 7, 16, 17, 20, 21 on the Control Unit 320-2 (CU320-2).
- digital inputs DI 0 ... 3 on the Controller Extensions (CX32-2, NX10.3, NX15.3).

It is not permitted to establish an interconnection to a digital input in the simulation mode.

p9620[0...7]	BI: SI signal source for STO (SH)/SBC/SS1 (Control Unit) / SI S_srcSTO/SS1 CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2810
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for the following functions on the Control Unit:
 STO: Safe Torque Off / SH: Safe standstill
 SBC: Safe Brake Control
 SS1: Safe Stop 1 (time monitored)

Dependency: See also: p9601

Note

The following signal sources are permitted:

- fixed zero (standard setting).
- digital inputs DI 0 ... 7, 16, 17, 20, 21 on the Control Unit 320-2 (CU320-2).
- digital inputs DI 0 ... 3 on the Controller Extensions (CX32-2, NX10.3, NX15.3).
- digital inputs DI 0 ... 3, 16 on the Control Unit 310-2 (CU310-2).

It is not permitted to establish an interconnection to a digital input in the simulation mode.

For a parallel circuit configuration of n power units, the following applies:

p9620[0] = Signal source for power unit 1

...

p9620[n-1] = Signal source for power unit n

p9621	BI: SI Safe Brake Adapter signal source (Control Unit) / SI SBA S_src CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2814
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for Safe Brake Adapter (SBA).
 This defines via which digital input the Safe Brake Adapter feedback signal is read-in (SBA_DIAG).
 p9621/p9821 = 0:

There is no Safe Brake Control (SBC) with Safe Brake Adapter (SBA) available.

p9621/p9821 = r0722.x (x = 0, 1 ... 7)

Safe Brake Adapter and Booksize unit (no Communication Interface Module (CIM)).

p9621/p9821 = r9872.3

Safe Brake Adapter and Chassis unit (CIM).

Dependency: See also: p9601, p9602, p9821

Note

No difference is tolerated for a crosswise data comparison between p9621 and p9821.

To use the "Safe Brake Adapter" function the following must apply:

p9601 = p9801 <> 0 and p9602 = p9802 = 1

p9622[0...1] SERVO_828, SERVO_COMBI	SI SBA relay delay times (Control Unit) / SI SBA relay t CU		
	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2814
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 1000.00 [ms]	Default: [0] 100.00 [ms] [1] 65.00 [ms]

Description: Sets the delay times for activating and de-activating the Safe Brake Adapter relay.
The relay-specific minimum delay times for evaluating the feedback signal contacts have to be set. They differ for the activation and de-activation of one and the same relay.

Index: [0] = Wait time activation
[1] = Wait time deactivation

Dependency: See also: p9822

Note

For a crosswise data comparison between p9622 and p9822, a difference of one Safety monitoring clock cycle is tolerated.
The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
For index 0:
Wait time switch on = drop-out time + bounce time NO contact + effect of the free-wheeling diode in the Safe Brake Adapter
For index 1:
Wait time switch off = response time + bounce time NC contact + effect of the free-wheeling diode in the Safe Brake Adapter

p9625[0...1] HLA_828	SI HLA shutoff valve wait time (CU) / Shutoff valve t CU		
	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 2000.00 [ms]	Default: [0] 250.00 [ms] [1] 250.00 [ms]

Description: Sets the delay time for switching on and switching off the shutoff valve.
The valve-specific minimum delay times for evaluating the feedback signal contacts have to be set.

Index: [0] = Activating
[1] = De-activating

Dependency: See also: p9825

Note

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
CU: Control Unit

p9626 HLA_828	SI HLA shutoff valve feedback signal contact configuration (CU) / FS config CU		
	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 5	Default: 0

Description:	Sets the feedback signal contacts of the shutoff valve to be monitored. The sensors for the feedback signal of the shutoff valves are connected via X281/X282.
Value:	0: NC contact/NO contact (NC/NO) 1: NC contact/NC contact (NC/NC) 2: NO contact/NO contact (NO/NO) 4: NC contact (NC) 5: NO contact (NO)
Dependency:	See also: p9826

Note

CU: Control Unit
 NC: Normally Closed contact
 NO: Normally Open contact

p9650	SI SGE changeover discrepancy time (Control Unit) / SI SGE chg t CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2810
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 2000.00 [ms]	Default: 500.00 [ms]

Description: Sets the discrepancy time to change over the safety-related inputs (SGE) on the Control Unit.
 An SGE changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a crosswise data comparison during this discrepancy time.

Dependency: See also: p9850

Note

For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.
 The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
 SGE: Safety-related input (e.g. STO terminals)

p9651	SI STO/SS1 debounce time (Control Unit) / SI STO t_debou CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [ms]	Max: 100.00 [ms]	Default: 0.00 [ms]

Description: Sets the debounce time for the failsafe digital inputs used to control STO/SS1.

Note

The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe 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.

p9651	SI STO/SBC/SS1 debounce time (Control Unit) / SI STO t_debou CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	100.00 [ms]	0.00 [ms]
Description:	Sets the debounce time for the failsafe digital inputs used to control STO/SBC/SS1.		
	Note		
	The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe 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.		

p9652	SI Safe Stop 1 delay time (Control Unit) / SI Stop 1 t_del CU		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [s]	300.00 [s]	0.00 [s]
Description:	Sets the delay time for STO for the function "Safe Stop 1" (SS1) on the Control Unit to brake along the OFF3 down ramp (p1135).		
Recommendation:	The delay time should be set as follows so that the drive can completely decelerate along the OFF3 ramp before the transition into STO: Delay time \geq p1135 + p1228		
Dependency:	See also: p1135, p9852		
	Note		
	For a crosswise data comparison between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.		
	The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.		
	SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)		

p9652	SI Safe Stop 1 delay time (Control Unit) / SI Stop 1 t_del CU		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [s]	300.00 [s]	0.00 [s]
Description:	Sets the delay time of the pulse suppression for the function "Safe Stop 1" (SS1) on the Control Unit to brake along the OFF3 down ramp (p1135).		
Recommendation:	In order that the drive can completely ramp-down along the OFF3 ramp and a motor holding brake that is possibly available can close, then the delay time should be set as follows: Motor holding brake parameterized: delay time \geq p1135 + p1228 + p1217 Motor holding brake not parameterized: delay time \geq p1135 + p1228		
Dependency:	See also: p1135, p9852		

Note

For a crosswise data comparison between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

p9653

HLA_828,
SERVO_828,
SERVO_COMBI

SI Safe Stop 1 drive-based braking response / SI SS1 drv resp

Changeable: C2(95)

Data type: Integer16

P group: Safety Integrated

Not for motor type: -

Min:

0

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

1

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0

Description:

Sets the drive-based braking response for the "Safe Stop 1" (SS1) function.

Value:

0: SS1 with OFF3

1: SS1E external stop

Note

SS1: Safe Stop 1 (Safe Stop 1, corresponds to Stop Category 1 acc. to EN60204)

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

SS1E requires the externally initiated stop in order to be in conformance with stop Category 1.

With this parameter, a switchover is made from SS1 to SS1E, and the drive-based braking response of function SS1 (time controlled) of the Basic Functions is deactivated.

p9658

HLA_828,
SERVO_828,
SERVO_COMBI

SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A CU

Changeable: C2(95)

Data type: FloatingPoint32

P group: Safety Integrated

Not for motor type: -

Min:

0.00 [ms]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

30000.00 [ms]

Access level: 3

Function plan: 2802

Unit selection: -

Expert list: 1

Default:

0.00 [ms]

Description:

Sets the transition period from STOP F to STOP A on the Control Unit.

Dependency:

See also: r9795, p9858

See also: F01611

Note

For a crosswise data comparison between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

STOP F: Defect in a monitoring channel (error in the crosswise data comparison)

STOP A: STO as a result of a fault detected by Safety Integrated

p9659

HLA_828,
SERVO_828,
SERVO_COMBI

SI forced checking procedure timer / SI FCP Timer

Changeable: C2(95)

Data type: FloatingPoint32

P group: Safety Integrated

Not for motor type: -

Min:

0.00 [h]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

9000.00 [h]

Access level: 3

Function plan: 2810

Unit selection: -

Expert list: 1

Default:

8.00 [h]

Description:

Sets the time interval for carrying out the forced checking procedure and testing the Safety switch-off signal paths.

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.

Dependency: See also: A01699

Note

STO: Safe Torque Off / SH: Safe standstill

r9660

HLA_828,
SERVO_828,
SERVO_COMBI

SI forced checking procedure remaining time / SI frc chk remain

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [h]	Max: - [h]	Default: - [h]

Description: Displays the time remaining before dynamization and testing of the safety switch-off signal paths (forced checking procedure).

Dependency: See also: A01699

p9665[0...255]

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motor Module parameter save / SI MM par save

Changeable: T, U	Calculation: -	Access level: 4
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0000 hex	Max: 00FF hex	Default: 0000 hex

Description: Save the safety parameters for the basic functions on the Motor Module/Hydraulic Module.

Note

The parameter values are saved in the following indices:

- p9801: index 20...23
- p9802: index 28...31
- p9810: index 36...39
- p9811: index 116...119
- p9821: index 84...87
- p9822[0]: index 92...95
- p9822[1]: index 100...103
- p9825[0]: index 124...127
- p9825[1]: index 132...135
- p9826: index 140...143
- p9850: index 44...47
- p9851: index 76...79
- p9852: index 52...55
- p9858: index 60...63
- p9897: index 108...111
- p9899: index 68...71

Depending on the existing technology, configuration and software version, it is possible that not all of the listed parameters are available.

r9670

CU_I_828,
CU_I_COMBI,
CU_NX_828

SI module identification Control Unit / Module ID CU

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: -	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 4294967295	Default: -

Description: CRC via Node Identifier of the Control Unit.

Note

CU: Control Unit

r9671[0...n]

SI module identifier Hydraulic Module / Module ID HM

HLA_828

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: PDS, p0120

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

4294967295

-

Description: CRC via the Node Identifier of a Hydraulic Module.

Note

HM: Hydraulic Module.

r9671[0...n]

SI module identifier Motor Module / Module ID MM

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: PDS, p0120

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

4294967295

-

Description: CRC via the Node Identifier of a Motor Module.

Note

The CRC is saved indexed when Motor Modules are connected in parallel.

MM: Motor Module

r9672

SI module identifier Power Module / Module ID PM

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

4294967295

-

Description: CRC via the Node Identifier of a Power Module.

Note

PM: Power Module

r9673

SI module identifier Sensor Module channel 1 / Module ID SM 1

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

4294967295

-

Description: CRC via Node Identifier of the Sensor Module, which is used by the first monitoring channel.

Note

SM: Sensor Module

r9674	SI module identifier Sensor Module channel 2 / Module ID SM 2		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4294967295	-
Description:	CRC via Node Identifier of the Sensor Module, which is used by the second monitoring channel.		
	Note		
	SM: Sensor Module		

r9675	SI module identifier sensor channel 1 / Module ID sensor 1		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4294967295	-
Description:	CRC via the serial number of the encoder, which is used by the first monitoring channel.		
	Note		
	When using an encoder without its own serial number, the value of zero is kept.		

r9676	SI module identifier sensor channel 2 / Module ID sensor 2		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4294967295	-
Description:	CRC via the serial number of the encoder, which is used by the second monitoring channel.		
	Note		
	When using an encoder without its own serial number, the value of zero is kept.		

p9697	SI Motion bus failure STO/SH delay time (CU) / SI Mtn STO t CU		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	800.00 [ms]	0.00 [ms]
Description:	Sets the delay time for STO after bus failure on the Control Unit (e.g. used for ESR).		
	Note		
	The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.		
	ESR: Extended Stop and Retract		
	STO: Safe Torque Off / SH: Safe standstill		

p9700	SI Motion copy function / SI Mtn copy fct		
HLA_828	Changeable: C2(95), T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00D0 hex	Default: 0000 hex
Description:	Setting to start the required copy function. After starting, the appropriate parameters are copied from the Control Unit to the Hydraulic Module. Once copying is complete, the parameter is automatically reset to zero.		
Value:	0: [00 hex] Copy function ended 29: [1D hex] Start copy function node identifier 46: [2E hex] start copy function encoder parameters 87: [57 hex] Start copy function SI parameters 208: [D0 hex] Start copy function SI basic parameters		
	Note For value = 57 hex, 2E hex and D0 hex: The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered. For value = D0 hex: The following parameters are copied after starting the copy function: p9601 --> p9801, p9610 --> 9810, p9611 --> 9811, p9625 --> p9825, p9626 --> p9826, p9650 --> p9850, p9651 --> p9851, p9652 --> p9852, p9658 --> p9858, p9697 --> p9897		
p9700	SI Motion copy function / SI Mtn copy fct		
SERVO_828, SERVO_COMBI	Changeable: C2(95), T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00D0 hex	Default: 0000 hex
Description:	Setting to start the required copy function. After starting, the appropriate parameters are copied from the Control Unit to the Motor Module. Once copying is complete, the parameter is automatically reset to zero.		
Value:	0: [00 hex] Copy function ended 29: [1D hex] Start copy function node identifier 46: [2E hex] start copy function encoder parameters 87: [57 hex] Start copy function SI parameters 208: [D0 hex] Start copy function SI basic parameters		
	Note For value = 57 hex, 2E hex and D0 hex: The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered. For value = D0 hex: The following parameters are copied after starting the copy function: p9601 --> p9801, p9602 --> p9802, p9610 --> 9810, p9611 --> 9811, p9621 --> 9821, p9622 --> 9822, p9650 --> p9850, p9651 --> p9851, p9652 --> p9852, p9658 --> p9858, p9697 --> p9897		

p9700	SI Motion copy function / SI Mtn copy fct		
TM54F_MA	Changeable: C2(95), T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00CC hex	Default: 0000 hex
Description:	Setting to start the required copy function. After starting, the appropriate parameters are copied from the Control Unit to the Motor Module. Once copying is complete, the parameter is automatically reset to zero.		
Value:	0: [00 hex] Copy function ended 29: [1D hex] Start copy function node identifier 87: [57 hex] Start copy function SI parameters 204: [CC hex] Start copy function TM54F communication clock cycles		
	Note For value = 57 hex: The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered. SI: Safety Integrated		

p9701	Acknowledge SI motion data change / Ackn SI Mtn dat		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95), T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00EC hex	Default: 0000 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:	See also: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899		
	Note For 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.		

p9701	Acknowledge SI motion data change / Ackn SI Mtn dat		
TM54F_MA, TM54F_SL	Changeable: C2(95), T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00EC hex	Default: 0000 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

236: [EC hex] Acknowledge hardware CRC

Dependency: See also: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899**Note**

For value = AC hex:

These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

SI: Safety Integrated

p9702HLA_828,
SERVO_828,
SERVO_COMBI**SI Acknowledge component replacement / Comp_replace ackn****Changeable:** T, U**Calculation:** -**Access level:** 3**Data type:** Integer16**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

0

29

0

Description:

Setting to acknowledge that a component has been replaced.

By writing 29 to this parameter, the unique identifier of a safety-relevant component is transferred into the drive parameterization.

Value:

0: [00 hex] hardware replacement acknowledge ready

29: [1D hex] hardware replacement acknowledgment

Dependency:

See also: F01640

NOTICE

It is not permissible that the safety commissioning mode is set in order to write to this parameter.

Note

After successful execution, this parameter is automatically reset to zero.

Data must then be saved in a non-volatile fashion (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").

The parameter cannot be written to using a project download, and cannot be set in an offline project.

p9705HLA_828,
SERVO_828,
SERVO_COMBI**BI: SI Motion: Test stop signal source / SI Mtn test stop****Changeable:** C2(95)**Calculation:** -**Access level:** 3**Data type:** Unsigned32 / Binary**Dynamic index:** -**Function plan:** 2837**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

0

Description:

Sets the signal source for the test stop of the safety-relevant motion monitoring functions.

NOTICE

Before setting the signal source in p9705 it must be ensured that the signal source is at a logical 0.

If, in the Safety commissioning mode, the signal source in p9705 is set - and it already has a logical 1 - then a test stop is immediately initiated and the messages C01711/C30711 are output with message value 1005.

Note

It is not permissible to use TM54F inputs to start the test stop.

r9707[0...2] CO: SI Motion diagnostics encoder position actual value GX_XIST1 / SI Mtn XIST1

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Display:
 Index0: of the encoder actual value GX_Xist1,
 Index1: of the encoder actual value GX_Xist1 in the clock cycle, from which the subsequently transferred reference position was received.
 Index2: The difference between index1 and index0 while waiting for the reference position to be transferred.
 Index1 and index2 are only relevant for safety monitoring functions requiring an encoder with absolute reference, when "Referencing via SCC" is enabled (p9501 bit27=1)

Index:
 [0] = Encoder actual value X1st1 on CU
 [1] = Encoder actual value X1st1 latched for referencing
 [2] = X1st1 latched - reference position difference

Note
 The parameter is only available for Safety Integrated with encoder

r9708[0...5] SI Motion diagnostics safe position / SI mtn safe pos

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822, 2836
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [mm]	- [mm]	- [mm]

Description: Displays the actual load-side actual values of both monitoring channels and their difference.

Index:
 [0] = Load-side actual value on the CU
 [1] = Load-side actual value on the second channel
 [2] = Load-side actual value difference CU - second channel
 [3] = Load-side max. actual value difference CU - second channel
 [4] = Load-side actual value as safe position via PROFIsafe
 [5] = Load-side additional actual value difference CU - second channel

Dependency: See also: r9713

Note

For index 0:

The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle.

For index 1:

The display of the load-side position actual value on the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

For index 2:

The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

For index 3:

The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel.

For index 4:

Displays the load-side position actual value when enabling the function "Safe position via PROFIsafe".

The value is an average value from the values in index 0 and 1.

When the function is not enabled, the content corresponds to the value in index 0.

For index 5:

The display of the maximum additional difference between the load-side position actual value on the Control Unit, and the load-side position actual value in the second channel, which can occur as a result of the actual value sensing delay in the EnDat 2.2 converter.

Input in p9542: p9708[3] + p9708[5], after performing the measurement for the mechanical tolerance by performing a test run, where, after completion, the maximum tolerance that has occurred is displayed in p9708[3].

CDC: Crosswise Data Comparison

r9708[0...5]	SI Motion diagnostics safe position / SI mtn safe pos		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2822, 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]
Description:	Displays the actual load-side actual values of both monitoring channels and their difference.		
Index:	[0] = Load-side actual value on the CU [1] = Load-side actual value on the second channel [2] = Load-side actual value difference CU - second channel [3] = Load-side max. actual value difference CU - second channel [4] = Load-side actual value as safe position via PROFIsafe [5] = Load-side additional actual value difference CU - second channel		
Dependency:	See also: r9713		

Note

For index 0:

The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle.

For index 1:

The display of the load-side position actual value on the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

For index 2:

The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

For index 3:

The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel.

For index 4:

Displays the load-side position actual value when enabling the function "Safe position via PROFIsafe".

The value is an average value from the values in index 0 and 1.

When the function is not enabled, the content corresponds to the value in index 0.

For index 5:

The display of the maximum additional difference between the load-side position actual value on the Control Unit, and the load-side position actual value in the second channel, which can occur as a result of the actual value sensing delay in the EnDat 2.2 converter.

Input in p9542: p9708[3] + p9708[5], after performing the measurement for the mechanical tolerance by performing a test run, where, after completion, the maximum tolerance that has occurred is displayed in p9708[3].

CDC: Crosswise Data Comparison

r9710[0...1]

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion diagnostics result list 1 / SI Mtn res_list 1

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Displays result list 1 that, for the crosswise data comparison between the monitoring channels, led to the fault.

Index:

[0] = Result list second channel

[1] = Result list drive

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Actual value > upper limit SOS	Yes	No	-
01	Actual value > lower limit SOS	Yes	No	-
02	Actual value > upper limit SLP1	Yes	No	-
03	Actual value > lower limit SLP1	Yes	No	-
04	Actual value > upper limit SLP2	Yes	No	-
05	Actual value > lower limit SLP2	Yes	No	-
06	Actual value > upper limit SLS1	Yes	No	-
07	Actual value > lower limit SLS1	Yes	No	-
08	Actual value > upper limit SLS2	Yes	No	-
09	Actual value > lower limit SLS2	Yes	No	-
10	Actual value > upper limit SLS3	Yes	No	-
11	Actual value > lower limit SLS3	Yes	No	-
12	Actual value > upper limit SLS4	Yes	No	-
13	Actual value > lower limit SLS4	Yes	No	-
16	Actual value > upper limit SAM/SBR	Yes	No	-
17	Actual value > lower limit SAM/SBR	Yes	No	-
18	Actual value > upper limit SDI positive	Yes	No	-

19	Actual value > lower limit SDI positive	Yes	No	-
20	Actual value > upper limit SDI negative	Yes	No	-
21	Actual value > lower limit SDI negative	Yes	No	-

Dependency: See also: C01711

Note

SBR: Safe Brake Ramp (safe brake ramp monitoring)

SLP: Safely-Limited Position

SLS: Safely-Limited Speed

SOS: Safe Operating Stop

r9711[0...1]

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion diagnostics result list 2 / SI Mtn res_list 2

Changeable: -

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Displays result list 2 that, for the crosswise data comparison between the monitoring channels, led to the fault.

Index:

[0] = Result list second channel

[1] = Result list drive

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Actual value > upper limit SCA1+	Yes	No	-
01	Actual value > lower limit SCA1+	Yes	No	-
02	Actual value > upper limit SCA1-	Yes	No	-
03	Actual value > lower limit SCA1-	Yes	No	-
04	Actual value > upper limit SCA2+	Yes	No	-
05	Actual value > lower limit SCA2+	Yes	No	-
06	Actual value > upper limit SCA2-	Yes	No	-
07	Actual value > lower limit SCA2-	Yes	No	-
08	Actual value > upper limit SCA3+	Yes	No	-
09	Actual value > lower limit SCA3+	Yes	No	-
10	Actual value > upper limit SCA3-	Yes	No	-
11	Actual value > lower limit SCA3-	Yes	No	-
12	Actual value > upper limit SCA4+	Yes	No	-
13	Actual value > lower limit SCA4+	Yes	No	-
14	Actual value > upper limit SCA4-	Yes	No	-
15	Actual value > lower limit SCA4-	Yes	No	-
16	Actual value > upper limit SSM+	Yes	No	-
17	Actual value > lower limit SSM+	Yes	No	-
18	Actual value > upper limit SSM-	Yes	No	-
19	Actual value > lower limit SSM-	Yes	No	-
20	Actual value > upper limit modulo	Yes	No	-
21	Actual value > lower limit modulo	Yes	No	-

Dependency:

See also: C01711

Note

SCA: Safe Cam

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

r9712 CO: SI motion diagnostics position actual value on the actuator side / SI Mtn s_act act

HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actuator-side position actual value for the motion monitoring functions on the Control Unit.

Note

The display is updated in the safety monitoring clock cycle.

r9712 CO: SI Motion diagnostics position actual value motor side / SI Mtn s_act mot

SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual motor-side position actual value for the motion monitoring functions on the Control Unit.

Note

The display is updated in the safety monitoring clock cycle.

r9713[0...5] CO: SI Motion diagnostics position actual value load side / SI Mtn s_act load

HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual load-side actual values of both monitoring channels and their difference.

- Index:**
- [0] = Load-side actual value on the CU
 - [1] = Load-side actual value on the second channel
 - [2] = Load-side actual value difference CU - second channel
 - [3] = Load-side max. actual value difference CU - second channel
 - [4] = Load-side actual value as safe position via PROFIsafe
 - [5] = Load-side additional actual value difference CU - second channel

Dependency: See also: r9708, r9724

Note

The value of this parameter is displayed in r9708 with units (mm or degrees).

The display is updated in the safety monitoring clock cycle.

For index 0:

The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle.

For index 1:

The display of the load-side position actual value on the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

For index 2:

The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the CDC clock cycle (r9724) and delayed by one CDC clock cycle.

For index 3:

The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel.

For index 4:

Displays the load-side position actual value when enabling the function "Safe position via PROFIsafe".

The value is an average value from the values in index 0 and 1.

For a 16-bit notation, the value is influenced using the scaling factor (p9574/p9374).

When the function is not enabled, the content corresponds to the value in index 0.

For index 5:

The display of the maximum additional difference between the load-side position actual value on the Control Unit, and the load-side position actual value in the second channel, which can occur as a result of the actual value sensing delay in the EnDat 2.2 converter. Input in p9542: p9713[3] + p9713[5], after performing the measurement for the mechanical tolerance by performing a test run, where, after completion, the maximum tolerance that has occurred is displayed in p9713[3].

CDC: Crosswise Data Comparison

r9714[0...2]

HLA_828

CO: SI motion diagnostics velocity / SI Mtn diag v**Changeable:** -**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

- [mm/min]

- [mm/min]

- [mm/min]

Description:

Displays the velocity actual values for the motion monitoring functions on the Control Unit.

Index:

[0] = Load-side velocity actual value on the Control Unit

[1] = Actual SAM/SBR velocity limit on the Control Unit

[2] = Actual SLS velocity limit on the Control Unit

Dependency:

See also: r9732

NOTICE

For index 2:

This SLS velocity limit can, as a result of conversion into the internal monitoring format, deviate from the specified SLS velocity limit (see r9732).

Note

The display is updated in the safety monitoring clock cycle.

For linear axes, the following unit applies: millimeters per minute

r9714[0...2]
 SERVO_828,
 SERVO_COMBI

CO: SI motion diagnostics velocity / SI Mtn diag v

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [mm/min]	- [mm/min]	- [mm/min]

Description: Displays the velocity actual values for the motion monitoring functions on the Control Unit.

Index:
 [0] = Load-side velocity actual value on the Control Unit
 [1] = Actual SAM/SBR velocity limit on the Control Unit
 [2] = Actual SLS velocity limit on the Control Unit

Dependency: See also: r9732

NOTICE

For index 2:
 This SLS velocity limit can, as a result of conversion into the internal monitoring format, deviate from the specified SLS velocity limit (see r9732).

Note
 The display is updated in the safety monitoring clock cycle.
 For linear axes, the following unit applies: millimeters per minute
 For rotary axes, the following unit applies: revolutions per minute

r9714[0...2]
 SERVO_828 (Safety
 rot), SERVO_COMBI
 (Safety rot)

CO: SI motion diagnostics velocity / SI Mtn diag v

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [rpm]	- [rpm]	- [rpm]

Description: Displays the velocity actual values for the motion monitoring functions on the Control Unit.

Index:
 [0] = Load-side velocity actual value on the Control Unit
 [1] = Actual SAM/SBR velocity limit on the Control Unit
 [2] = Actual SLS velocity limit on the Control Unit

Dependency: See also: r9732

NOTICE

For index 2:
 This SLS velocity limit can, as a result of conversion into the internal monitoring format, deviate from the specified SLS velocity limit (see r9732).

Note
 The display is updated in the safety monitoring clock cycle.
 For linear axes, the following unit applies: millimeters per minute
 For rotary axes, the following unit applies: revolutions per minute

r9718.23
 HLA_828,
 SERVO_828,
 SERVO_COMBI

CO/BO: SI Motion control signals 1 / SI Mtn ctrl_sig 1

Changeable: -	Calculation: -	Access level: 4
Data type: Unsigned32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Control signal 1 for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	23	Set offset for TfS to the actual torque	Set	Reset	-

Note

TfS: Traverse to fixed stop

r9719.0...31 CO/BO: SI Motion control signals 2 / SI Mtn ctrl_sig 2

HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Control signal 2 for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	De-select SOS/SLS (SBH/SG)	Yes	No	-
	01	De-select SOS (SBH)	Yes	No	-
	03	Select SLS (SG) bit 0	Set	Not set	-
	04	Select SLS (SG) bit 1	Set	Not set	-
	05	Deselect SDI positive	Yes	No	-
	06	Deselect SDI negative	Yes	No	-
	07	Deselect SLP	Yes	No	-
	08	Gearbox selection bit 0	Set	Not set	-
	09	Gearbox selection bit 1	Set	Not set	-
	10	Gearbox selection bit 2	Set	Not set	-
	11	Gearbox switchover	Set	Not set	-
	12	Select SLP (SE) position range	SLP2 (SE2)	SLP1 (SE1)	-
	15	Select test stop	Yes	No	-
	16	SGE valid	Yes	No	-
	18	De-select external STOP A	Yes	No	-
	19	De-select external STOP C	Yes	No	-
	20	De-select external STOP D	Yes	No	-
	21	De-select external STOP E	Yes	No	-
	28	SLS (SG) override bit 0	Set	Not set	-
	29	SLS (SG) override bit 1	Set	Not set	-
	30	SLS (SG) override bit 2	Set	Not set	-
	31	SLS (SG) override bit 3	Set	Not set	-

Note

For r9719.0 and r9719.1:

These two bits must be considered together.

- if SOS/SLS (SBH/SG) is de-selected using bit 0, then assignment of bit 1 is irrelevant.

- if SOS/SLS (SBH/SG) is selected using bit 0, then a changeover is made between SOS (SBH) and SLS (SG) using bit 1.

SLP: Safely-Limited Position / SE: Safe software limit switches

SLS: Safely-Limited Speed / SG: Safely reduced speed

SOS: Safe Operating Stop / SBH: Safe operating stop

SDI: Safe Direction (safe motion direction)

r9719.0...31

SERVO_828,
SERVO_COMBI

CO/BO: SI Motion control signals 2 / SI Mtn ctrl_sig 2

Changeable: -

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

-

Description:

Control signal 2 for safety-relevant motion monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	De-select SOS/SLS (SBH/SG)	Yes	No	-
01	De-select SOS (SBH)	Yes	No	-
03	Select SLS (SG) bit 0	Set	Not set	-
04	Select SLS (SG) bit 1	Set	Not set	-
05	Deselect SDI positive	Yes	No	-
06	Deselect SDI negative	Yes	No	-
07	Deselect SLP	Yes	No	-
08	Gearbox selection bit 0	Set	Not set	-
09	Gearbox selection bit 1	Set	Not set	-
10	Gearbox selection bit 2	Set	Not set	-
11	Gearbox switchover	Set	Not set	-
12	Select SLP (SE) position range	SLP2 (SE2)	SLP1 (SE1)	-
13	Close brake from control	Yes	No	-
15	Select test stop	Yes	No	-
16	SGE valid	Yes	No	-
18	De-select external STOP A	Yes	No	-
19	De-select external STOP C	Yes	No	-
20	De-select external STOP D	Yes	No	-
21	De-select external STOP E	Yes	No	-
28	SLS (SG) override bit 0	Set	Not set	-
29	SLS (SG) override bit 1	Set	Not set	-
30	SLS (SG) override bit 2	Set	Not set	-
31	SLS (SG) override bit 3	Set	Not set	-

Note

For r9719.0 and r9719.1:

These two bits must be considered together.

- if SOS/SLS (SBH/SG) is de-selected using bit 0, then assignment of bit 1 is irrelevant.

- if SOS/SLS (SBH/SG) is selected using bit 0, then a changeover is made between SOS (SBH) and SLS (SG) using bit 1.

SLP: Safely-Limited Position / SE: Safe software limit switches

SLS: Safely-Limited Speed / SG: Safely reduced speed

SOS: Safe Operating Stop / SBH: Safe operating stop

SDI: Safe Direction (safe motion direction)

r9720.0...27

HLA_828,
SERVO_828,
SERVO_COMBI

CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW

Changeable: -

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 2840, 2855

Unit selection: -

Expert list: 1

Default:

-

Description: Control signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	De-select STO	Yes	No	-
	01	De-select SS1	Yes	No	-
	02	De-select SS2	Yes	No	-
	03	De-select SOS	Yes	No	-
	04	De-select SLS	Yes	No	-
	06	Deselect SLP	Yes	No	2822
	07	Acknowledgment	Signal edge active	No	-
	09	Select SLS bit 0	Set	Not set	-
	10	Select SLS bit 1	Set	Not set	-
	12	Deselect SDI positive	Yes	No	2824
	13	Deselect SDI negative	Yes	No	2824
	19	Select SLP position range	SLP2	SLP1	2822
	24	Select gearbox bit 0	Set	Not set	-
	25	Select gearbox bit 1	Set	Not set	-
	26	Select gearbox bit 2	Set	Not set	-
	27	Gearbox switchover	Set	Not set	-

Note

This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

r9721.0...15

CO/BO: SI Motion status signals (Control Unit) / SI Mtn stat_sig CU

HLA_828

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Display and BICO output for the status signals of the safe motion monitoring functions on monitoring channel 1.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	SOS or SLS active	Yes	No	-
01	SOS active	Yes	No	-
02	STO active	Yes	No	-
03	Active SLS stage bit 0	Set	Not set	-
04	Active SLS stage bit 1	Set	Not set	-
05	Velocity below limit value n_x	Yes	No	-
06	SLP active	Yes	No	-
07	Safely referenced	Yes	No	-
08	SDI positive active	Yes	No	-
09	SDI negative active	Yes	No	-
10	SLP active position area	SLP2	SLP1	-
12	STOP A or STOP B or STO or SS1 active	Yes	No	2819
13	STOP C or SS2 active	Yes	No	2819
14	STOP D active	Yes	No	2819
15	STOP E active	Yes	No	-

Note

This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

r9721.0...15 CO/BO: SI Motion status signals (Control Unit) / SI Mtn stat_sig CU

SERVO_828,
SERVO_COMBI

Changeable: - **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** -
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Display and BICO output for the status signals of the safe motion monitoring functions on monitoring channel 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SOS or SLS active	Yes	No	-
	01	SOS active	Yes	No	-
	02	Pulse enable	Deleted	Enabled	-
	03	Active SLS stage bit 0	Set	Not set	-
	04	Active SLS stage bit 1	Set	Not set	-
	05	Velocity below limit value n_x	Yes	No	-
	06	SLP active	Yes	No	-
	07	Safely referenced	Yes	No	-
	08	SDI positive active	Yes	No	-
	09	SDI negative active	Yes	No	-
	10	SLP active position area	SLP2	SLP1	-
	12	STOP A or STOP B or STO or SS1 active	Yes	No	2819
	13	STOP C or SS2 active	Yes	No	2819
	14	STOP D active	Yes	No	2819
	15	STOP E active	Yes	No	-

Note

This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

r9722.0...31 CO/BO: SI Motion drive-integrated status signals (Control Unit) / SI Mtn int stat CU

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: - **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2840, 2855
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Status signal for safety-relevant motion monitoring functions integrated in the drive on monitoring channel 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO or safe pulse suppression active	Yes	No	-
	01	SS1 active	Yes	No	-
	02	SS2 active	Yes	No	-
	03	SOS active	Yes	No	-
	04	SLS active	Yes	No	-
	06	SLP active	Yes	No	2822
	07	Internal event	No	Yes	-
	09	Active SLS stage bit 0	Set	Not set	-
	10	Active SLS stage bit 1	Set	Not set	-
	11	SOS selected	Yes	No	-
	12	SDI positive active	Yes	No	2824
	13	SDI negative active	Yes	No	2824

15	SSM (speed below limit value)	Yes	No	2823
19	SLP active position area	SLP2	SLP1	2822
22	SP valid	Yes	No	-
23	Safely referenced	Yes	No	-
30	SLP limit upper maintained	Yes	No	2822
31	SLP limit lower maintained	Yes	No	2822

NOTICE

For bit 07:

The signal state behaves in an opposite way to the PROFIsafe Standard.

Note

This parameter is only supplied with actual values in the case of Safety Integrated Extended Functions. For Safety Integrated Basic Functions (SBC, SS1, STO), the value is equal to zero.

For bit 07:

An internal event is displayed if a STOP A ... F is active.

r9723.0...17**CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag**

HLA_828

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the diagnostic signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Forced checking procedure required	Yes	No	-
01	STOP F and then STOP B active	Yes	No	2819
02	Communication failure	Yes	No	-
03	Actual value sensing supplies valid value	Yes	No	2821
12	Test stop active	Yes	No	-
16	SAM/SBR active	Yes	No	2820
17	Position referenced	Yes	No	2821

Note

For bit 00:

A required dynamization is also displayed via alarm A01679.

For bit 01:

This bit can be used, to execute a drive-based or control-based ESR.

For bit 12:

An active test stop is also displayed using the safety message C01798.

ESR: Extended Stop and Retract

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe brake ramp monitoring)

r9723.0...17**CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag**SERVO_828,
SERVO_COMBI**Changeable:** -**Calculation:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the diagnostic signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Forced checking procedure required	Yes	No	-
	01	STOP F and then STOP B active	Yes	No	2819
	02	Communication failure	Yes	No	-
	03	Actual value sensing supplies valid value	Yes	No	2821
	04	Encoderless act val sensing acc to technique for U/f control	Yes	No	-
	09	Safe pulse suppression active	Yes	No	-
	12	Test stop active	Yes	No	-
	16	SAM/SBR active	Yes	No	2820
	17	Position referenced	Yes	No	2821

Note

For bit 00:

A required dynamization is also displayed via alarm A01679.

For bit 01:

This bit can be used, to execute a drive-based or control-based ESR.

For bit 04:

When sensing the velocity without encoder, a distinction is made between the closed-loop speed controlled and open-loop speed controlled (U/f) modes.

For bit 09:

Safe pulse cancellation is a state that can only occur for the combination of velocity sensing without encoder (p9506) and drive-integrated motion monitoring functions without selection (p9601.5). In this state, internally an STO is initiated, which can be withdrawn again using an OFF1 enable.

For bit 12:

An active test stop is also displayed using the safety message C01798.

ESR: Extended Stop and Retract

SAM: Safe Acceleration Monitor (safe acceleration monitoring)

SBR: Safe Brake Ramp (safe brake ramp monitoring)

r9724

SI Motion crosswise comparison clock cycle / SI Mtn CDC clk cyc

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [ms]

- [ms]

- [ms]

Description:

Displays the crosswise comparison clock cycle.

The value indicates the clock cycle time with which each individual CDC value is compared between the two monitoring channels.

Dependency:

See also: p9500

Note

Crosswise comparison clock cycle = monitoring clock cycle (p9500) * number of data to be crosswise compared

CDC: Crosswise Data Comparison

r9725[0...2]

SI Motion diagnostics STOP F / SI Mtn Diag STOP F

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 3

Data type: Unsigned32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description: For index 0:
Displays the message value that resulted in the STOP F on the drive.
Value = 0:
The Control Unit signaled a STOP F.
Value = 1 ... 999:
Number of the incorrect date in the crosswise data comparison between the monitoring channels.
Value >= 1000:
Additional diagnostic values of the drive.
For index 1:
Displays the value of the Control Unit that resulted in the STOP F.
For index 2:
Displays the value from the second channel that resulted in the STOP F.

Index: [0] = Message value for CDC
[1] = Control Unit CDC actual value
[2] = Components CDC actual value

Dependency: See also: C01711

Note

The significance of the individual message values is described in message C01711.

CDC: Crosswise Data Comparison

For Index 1, 2:

When Safety message C01711 with message value >= 1000 occurs, these indices are not supplied with values.

p9726

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion user agreement selection/de-selection / SI Mtn UserAgr sel

Changeable: T, U

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0000 hex

00AC hex

0000 hex

Description: Setting to select and de-select the user agreement.

Value: 0: [00 hex] De-select user agreement

172: [AC hex] Select user agreement

Dependency: See also: r9727

r9727

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion user agreement inside the drive / SI Mtn UserAgr int

Changeable: -

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: 2822

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description: Displays the internal state of the user agreement.

Value = 0: User agreement is not set.

Value = AC hex: User agreement is set.

Dependency: See also: p9726

r9728[0...2]	SI Motion actual checksum SI parameters / SI Mtn act CRC		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum).		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters for actual values [2] = Checksum over SI parameters for hardware		
Dependency:	See also: p9729 See also: F01680		

p9729[0...2]	SI Motion reference checksum SI parameters / SI Mtn ref CRC		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95) Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: 0000 hex	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: FFFF FFFF hex	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: 0000 hex
Description:	Sets the checksum using the checksum-tested Safety Integrated parameters for motion monitoring functions (reference checksum).		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters for actual values [2] = Checksum over SI parameters for hardware		
Dependency:	See also: r9728 See also: F01680		

r9730	SI Motion Safe maximum velocity / SI mtn safe v_Max		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: FloatingPoint32 P group: Safety Integrated Not for motor type: - Min: - [mm/min]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [mm/min]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: - [mm/min]
Description:	Displays the safe maximum velocity (on the load side) that is permissible for the safe motion monitoring functions as a result of the actual value sensing. This parameter indicates up to which load velocity the safe encoder actual values (redundant encoder coarse position) can still be correctly detected as a result of the particular encoder parameterization. This parameter is only of significance for enabled safety with encoder (otherwise "0").		
Note			
If the value displayed is exceeded, message C01711 is output indicating relevant subsequent faults.			

r9730	SI Motion Safe maximum velocity / SI mtn safe v_Max		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	<p>Displays the safe maximum velocity (on the load side) that is permissible for the safe motion monitoring functions as a result of the actual value sensing.</p> <p>This parameter indicates up to which load velocity the safe encoder actual values (redundant encoder coarse position) can still be correctly detected as a result of the particular encoder parameterization.</p> <p>This parameter is only of significance for enabled safety with encoder (otherwise "0").</p>		
	Note		
	If the value displayed is exceeded, message C01711 is output indicating relevant subsequent faults.		
r9731	SI Motion safe position accuracy / SI Mtn pos acc		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mm]	- [mm]	- [mm]
Description:	<p>Displays the safe position accuracy (load side).</p> <p>As a result of the actual value sensing for safe motion monitoring functions, this accuracy can be achieved as the maximum.</p> <p>In the case of the two encoder system, the accuracy of the poorer encoder is displayed, based on the number of encoder pulses.</p>		
	Note		
	The parameter is only of significance for enabled safety with encoder (otherwise "0").		
r9731	SI Motion safe position accuracy / SI Mtn pos acc		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [°]	- [°]	- [°]
Description:	<p>Displays the safe position accuracy (load side).</p> <p>As a result of the actual value sensing for safe motion monitoring functions, this accuracy can be achieved as the maximum.</p> <p>In the case of the two encoder system, the accuracy of the poorer encoder is displayed, based on the number of encoder pulses.</p>		
	Note		
	The parameter is only of significance for enabled safety with encoder (otherwise "0").		

r9732[0...1]	SI Motion velocity resolution / SI Mtn v_res		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mm/min]	- [mm/min]	- [mm/min]
Description:	Displays the velocity resolution for safety-relevant motion monitoring functions. For index 0: Displays the safe velocity resolution (load side). Setpoints for velocity limits or parameter changes for velocities below this threshold have no effect. For index 1: Displays the safe velocity accuracy based on the safe encoder accuracy		
Index:	[0] = Actual velocity resolution [1] = Minimum velocity resolution		
	Note		
	Index 0: This parameter does not provide any information about the actual accuracy of the velocity sensing. This depends on the type of actual value sensing, the gear factors as well as the quality of the encoder being used.		
	Index 1: For a two-encoder system, with just non-safety capable encoders, this means the poorer value of the two encoders. Index[1] takes into account the coarse resolution of the encoder only		

r9732[0...1]	SI Motion velocity resolution / SI Mtn v_res		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [rpm]	- [rpm]	- [rpm]
Description:	Displays the velocity resolution for safety-relevant motion monitoring functions. For index 0: Displays the safe velocity resolution (load side). Setpoints for velocity limits or parameter changes for velocities below this threshold have no effect. For index 1: Displays the safe velocity accuracy based on the safe encoder accuracy		
Index:	[0] = Actual velocity resolution [1] = Minimum velocity resolution		
	Note		
	Index 0: This parameter does not provide any information about the actual accuracy of the velocity sensing. This depends on the type of actual value sensing, the gear factors as well as the quality of the encoder being used.		
	Index 1: For a two-encoder system, with just non-safety capable encoders, this means the poorer value of the two encoders. Index[1] takes into account the coarse resolution of the encoder only		

r9733[0...2]	CO: SI Motion setpoint speed limit effective / SI Mtn setp_lim		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2820, 2824, 3630
	P group: Safety Integrated	Unit group: 4_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min:	Max:	Default:
	- [m/min]	- [m/min]	- [m/min]

Description:	Displays the necessary setpoint speed limit as a result of the selected motion monitoring functions. Contrary to the parameterization of the SI limit values, this parameter specifies the actuator-side limit value and not the load-side limit value.
Recommendation:	For the ramp-function generator, by appropriately interconnecting the speed limits p1051 and p1052 with r9733[0, 1], a drive-based setpoint velocity limiting can be realized. - CI: p1051 = r9733[0] - CI: p1052 = r9733[1] Additional limiting can also be activated using connector input p1085 and p1088.
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative [2] = Setpoint limit absolute
Dependency:	For SLS: r9733[0] = p9531[x] x p9533 (converted from the load side to the actuator side) For SDI negative: r9733[0] = 0 For SLS: r9733[1] = - p9531[x] x p9533 (converted from the load side to the actuator side) For SDI positive: r9733[1] = 0 [x] = Selected SLS stage Conversion factor from the actuator side to the load side: - actuator = rotary and axis type = linear: p9522 / (p9521 x p9520) - otherwise: p9522 / p9521 See also: p9531, p9533

NOTICE

If p1051 = r9733[0] is interconnected, p1052 = r9733[1] must also be interconnected and vice versa.
If only the absolute value of the setpoint velocity limiting is required, r9733[2] must be interconnected.

Note

If the "SLS" or "SDI" function is not selected, r9733[0] shows p1082 and r9733[1] shows -p1082.
The display in r9733 can be delayed by up to one Safety monitoring clock cycle as compared to the display in r9719/r9720 and r9721/r9722.

r9733[0...2]	CO: SI Motion setpoint speed limit effective / SI Mtn setp_lim		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2820, 2824, 3630
	P group: Safety Integrated	Unit group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min: - [rpm]	Max: - [rpm]	Default: - [rpm]
Description:	Displays the necessary setpoint speed limit as a result of the selected motion monitoring functions. Contrary to the parameterization of the SI limit values, this parameter specifies the motor-side limit value and not the load-side limit value.		
Recommendation:	For the ramp-function generator, by appropriately interconnecting the speed limits p1051 and p1052 with r9733[0, 1], a drive-based setpoint velocity limiting can be realized. - CI: p1051 = r9733[0] - CI: p1052 = r9733[1] Additional limiting can also be activated using connector input p1085 and p1088.		
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative [2] = Setpoint limit absolute		

Dependency: For SLS: $r9733[0] = p9531[x] \times p9533$ (converted from the load side to the motor side)
 For SDI negative: $r9733[0] = 0$
 For SLS: $r9733[1] = -p9531[x] \times p9533$ (converted from the load side to the motor side)
 For SDI positive: $r9733[1] = 0$
 [x] = Selected SLS stage
 Conversion factor from the motor side to the load side:
 - motor type = rotary and axis type = linear: $p9522 / (p9521 \times p9520)$
 - otherwise: $p9522 / p9521$
 See also: p9531, p9533

NOTICE
 If $p1051 = r9733[0]$ is interconnected, $p1052 = r9733[1]$ must also be interconnected and vice versa.
 If only the absolute value of the setpoint velocity limiting is required, $r9733[2]$ must be interconnected.

Note
 The unit changeover between linear and rotary axis is not implemented via the safety changeover (p9502) but by the linear motor changeover.
 If the "SLS" or "SDI" function is not selected, $r9733[0]$ shows p1082 and $r9733[1]$ shows -p1082.
 The display in $r9733$ can be delayed by up to one Safety monitoring clock cycle as compared to the display in $r9719/r9720$ and $r9721/r9722$.

r9734.0...15

HLA_828,
 SERVO_828,
 SERVO_COMBI

CO/BO: SI Safety Info Channel status word S_ZSW1B / SIC S_ZSW1B

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Display and BICO output for status word S_ZSW1B of the safety information channel.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO active	Yes	No	-
	01	SS1 active	Yes	No	-
	02	SS2 active	Yes	No	-
	03	SOS active	Yes	No	-
	04	SLS active	Yes	No	-
	05	SOS selected	Yes	No	-
	06	SLS selected	Yes	No	-
	07	Internal event	Yes	No	-
	09	Select SLS bit0	Yes	No	-
	10	Select SLS bit1	Yes	No	-
	12	SDI positive selected	Yes	No	-
	13	SDI neg selected	Yes	No	-
	14	ESR retract requested	Yes	No	-
	15	Safety message present	Yes	No	-

Note
 SIC: Safety Info Channel
 For bit 07:
 An internal event is displayed if a STOP A ... F is active.

p9740	SI Motion user agreement selection/de-selection MM / SI mtn UserAgr MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 00AC hex	Default: 0000 hex
Description:	Setting to select and de-select the user agreement on the Motor Module/Hydraulic Module.		
Value:	0: [00 hex] De-select user agreement		
	172: [AC hex] Select user agreement		
Dependency:	See also: r9741		

r9741	SI Motion user agreement inside the drive MM / SI Mtn UserAgr int		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2822
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the internal state of the user agreement. Value = 0: User agreement is not set. Value = AC hex: User agreement is set.		
Dependency:	See also: p9740		

r9743.4...15	CO/BO: SI Safety Info Channel status word S_ZSW2B / SIC S_ZSW2B		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Display and BICO output for status word S_ZSW2B of the safety information channel.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	SLP selected position area	SLP2	SLP1	-
	07	SLP selected and user agreement set	Yes	No	-
	08	SDI positive selected	Yes	No	-
	09	SDI neg selected	Yes	No	-
	12	Test stop active	Yes	No	-
	13	Test stop required	Yes	No	-
	14	Reference position required	Yes	no	-
	15	Reference trigger command identified or reference position valid	Yes	no	-

Note

SIC: Safety Info Channel

r9744	SI message buffer changes, counter / SI msg_buffer chng		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the changes of the safety message buffer. This counter is incremented every time that the safety message buffer changes.		
Recommendation:	This is used to check whether the safety message buffer has been read out consistently.		
Dependency:	See also: r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756		

r9745[0...63]	SI components / SI comp		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the component of the safety message that has occurred.		
	Note Value = 0: Assignment to a component not possible.		

r9747[0...63]	SI message code / SI msg_code		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the numbers of safety messages that have occurred.		
Dependency:	See also: r9744, r9748, r9749, p9752, r9753, r9754, r9755, r9756		
	Note The messages type "safety message" (Cxxxx) are entered in the message fault buffer. Message buffer structure (principle): r9747[0], r9748[0], r9749[0], r9753[0], r9754[0], r9755[0], r9756[0] --> Actual message case, safety message 1 ... r9747[7], r9748[7], r9749[7], r9753[7], r9754[7], r9755[7], r9756[7] --> Actual message case, safety message 8 r9747[8], r9748[8], r9749[8], r9753[8], r9754[8], r9755[8], r9756[8] --> 1st acknowledged message case, safety message 1 ... r9747[15], r9748[15], r9749[15], r9753[15], r9754[15], r9755[15], r9756[15] --> 1st acknowledged message case, safety message 8 ... r9747[56], r9748[56], r9749[56], r9753[56], r9754[56], r9755[56], r9756[56] --> 7th acknowledged message case, safety message 1 ... r9747[63], r9748[63], r9749[63], r9753[63], r9754[63], r9755[63], r9756[63] --> 7th acknowledged message case, safety message 8		

r9748[0...63]	SI message time received in milliseconds / SI t_msg rcv ms		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [ms]	Max: - [ms]	Default: - [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message occurred.		
Dependency:	See also: r9744, r9747, r9749, p9752, r9753, r9754, r9755, r9756		

r9749[0...63]	SI message value / SI msg_value		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Function plan: -
	P group: Messages	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the additional information about the safety message that occurred (as integer number).		
Dependency:	See also: r9744, r9747, r9748, p9752, r9753, r9754, r9755, r9756		

r9750[0...63]	SI diagnostic attributes / SI diag_attr				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: Messages	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Displays the diagnostic attributes of the safety messages that have occurred.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Hardware replacement recommended	Yes	No	-
	15	Message has gone	Yes	No	-
	16	PROFIdrive fault class bit 0	High	Low	-
	17	PROFIdrive fault class bit 1	High	Low	-
	18	PROFIdrive fault class bit 2	High	Low	-
	19	PROFIdrive fault class bit 3	High	Low	-
	20	PROFIdrive fault class bit 4	High	Low	-

Note

The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
 The structure of the SI message buffer and the assignment of the indices is shown in r9747.

For bits 20 ... 16:

- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned
- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error
- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault
- Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components
- Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error
- Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence
- Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general
- Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 20: auxiliary unit faulted

p9752

HLA_828,
 SERVO_828,
 SERVO_COMBI

SI message cases counter / SI msg_cases count

Changeable: T, U	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 65535	Default: 0

Description: Number of safety messages that have occurred since the last reset.
Dependency: The safety message buffer is cleared by resetting the parameter to 0.
 See also: r9744, r9747, r9748, r9749, r9753, r9754, r9755, r9756

Note

The parameter is reset to 0 at POWER ON.

r9753[0...63]

HLA_828,
 SERVO_828,
 SERVO_COMBI

SI message value for float values / SI msg_val float

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Messages	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: -

Description: Displays additional information about the safety message that has occurred for float values.
Dependency: See also: r9744, r9747, r9748, r9749, p9752, r9754, r9755, r9756

r9754[0...63]	SI message time received in days / SI t_msg rcv days		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the relative system runtime in days when the safety message occurred.		
Dependency:	See also: r9744, r9747, r9748, r9749, p9752, r9753, r9755, r9756		
r9755[0...63]	SI message time removed in milliseconds / SI t_msg rem ms		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned32 P group: Messages Not for motor type: - Min: - [ms]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: - [ms]	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: - [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message was removed.		
Dependency:	See also: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9756		
r9756[0...63]	SI message time removed in days / SI t_msg rem days		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: - Data type: Unsigned16 P group: Messages Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the relative system runtime in days when the safety message was removed.		
Dependency:	See also: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755		
p9761	SI password input / SI password inp		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C1, T Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: 0000 hex	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: FFFF FFFF hex	Access level: 3 Function plan: 2800 Unit selection: - Expert list: 1 Default: 0000 hex
Description:	Enters the Safety Integrated password.		
Dependency:	See also: 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**
 HLA_828, **Changeable:** C2(95) **Calculation:** - **Access level:** 3
 SERVO_828, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** 2800
 SERVO_COMBI **P group:** Safety Integrated **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0000 hex FFFF FFFF hex 0000 hex

Description: Enters a new Safety Integrated password.

Dependency: A change made to the Safety Integrated password must be acknowledged in the following parameter:
 See also: p9763

p9763 **SI password acknowledgment / SI ackn password**
 HLA_828, **Changeable:** C2(95) **Calculation:** - **Access level:** 3
 SERVO_828, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** 2800
 SERVO_COMBI **P group:** Safety Integrated **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 0000 hex FFFF FFFF hex 0000 hex

Description: Acknowledges the new Safety Integrated password.

Dependency: See also: 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.

r9765 **SI Motion forced check procedure remaining time (Control Unit) / SI Mtn dyn remain**
 HLA_828, **Changeable:** - **Calculation:** - **Access level:** 3
 SERVO_828, **Data type:** FloatingPoint32 **Dynamic index:** - **Function plan:** -
 SERVO_COMBI **P group:** Safety Integrated **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - [h] - [h] - [h]

Description: Displays the time remaining until the next dynamization and testing of the safety motion monitoring functions integrated in the drives.
 The signal source to initiate the forced checking procedure is parameterized in p9705.

Dependency: See also: p9705
 See also: C01798

r9768[0...7] **SI PROFIsafe receive control words (Control Unit) / SI Ps PZD recv CU**
 HLA_828, **Changeable:** - **Calculation:** - **Access level:** 3
 SERVO_828, **Data type:** Unsigned16 **Dynamic index:** - **Function plan:** -
 SERVO_COMBI **P group:** Safety Integrated **Unit group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1
 Min: **Max:** **Default:**
 - - -

Description: Displays the received PROFIsafe telegram on the Control Unit.

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: See also: r9769

Note

The PROFIsafe trailer at the end of the telegram is also displayed (2 words).

r9769[0...7]**SI PROFIsafe send status words (Control Unit) / SI Ps PZD send CU**

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the PROFIsafe telegram to be sent on the Control Unit.

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:

See also: 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 (Control Unit) / SI version Drv CU**

HLA_828,
 SERVO_828,
 SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Function plan:** 2802**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the Safety Integrated version for the drive-integrated safety functions on the Control Unit.

Index:

[0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)
 [3] = Safety Version (hotfix)

Dependency:

See also: r9870, r9890

Note

Example:

r9770[0] = 2, r9770[1] = 60, r9770[2] = 1, r9770[3] = 0 --> Safety version V02.60.01.00

r9771	SI common functions (Control Unit) / SI common fct CU		
HLA_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2804
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the supported Safety Integrated monitoring functions supported on both monitoring channels. The Control Unit determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	Extended Functions PROFIsafe supported	Yes	No	-
	05	Extended Functions integrated in drive supported (p9601.2 = Yes 1)		No	-
	06	Basic Functions PROFIsafe supported	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-
	13	ESR delay of the pulse suppression	Yes	No	-
	15	SLS limit SP supported via PROFIsafe	Yes	No	-
	16	Safety functions without selection, SLP, SS1E supported	Yes	No	-
	17	Safe gearbox stage switchover ref supported via SCC	Yes	No	-

Dependency: See also: r9871

Note

CU: Control Unit
 ESR: Extended Stop and Retract
 SDI: Safe Direction (safe motion direction)
 SI: Safety Integrated
 SLP: Safely-Limited Position
 SP: Safe Position
 SS1: Safe Stop 1
 SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)
 SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx
 STO: Safe Torque Off / SH: Safe standstill
 For bit 16:
 SS1E is supported for Safety Extended Functions.
 SCC: Safety Control Channel.

r9771	SI common functions (Control Unit) / SI common fct CU		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2804
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the supported Safety Integrated monitoring functions supported on both monitoring channels. The Control Unit determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
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00	STO supported via terminals	Yes	No	2804
01	SBC supported	Yes	No	2804
02	Extended Functions supported (p9501 > 0)	Yes	No	2804
03	SS1 supported	Yes	No	2804
04	Extended Functions PROFIsafe supported	Yes	No	-
05	Extended Functions integrated in drive supported (p9601.2 = Yes 1)	Yes	No	-
06	Basic Functions PROFIsafe supported	Yes	No	-
07	Extended Functions encoderless supported	Yes	No	-
08	Safe Brake Adapter supported	Yes	No	-
09	Basic Functions PROFIsafe for parallel connection supported	Yes	No	-
10	Extended Functions integrated in drive for parallel connection	Yes	No	-
11	Extended Functions SDI supported	Yes	No	-
12	Extended Functions SSM encoderless supported	Yes	No	-
13	ESR delay of the pulse suppression	Yes	No	-
14	SBC for parallel connection supported	Yes	No	-
15	SLS limit SP supported via PROFIsafe	Yes	No	-
16	Safety functions without selection, SLP, SS1E supported	Yes	No	-
17	Safe gearbox stage switchover ref supported via SCC	Yes	No	-

Dependency:

See also: r9871

Note

CU: Control Unit

ESR: Extended Stop and Retract

SBC: Safe Brake Control

SDI: Safe Direction (safe motion direction)

SI: Safety Integrated

SLP: Safely-Limited Position

SP: Safe Position

SS1: Safe Stop 1

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

STO: Safe Torque Off / SH: Safe standstill

SCC: Safety Control Channel

For bit 16:

SS1E is supported for Safety Extended Functions.

r9772.0...23**CO/BO: SI status (Control Unit) / SI status CU**

HLA_828

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Function plan:** 2804**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the Safety Integrated status on the Control Unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO or safe power inhibit on CU selected	Yes	No	2810
01	STO or safe power inhibit on CU active	Yes	No	2810
02	SS1 delay time active on the Control Unit	Yes	No	2810
05	SS1 selected on the Control Unit (Basic Functions)	Yes	No	-
06	SS1 active on the Control Unit (Basic Functions)	Yes	No	-

07	STO terminal state on the Control Unit (Basic Functions)	High	Low	-
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	STO cause: Safety comm. mode	Yes	No	-
17	STO cause selection via terminal (Basic Functions)	Yes	No	-
18	STO cause selection via Safe Motion Monitoring (SMM)	Yes	No	-
19	STO cause actual value missing or safe power inhibit	Yes	No	-
20	STO cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-
21	STO cause selection on the other monitoring channel	Yes	No	-
22	SS1 cause selection terminal (Basic Functions)	Yes	No	-
23	SS1 cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-

Dependency: See also: r9872

Note

For bit 00:

When STO or "Safe power inhibit" is selected, the cause is displayed in bits 16 ... 21.

For bit 01:

- For p9772.1 = 1 and p9772.19 = 0, an STO from the Safety Basic functions is active.

- For p9772.1 = 1 and p9772.19 = 1, safe power inhibit is active, if safety functions without selection are activated via p9601.2/p9801.2 = 1 and p9601.5/p9801.5 = 1.

Note:

If p9601.0 = 1 and p9601.2 = 1 and p9801.5 = 1 then for bit 0 and 1, the STO function applies.

For bit 05:

When SS1 is selected, the cause is displayed in bits 22 and 23.

For bit 18:

When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).

For bit 19:

With SMM with encoder no actual value sensing is possible on account of parking.

For Safety functions without selection, safe power inhibit to selected (p9772.19 = 1).

SMM: Safe Motion Monitoring

For bit 22 and 23:

These bits show via which path the SS1 has been triggered, i.e. what has started the SS1 delay time.

If the SS1 delay time is not started (e.g. because an STO is triggered at the same time), neither of the two bits is set.

r9772.0...23

CO/BO: SI status (Control Unit) / SI status CU

SERVO_828,
SERVO_COMBI

Changeable: -

Calculation: -

Access level: 2

Data type: Unsigned32

Dynamic index: -

Function plan: 2804

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

-

-

-

Description:

Displays the Safety Integrated status on the Control Unit.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO or safe pulse cancellation on CU selected	Yes	No	2810
01	STO or safe pulse cancellation on CU active	Yes	No	2810
02	SS1 delay time active on the Control Unit	Yes	No	2810
04	SBC requested	Yes	No	2814
05	SS1 selected on the Control Unit (Basic Functions)	Yes	No	-
06	SS1 active on the Control Unit (Basic Functions)	Yes	No	-
07	STO terminal state on the Control Unit (Basic Functions)	High	Low	-
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	STO cause: Safety comm. mode	Yes	No	-
17	STO cause selection via terminal (Basic Functions)	Yes	No	-
18	STO cause selection via Safe Motion Monitoring (SMM)	Yes	No	-
19	STO cause actual value missing or safe pulse cancellation	Yes	No	-
20	STO cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-
21	STO cause selection on the other monitoring channel	Yes	No	-
22	SS1 cause selection terminal (Basic Functions)	Yes	No	-
23	SS1 cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-

Dependency:

See also: r9872

Note

For bit 00:

When STO or "Safe pulse cancellation" is selected, the cause is displayed in bits 16 ... 21.

For bit 01:

- For p9772.1 = 1 and p9772.19 = 0, an STO from the Safety Basic functions is active.

- For p9772.1 = 1 and p9772.19 = 1, safe pulse cancellation is active, if safety functions without selection are activated via p9601.2/p9801.2 = 1 and p9601.5/p9801.5 = 1.

Note:

If p9601.0 = 1 and p9601.2 = 1 and p9801.5 = 1 then for bit 0 and 1, the STO function applies.

For bit 05:

When SS1 is selected, the cause is displayed in bits 22 and 23.

For bit 18:

When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).

For bit 19:

With SMM encoderless no actual value sensing is possible on account of OFF2.

With SMM with encoder no actual value sensing is possible on account of parking.

For Safety functions without selection, safe pulse cancellation to selected (p9772.19 = 1).

SMM: Safe Motion Monitoring

For bit 22 and 23:

These bits show via which path the SS1 has been triggered, i.e. what has started the SS1 delay time.

If the SS1 delay time is not started (e.g. because an STO is triggered at the same time), neither of the two bits is set.

r9773.0...31**CO/BO: SI status (Control Unit + Hydraulic Module) / SI status CU+HM**

HLA_828

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Function plan:** 2804**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the Safety Integrated status on the drive (Control Unit + Hydraulic Module).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO selected in drive	Yes	No	2804
01	STO active in drive	Yes	No	2804
02	SS1 delay time active in the drive	Yes	No	2804
05	SS1 selected in the drive (Basic Functions)	Yes	No	-
06	SS1 active in the drive (Basic Functions)	Yes	No	-
31	Switch-off signal paths must be tested	Yes	No	2810

Note

This status is formed from the AND operation of the relevant status of the two monitoring channels.

r9773.0...31 **CO/BO: SI status (Control Unit + Motor Module) / SI status CU+MM**
SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 2
SERVO_COMBI **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** 2804
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the Safety Integrated status on the drive (Control Unit + Motor Module).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in drive	Yes	No	2804
	01	STO active in drive	Yes	No	2804
	02	SS1 delay time active in the drive	Yes	No	2804
	04	SBC requested	Yes	No	2804
	05	SS1 selected in the drive (Basic Functions)	Yes	No	-
	06	SS1 active in the drive (Basic Functions)	Yes	No	-
	31	Switch-off sigal paths must be tested	Yes	No	2810

Note

This status is formed from the AND operation of the relevant status of the two monitoring channels.

r9774.0...31 **CO/BO: SI status (group STO) / SI stat group STO**
HLA_828 **Changeable:** - **Calculation:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2804
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Displays the status for Safety Integrated of the group to which this drive belongs.
These signals are an AND logic operation of the individual status signals of the drives included in this group.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in group	Yes	No	2804
	01	STO active in group	Yes	No	2804
	02	SS1 delay time active in group	Yes	No	-
	05	SS1 selected in group (Basic Functions)	Yes	No	-
	06	SS1 active in group (Basic Functions)	Yes	No	-
	31	Switch-off sigal paths of the group must be tested	Yes	No	2804

Dependency: See also: p9620, r9773

NOTICE

If a drive belonging to a group is de-activated via p0105, then the signals in r9774 can no longer be correctly displayed (Remedy: Before de-activating, remove this drive from the group).

Note

A group is formed by appropriately grouping the terminals for the function "Safe Torque Off" (STO).
The status of a group of n drives is, for drives 1 to n - 1 displayed with a delay of one monitoring clock cycle; this is a system-related effect.

r9774.0...31	CO/BO: SI status (group STO) / SI stat group STO		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Function plan: 2804
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status for Safety Integrated of the group to which this drive belongs.
These signals are an AND logic operation of the individual status signals of the drives included in this group.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in group	Yes	No	2804
	01	STO active in group	Yes	No	2804
	02	SS1 delay time active in group	Yes	No	-
	04	SBC requested in group	Yes	No	2804
	05	SS1 selected in group (Basic Functions)	Yes	No	-
	06	SS1 active in group (Basic Functions)	Yes	No	-
	31	Switch-off signal paths of the group must be tested	Yes	No	2804

Dependency: See also: p9620, r9773

NOTICE
If a drive belonging to a group is de-activated via p0105, then the signals in r9774 can no longer be correctly displayed (Remedy: Before de-activating, remove this drive from the group).

Note

A group is formed by appropriately grouping the terminals for the function "Safe Torque Off" (STO).
The status of a group of n drives is, for drives 1 to n - 1 displayed with a delay of one monitoring clock cycle; this is a system-related effect.

r9776	SI diagnostics / SI diag		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: The parameter is used for diagnostics.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Safety parameter changed POWER ON required	Yes	No	-
	01	Safety functions enabled	Yes	No	-
	02	Safety component replaced and data save required	Yes	No	-
	03	Safety component replaced and acknowledge/save required	Yes	No	-

Dependency: See also: r9793

Note

For bit 00 = 1:
At least one Safety parameter has been changed that will only take effect after a POWER ON.
For bit 01 = 1:
Safety functions (basic functions or extended functions) have been enabled and are active.
For bit 02 = 1:
A safety-relevant component has been replaced. Data save required (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").
For bit 03 = 1:
A safety-relevant component has been replaced. Acknowledge (p9702 = 29) and save (p0977 = 1 or p0971 = 1 or "Copy RAM to ROM") required.

r9776	SI diagnostics / SI diag			
TM54F_MA	Changeable: -	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Function plan: -	
	P group: Safety Integrated	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	-	
Description:	The parameter is used for diagnostics.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Safety parameter changed POWER ON required	Yes	No
	01	Safety functions enabled	Yes	No
	02	Safety component replaced and data save required	Yes	No
Dependency:	See also: r9793			
	Note			
	For bit 00 = 1: At least one Safety parameter has been changed that will only take effect after a POWER ON.			
	For bit 01 = 1: Safety functions (basic functions or extended functions) have been enabled and are active.			
	For bit 02 = 1: A safety-relevant component has been replaced. Data save required (p0977 = 1 or p0971 = 1 or "copy RAM to ROM").			

r9780	SI monitoring clock cycle (Control Unit) / SI monitor_clck CU			
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2802	
	P group: Safety Integrated	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	- [ms]	- [ms]	- [ms]	
Description:	Displays the clock cycle time for the Safety Integrated Basic Functions on the Control Unit.			
Dependency:	See also: r0110, p0115, r9880			
	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			

r9781[0...1]	SI checksum to check changes (Control Unit) / SI chg chksm CU			
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Function plan: -	
	P group: Safety Integrated	Unit group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min:	Max:	Default:	
	-	-	-	
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:	See also: p9601, p9729, p9799 See also: F01690			

r9782[0...1]	SI time stamps to check changes (Control Unit) / SI chg t CU		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [h]	- [h]	- [h]
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:	See also: p9601, p9729, p9799 See also: F01690		

p9783	SI Motion act. value sensing sensorless synchr. motor I_inject / Actv sl sync I_inj		
SERVO_828, SERVO_COMBI	Changeable: T, U	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-50.00 [%]	0.00 [%]	-20.00 [%]
Description:	Sets the additional field-generating current for synchronous motors with sensorless actual value sensing. The set value is referred to p0305. This parameter ensures a "base load" for the motor. The value must fulfill the following condition: $ p0305 \times p9783 \geq p9588 \times 1.2$		
Dependency:	See also: p9588 See also: C01711		

NOTICE

Reducing this percentage value can adversely affect actual value sensing with synchronous motors.
If the value is increased, this results in an increased motor power loss.

Note

This parameter is only effective for encoderless actual value sensing (p9506/p9306 = 1, 3).
For p9783 = maximum value, current injection is deactivated.
Current injection is not effective in the U/f control mode.

r9784[0...1]	SI Motion diagnostics sensorless acceleration / Diag sl a		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [mm/s ²]	- [mm/s ²]	- [mm/s ²]
Description:	Display to diagnose acceleration values of the encoderless actual values sensing.		
Index:	[0] = Setpoint acceleration value [1] = Actual acceleration value		
Dependency:	See also: p9589		

Note

For index 0:
Shows the parameterized acceleration value of p9589.
For index 1:
Shows the actually measured acceleration values of the encoderless actual value sensing

r9784[0...1]

SI Motion diagnostics sensorless acceleration / Diag sl a

SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [rev/s ²]	Max: - [rev/s ²]	Default: - [rev/s ²]

Description: Display to diagnose acceleration values of the encoderless actual values sensing.
Index: [0] = Setpoint acceleration value
[1] = Actual acceleration value
Dependency: See also: p9589

Note

For index 0:
Shows the parameterized acceleration value of p9589.
For index 1:
Shows the actually measured acceleration values of the encoderless actual value sensing

r9785[0...1]

SI Motion diagnostics sensorless minimum current / Diag sl I_min

SERVO_828, SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: 6_3	Unit selection: p0505
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [mA]	Max: - [mA]	Default: - [mA]

Description: Display to diagnose currents of the encoderless actual value sensing.
Index: [0] = Minimum current parameterized
[1] = Minimum current measured
Dependency: See also: p9588

Note

For index 0:
Displays the parameterized minimum current of p9588.
For index 1:
Displays the currently measured current of the encoderless actual value sensing

r9786[0...2]

SI Motion diagnostics sensorless angle / Diag sl angle

SERVO_828, SERVO_COMBI

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: - [°]	Max: - [°]	Default: - [°]

Description: Display to diagnose the angle for sensorless actual value sensing.

Index: [0] = Plausibility angle actual value
 [1] = Voltage angle actual value
 [2] = Current angle actual value

Dependency: See also: p9585

Note

For index 0:
 Displays the actual plausibility angle.
 For index 1:
 Displays the actual voltage angle.
 For index 2:
 Displays the actual current angle.

r9787

SERVO_828,
 SERVO_COMBI

SI Motion diagnostics sensorless velocity deviation / Diag sl v_dev

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [mm/min]	- [mm/min]	- [mm/min]

Description: Displays the actual velocity deviation for sensorless actual value sensing.
 This value is calculated when setting p9585/p9385.

The actual velocity has a deviation of +/- r9787 for 6 ms * p9585/p9385 within a monitoring time of 1 s.

Dependency: See also: p9585

Note

For linear axes, the following unit applies: millimeters per minute
 For rotary axes, the following unit applies: revolutions per minute

r9787

SERVO_828 (Safety
 rot), SERVO_COMBI
 (Safety rot)

SI Motion diagnostics sensorless velocity deviation / Diag sl v_dev

Changeable: -	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual velocity deviation for sensorless actual value sensing.
 This value is calculated when setting p9585/p9385.

The actual velocity has a deviation of +/- r9787 for 6 ms * p9585/p9385 within a monitoring time of 1 s.

Dependency: See also: p9585

Note

For linear axes, the following unit applies: millimeters per minute
 For rotary axes, the following unit applies: revolutions per minute

r9793[0...9]

HLA_828,
 SERVO_828,
 SERVO_COMBI

SI diagnostics component replacement / Diag comp_replace

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the component number for the first 10 replaced safety-relevant components.
Dependency: See also: r9776

Note
 This parameter does not exist for a Control Unit and Terminal Module.

r9794[0...19] HLA_828, SERVO_828, SERVO_COMBI	SI crosswise comparison list (Control Unit) / SI CDC_list CU Changeable: - Data type: Unsigned16 P group: Safety Integrated Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2802 Unit selection: - Expert list: 1 Default: -
---	--	---	---

Description: Displays the number of the data that are being presently compared crosswise on the Control Unit. The content of the list of crosswise-compared data is dependent upon the particular application.
Dependency: See also: r9894

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 HLA_828, SERVO_828, SERVO_COMBI	SI diagnostics STOP F (Control Unit) / SI diag STOP F CU Changeable: - Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: 2802 Unit selection: - Expert list: 1 Default: -
---	--	---	---

Description: Displays the number of the cross-compared data which has caused STOP F on the Control Unit.
Dependency: See also: r9895
 See also: F01611

Note
 A complete list of numbers for crosswise-compared data items appears in fault F01611.

r9798 HLA_828, SERVO_828, SERVO_COMBI	SI actual checksum SI parameters (Control Unit) / SI act_checksum CU Changeable: - Data type: Unsigned32 P group: Safety Integrated Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 3 Function plan: 2800 Unit selection: - Expert list: 1 Default: -
---	--	---	---

Description: Displays the checksum over the checked Safety Integrated parameters on the Control Unit (actual checksum).
Dependency: See also: p9799, r9898

p9799	SI reference checksum SI parameters (Control Unit) / SI set_checksum CU				
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: 2800		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex		
Description:	Sets the checksum for the checked Safety Integrated parameters on the Control Unit (reference checksum).				
Dependency:	See also: r9798, p9899				
p9801	SI enable functions integrated in the drive (Motor Module) / SI enable fct MM				
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Function plan: -		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: 0000 0000 bin		
Description:	Sets the enable signals for the safety functions integrated in the drive and the type of selection on the Hydraulic Module. The following settings are permitted: 0000 hex: Safety functions integrated in the drive inhibited (no safety function). 0001 hex: Basic functions are enabled via onboard terminals (permissible for r9871.0 = 1). 0004 hex: Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1). 0005 hex: Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1). 0008 hex: Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1). 0009 hex: Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1). 000C hex: Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1). 000D hex: Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1). 0024 hex: Extended functions without selection are enabled (permissible for r9871.16 = 1). 0025 hex: Extended functions without selection and basic functions via onboard terminals are enabled (permissible for r9871.16 = 1).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO (SH) via terminals (MM) enable	Enable	Inhibit	2810
	02	Enable motion monitoring functions integrated in drive (MM)	Enable	Inhibit	-
	03	Enable PROFIsafe (MM)	Enable	Inhibit	-
	05	Enab motion monit functions integr in drive w/out selection (MM)	Enable	Inhibit	-
	06	Basic functions via TM54F	Enable	Inhibit	-
Dependency:	See also: p9601, r9871				

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

A change always becomes effective only after a POWER ON. Exception: Changes to p9801.0 become effective immediately.

SI: Safety Integrated

SMM: Safe Motion Monitoring

STO: Safe Torque Off / SH: Safe standstill

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

p9801

SERVO_828,
SERVO_COMBI

SI enable functions integrated in the drive (Motor Module) / SI enable fct MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: -	Max: -	Default: 0000 0000 bin

Description:

Sets the enable signals for the safety functions integrated in the drive and the type of selection on the Motor Module. Not all of the settings listed below will be permissible, depending on the Control Unit and Motor Module or 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 r9871.0 = 1).

0004 hex:

Extended functions via Terminal Module 54F (TM54F) have been enabled (permissible for r9871.5 = 1).

0005 hex:

Extended functions via Terminal Module 54F (TM54F) and the basic functions via onboard terminals have been enabled (permissible for r9871.5 = 1).

0008 hex:

Basic functions are enabled via PROFIsafe (permissible for r9871.6 = 1).

0009 hex:

Basic functions are enabled via PROFIsafe onboard terminals (permissible for r9871.6 = 1).

000C hex:

Extended functions are enabled via PROFIsafe (permissible for r9871.4 = 1).

000D hex:

Extended functions are enabled via PROFIsafe and basic functions via onboard terminals (permissible for r9871.4 = 1).

0024 hex:

Extended functions without selection are enabled (permissible for r9871.16 = 1).

0025 hex:

Extended functions without selection and basic functions via onboard terminals are enabled (permissible for r9871.16 = 1).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO (SH) via terminals (MM) enable	Enable	Inhibit	2810
02	Enable motion monitoring functions integrated in drive (MM)	Enable	Inhibit	-
03	Enable PROFIsafe (MM)	Enable	Inhibit	-
05	Enab motion monit functions integr in drive w/out selection (MM)	Enable	Inhibit	-
06	Basic functions via TM54F	Enable	Inhibit	-

Dependency:

See also: p9601, r9871

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

A change always becomes effective only after a POWER ON. Exception: Changes to p9801.0 become effective immediately.

MM: Motor Module

SI: Safety Integrated

SMM: Safe Motion Monitoring

STO: Safe Torque Off / SH: Safe standstill

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

F-DI: Failsafe Digital Input

F-DO: Failsafe Digital Output

p9802

SERVO_828,
SERVO_COMBI

SI enable Safe Brake Control (Motor Module) / SI enable SBC MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Integer32

Dynamic index: -

Function plan: 2814

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

1

0

Description:

Sets the enable signal for the "Safe Brake Control" function (SBC) on the Motor Module.

0: Inhibit SBC

1: Enable SBC

Dependency:

See also: p9602

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9801 not equal to 0).

It does not make sense to parameterize "no motor holding brake available" and enable "Safe Brake Control" (p1215 = 0, p9602 = p9802 = 1) if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).

MM: Motor Module

SBC: Safe Brake Control

SI: Safety Integrated

p9810

HLA_828,
SERVO_828,
SERVO_COMBI

SI PROFIsafe address (Motor Module) / SI PROFIsafe MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0000 hex

FFFE hex

0000 hex

Description:

Sets the PROFIsafe address of the Motor Module/Hydraulic module.

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9811	SI PROFIsafe telegram selection (Motor Module) / SI Ps telegram MM		
SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	998	998

Description: Sets the PROFIsafe telegram number for the Motor Module/Hydraulic Module.

Value:

- 0: No PROFIsafe telegram selected
- 30: PROFIsafe standard telegram 30, PZD-1/1
- 31: PROFIsafe standard telegram 31, PZD-2/2
- 900: PROFIsafe SIEMENS telegram 900, PZD-2/2
- 901: PROFIsafe SIEMENS telegram 901, PZD-3/5
- 902: PROFIsafe SIEMENS telegram 902, PZD-3/6
- 998: Compatibility mode (as for firmware version < 4.5)

Dependency: See also: p9611, p60022

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

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

p9821	BI: SI Safe Brake Adapter signal source (Motor Module) / SI SBA S_src MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2814
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for Safe Brake Adapter (SBA).
 This defines via which digital input the Safe Brake Adapter feedback signal is read-in (SBA_DIAG).
 p9621/p9821 = 0:
 There is no Safe Brake Control (SBC) with Safe Brake Adapter (SBA) available.
 p9621/p9821 = r0722.x (x = 0, 1 ... 7)
 Safe Brake Adapter and Booksize unit (no Communication Interface Module (CIM)).
 p9621/p9821 = r9872.3
 Safe Brake Adapter and Chassis unit (CIM).

Dependency: See also: p9601, p9602, p9621

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

No difference is tolerated for a crosswise data comparison between p9621 and p9821.
 To use the "Safe Brake Adapter" function the following must apply:
 p9601 = p9801 <> 0 and p9602 = p9802 = 1

p9822[0...1]	SI SBA relay delay times (Motor Module) / SI SBA relay t MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2814
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 1000000.00 [µs]	Default: [0] 100000.00 [µs] [1] 65000.00 [µs]

Description: Sets the delay times for activating and de-activating the Safe Brake Adapter relay.
The relay-specific minimum delay times for evaluating the feedback signal contacts have to be set. They differ for the activation and de-activation of one and the same relay.

Index:
[0] = Wait time activation
[1] = Wait time deactivation

Dependency: See also: p9622

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

For index 0:

Wait time switch on = drop-out time + bounce time NO contact + effect of the free-wheeling diode in the Safe Brake Adapter

For index 1:

Wait time switch off = response time + bounce time NC contact + effect of the free-wheeling diode in the Safe Brake Adapter

p9825[0...1]	SI HLA shutoff valve wait time (MM) / Shutoff valve t MM		
HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [µs]	Max: 2000000.00 [µs]	Default: [0] 250000.00 [µs] [1] 250000.00 [µs]

Description: Sets the delay time for switching on and switching off the shutoff valve.
The valve-specific minimum delay times for evaluating the feedback signal contacts have to be set.

Index:
[0] = Activating
[1] = De-activating

Dependency: See also: p9625

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

MM: Motor Module

p9826 SI HLA shutoff valve feedback signal contact configuration (MM) / FS config MM

HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	5	0

Description: Sets the feedback signal contacts of the shutoff valve to be monitored.
The sensors for the feedback signal of the shutoff valves are connected via X281/X282.

Value:

0:	NC contact/NO contact (NC/NO)
1:	NC contact/NC contact (NC/NC)
2:	NO contact/NO contact (NO/NO)
4:	NC contact (NC)
5:	NO contact (NO)

Dependency: See also: p9626

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
MM: Motor Module
NC: Normally Closed contact
NO: Normally Open contact

p9850 SI SGE changeover discrepancy time (Motor Module) / SI SGE chg t MM

HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2810
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [µs]	2000000.00 [µs]	500000.00 [µs]

Description: Sets the discrepancy time to change over the safety-related inputs (SGE) on the Motor Module/Hydraulic Module.
An SGE changeover is not effective simultaneously due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a crosswise data comparison during this discrepancy time.

Dependency: See also: p9650

NOTICE
This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note
For a crosswise data comparison between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.
Rounding effects can occur in the last decimal place of the parameterized time.
The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.
SGE: Safety-related input (e.g. STO terminals)

p9851 SI STO/SS1 debounce time (Motor Module) / SI STO t_debou MM

HLA_828	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [µs]	100000.00 [µs]	0.00 [µs]

Description: Sets the debounce time for the STO terminal of the Hydraulic Module.

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

Rounding effects can occur in the last decimal place of the parameterized time.

The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe 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.

p9851

SERVO_828,
SERVO_COMBI

SI STO/SBC/SS1 debounce time (Motor Module) / SI STO t_debou MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [µs]

100000.00 [µs]

0.00 [µs]

Description:

Sets the debounce time for the EP terminal of the Motor Module.

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

Rounding effects can occur in the last decimal place of the parameterized time.

The debounce time is rounded to whole milliseconds. It specifies the maximum duration of a fault pulse at the fail-safe 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.

p9852

HLA_828

SI Safe Stop 1 delay time (Motor Module) / SI Stop 1 t_del MM

Changeable: C2(95)

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0.00 [ms]

300000.00 [ms]

0.00 [ms]

Description:

Sets the delay time for STO for the function "Safe Stop 1" (SS1) on the Hydraulic Module to brake along the OFF3 down ramp (p1135).

Recommendation:

The delay time should be set as follows so that the drive can completely decelerate along the OFF3 ramp:

Delay time \geq p1135 + p1228

Dependency:

See also: p1135, p9652

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

For a crosswise data comparison between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.

Rounding effects can occur in the last decimal place of the parameterized time.

The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.

SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

p9852	SI Safe Stop 1 delay time (Motor Module) / SI Stop 1 t_del MM		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [ms]	300000.00 [ms]	0.00 [ms]
Description:	Sets the delay time of the pulse suppression for the function "Safe Stop 1" (SS1) on the Motor Module to brake along the OFF3 down ramp (p1135).		
Recommendation:	In order that the drive can completely ramp-down along the OFF3 ramp and a motor holding brake that is possibly available can close, then the delay time should be set as follows: Motor holding brake parameterized: delay time \geq p1135 + p1228 + p1217 Motor holding brake not parameterized: delay time \geq p1135 + p1228		
Dependency:	See also: p1135, p9652		
NOTICE			
This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note			
For a crosswise data comparison between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.			
Rounding effects can occur in the last decimal place of the parameterized time.			
The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.			
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)			

p9858	SI transition time STOP F to STOP A (Motor Module) / SI STOP F->A MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2802
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00 [μ s]	30000000.00 [μ s]	0.00 [μ s]
Description:	Sets the transition period from STOP F to STOP A on the Motor Module/Hydraulic Module.		
Dependency:	See also: p9658, r9895 See also: F30611		
NOTICE			
This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note			
For a crosswise data comparison between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated.			
Rounding effects can occur in the last decimal place of the parameterized time.			
The set time is rounded internally to an integer multiple of the monitoring clock (r9780/r9880) cycle.			
STOP F: Defect in a monitoring channel (error in the crosswise data comparison)			
STOP A: STO as a result of a fault detected by Safety Integrated			

r9870[0...3]	SI version drive-integrated safety function (Motor Module) / SI version MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2802
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the Safety Integrated version for the drive-integrated safety functions on the Motor Module/Hydraulic Module.		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch) [3] = Safety Version (hotfix)		
Dependency:	See also: r9770, r9890		
	Note		
	Example: r9870[0] = 2, r9870[1] = 60, r9870[2] = 1, r9870[3] = 0 --> Safety version V02.60.01.00		

r9871	SI common functions (Motor Module) / SI general fct MM				
HLA_828	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: 2804		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the supported Safety Integrated monitoring functions supported on both monitoring channels. The Motor Module/Hydraulic Module determines this display.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	Extended Functions PROFIsafe supported	Yes	No	-
	05	Extended Functions integrated in drive supported (p9601.2 = Yes 1)	Yes	No	-
	06	Basic Functions PROFIsafe supported	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-
	13	ESR delay of the pulse suppression	Yes	No	-
	15	SLS limit SP supported via PROFIsafe	Yes	No	-
	16	Safety functions without selection, SLP, SS1E supported	Yes	No	-
	17	Safe gearbox stage switchover ref supported via SCC	Yes	No	-
Dependency:	See also: r9771				

Note

ESR: Extended Stop and Retract
 SBC: Safe Brake Control
 SDI: Safe Direction (safe motion direction)
 SI: Safety Integrated
 SLP: Safely-Limited Position
 SP: Safe Position
 SS1: Safe Stop 1
 SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)
 SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx
 STO: Safe Torque Off / SH: Safe standstill
 For bit 16:
 SS1E is supported for Safety Extended Functions.
 SCC: Safety Control Channel.

r9871

SERVO_828,
 SERVO_COMBI

SI common functions (Motor Module) / SI general fct MM

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	Function plan: 2804
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the supported Safety Integrated monitoring functions supported on both monitoring channels. The Motor Module/Hydraulic Module determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	01	SBC supported	Yes	No	2804
	02	Extended Functions supported (p9501 > 0)	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	Extended Functions PROFIsafe supported	Yes	No	-
	05	Extended Functions integrated in drive supported (p9601.2 = Yes 1)	Yes	No	-
	06	Basic Functions PROFIsafe supported	Yes	No	-
	07	Extended Functions encoderless supported	Yes	No	-
	08	Safe Brake Adapter supported	Yes	No	-
	09	Basic Functions PROFIsafe for parallel connection supported	Yes	No	-
	10	Extended Functions integrated in drive for parallel connection	Yes	No	-
	11	Extended Functions SDI supported	Yes	No	-
	12	Extended Functions SSM encoderless supported	Yes	No	-
	13	ESR delay of the pulse suppression	Yes	No	-
	14	SBC for parallel connection supported	Yes	No	-
	15	SLS limit SP supported via PROFIsafe	Yes	No	-
	16	Safety functions without selection, SLP, SS1E supported	Yes	No	-
	17	Safe gearbox stage switchover ref supported via SCC	Yes	No	-

Dependency: See also: r9771

Note

ESR: Extended Stop and Retract

SBC: Safe Brake Control

SDI: Safe Direction (safe motion direction)

SI: Safety Integrated

SLP: Safely-Limited Position

SP: Safe Position

SS1: Safe Stop 1

SS1E: Safe Stop 1 external (Safe Stop 1 with external stop)

SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

STO: Safe Torque Off / SH: Safe standstill

For bit 16:

SS1E is supported for Safety Extended Functions.

SCC: Safety Control Channel.

r9872.0...26**CO/BO: SI status list (Motor Module) / SI status MM**

HLA_828

Changeable: -**Calculation:** -**Access level:** 2**Data type:** Unsigned32**Dynamic index:** -**Function plan:** 2804**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the Safety Integrated status on the Motor Module/Hydraulic Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO on Hydraulic Module selected	Yes	No	2810
01	STO on Hydraulic Module active	Yes	No	2810
02	SS1 delay time on Hydraulic Module active	Yes	No	2810
05	SS1 selected on the Hydraulic Module (Basic Functions)	Yes	No	-
06	SS1 active on the Hydraulic Module (Basic Functions)	Yes	No	-
07	STO terminal state on the Hydraulic Module (Basic Functions)High		Low	-
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	STO cause: Safety comm. mode	Yes	No	-
17	STO cause selection via terminal (Basic Functions)	Yes	No	-
18	STO cause: selection via SMM	Yes	No	-
20	STO cause selection PROFIsafe or TM54F (Basic Functions)Yes		No	-
21	STO cause selection on the other monitoring channel	Yes	No	-
22	SS1 cause selection terminal (Basic Functions)	Yes	No	-
23	SS1 cause selection PROFIsafe or TM54F (Basic Functions)Yes		No	-
25	Shutoff valve feedback signal contact DI0	High	Low	-
26	Shutoff valve feedback signal contact DI1	High	Low	-

Dependency:

See also: r9772

NOTICE

If communication between both monitoring channels is interrupted (e.g. by switching off the power unit), this display parameter is no longer updated. The last transferred status of the Motor Module/Hydraulic Module is displayed.

Note

For bit 00:
When STO is selected, the cause is displayed in bits 16 ... 21.

For bit 05:
When SS1 is selected, the cause is displayed in bits 22 and 23.

For bit 18:
When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).
SMM: Safe Motion Monitoring

For bit 22, 23:
These bits show via which path the SS1 was triggered, i.e. what has started the SS1 delay time.
If the SS1 delay time is not started (e.g. because an STO is triggered at the same time), neither of the two bits is set.

For bit 25, 26:
DI 0 (X281.3/X282.3, axis 1/2)
DI 1 (X281.2/X282.2, axis 1/2)

r9872.0...24

CO/BO: SI status list (Motor Module) / SI status MM

SERVO_828,
SERVO_COMBI

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	Function plan: 2804
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description:

Displays the Safety Integrated status on the Motor Module/Hydraulic Module.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	STO on Motor Module selected	Yes	No	2810
01	STO on Motor Module active	Yes	No	2810
02	SS1 delay time on Motor Module active	Yes	No	2810
03	Safe Brake Adapter feedback signal	Yes	No	2814
04	SBC requested	Yes	No	2814
05	SS1 selected on the Motor Module (Basic Functions)	Yes	No	-
06	SS1 active on the Motor Module (Basic Functions)	Yes	No	-
07	STO terminal state on the Motor Module (Basic Functions)	High	Low	-
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	STO cause: Safety comm. mode	Yes	No	-
17	STO cause selection via terminal (Basic Functions)	Yes	No	-
18	STO cause: selection via SMM	Yes	No	-
20	STO cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-
21	STO cause selection on the other monitoring channel	Yes	No	-
22	SS1 cause selection terminal (Basic Functions)	Yes	No	-
23	SS1 cause selection PROFIsafe or TM54F (Basic Functions)	Yes	No	-
24	Slave Motor Module ready for communication	Yes	No	-

Dependency:

See also: r9772

NOTICE

If communication between both monitoring channels is interrupted (e.g. by switching off the power unit), this display parameter is no longer updated. The last transferred status of the Motor Module/Hydraulic Module is displayed.

Note

For bit 00:
When STO is selected, the cause is displayed in bits 16 ... 21.

For bit 05:
When SS1 is selected, the cause is displayed in bits 22 and 23.

For bit 18:
When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).
SMM: Safe Motion Monitoring

For bit 22, 23:
These bits show via which path the SS1 was triggered, i.e. what has started the SS1 delay time.
If the SS1 delay time is not started (e.g. because an STO is triggered at the same time), neither of the two bits is set.

For bit 24:
Only for parallel connection and active motion monitoring functions: Slave Motor Module ready for communication

r9880**SI monitoring clock cycle (Motor Module) / SI monitor_clk MM**

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**Function plan:** 2802**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

- [ms]

- [ms]

- [ms]

Description:

Displays the clock cycle time for the Safety Integrated Basic Functions on the Motor Module/Hydraulic Module.

Dependency:

See also: r0110, p0115, r9780

Note

Information about the interrelationship between the monitoring clock cycle and the response times can be taken from the technical documentation on the particular product.

r9881[0...11]**SI Motion Sensor Module Node Identifier second channel / SI Mtn SM Ident**

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned8**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the Node Identifier of the Sensor Module that the second channel uses for the motion monitoring functions.

r9890[0...2]**SI version (Sensor Module) / SI version SM**

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: -**Calculation:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Function plan:** -**P group:** Safety Integrated**Unit group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min:****Max:****Default:**

-

-

-

Description:

Displays the Safety Integrated version on the Sensor Module.

Index:

[0] = Safety Version (major release)

[1] = Safety Version (minor release)

[2] = Safety Version (baselevel or patch)

Dependency:

See also: r9770, r9870

Note

Example:

r9890[0] = 2, r9890[1] = 3, r9890[2] = 1 --> Safety-Version V02.03.01

r9894[0...19]

HLA_828,
SERVO_828,
SERVO_COMBI

SI crosswise comparison list (Motor Module) / SI CDC_list MM

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: 2802
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the number of the data that are being presently compared crosswise on the Motor Module/Hydraulic Module. The content of the list of crosswise-compared data is dependent upon the particular application.

Dependency: See also: r9794

Note

Example:

r9894[0] = 1 (monitoring clock cycle)
r9894[1] = 2 (enable safety functions)
r9894[2] = 3 (F-DI changeover, tolerance time)
...

The complete list of numbers for crosswise data comparison is listed in Fault F30611.

r9895

HLA_828,
SERVO_828,
SERVO_COMBI

SI diagnostics STOP F (Motor Module) / SI diag STOP F MM

Changeable: -	Calculation: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	Function plan: 2802
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
-	-	-

Description: Displays the number of the cross-compared data, which has caused STOP F on the Motor Module/Hydraulic Module.

Dependency: See also: r9795
See also: F30611

Note

The complete list of numbers for crosswise data comparison is listed in Fault F30611.

p9897

HLA_828,
SERVO_828,
SERVO_COMBI

SI Motion bus failure STO delay time (MM) / SI Mtn IL t_del MM

Changeable: C2(95)	Calculation: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	Function plan: -
P group: Safety Integrated	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min:	Max:	Default:
0.00 [µs]	800000.00 [µs]	0.00 [µs]

Description: Sets the delay time for STO after bus failure on the Motor Module/Hydraulic Module (e.g. used for ESR).

NOTICE

This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note

Rounding effects can occur in the last decimal place of the parameterized time. The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

ESR: Extended Stop and Retract

STO: Safe Torque Off / SH: Safe standstill

r9898	SI actual checksum SI parameters (Motor Module) / SI act_checksum MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2800
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-
Description:	Displays the checksum for the checked Safety Integrated parameters on the Motor Module/Hydraulic Module (actual checksum).		
Dependency:	See also: r9798, p9899		

p9899	SI reference checksum SI parameters (Motor Module) / SI set_checksum MM		
HLA_828, SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2800
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Sets the checksum for the checked Safety Integrated parameters on the Motor Module/Hydraulic Module (reference checksum).		
Dependency:	See also: p9799, r9898		

r9900	Actual topology number of indices / Act topo indices		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-
Description:	Displays the number of indices of the actual topology.		
Dependency:	See also: r9901		

Note

Only for internal Siemens use.

The parameter is not displayed for the STARTER commissioning software.

r9901[0...n]	Actual topology / Act topo		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: r9900	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min:	Max:	Default:
	-	-	-

Description: Displays the actual topology of the drive unit.
 The actual topology is sub-divided into several sections. Each of the following data is saved under an index.
 General data on the topology:
 - version
 - attribute to compare the actual topology and target topology
 - number of components
 Data on a component:
 - type component of the node ID of the component
 - number of DRIVE-CLiQ sockets in the Node Identifier
 - manufacturer and version of the Node Identifier
 - serial number of the Node Identifier (4 indices)
 - index of the component
 - order number (8 indices)
 - attribute to compare the actual topology and target topology of the component
 - communications address
 - number of port types
 - port type
 - number of ports of the port type
 - communications address of the associated/linked component
 - number of the associated/linked port
 - communications address of the associated/linked component
 - number of the associated port, etc.
 Data on the next component:
 - etc.

Dependency: See also: r9900

Note

Only for internal Siemens use.
 The parameter is not displayed for the STARTER commissioning software.

p9902

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Target topology number of indices / TargetTopo indices

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	Function plan: -
P group: Topology	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min: 1	Max: 65535	Default: 1

Description: Sets the number of target topology indices.

Dependency: See also: p9903

Note

Only for internal Siemens use.
 The parameter is not displayed for the STARTER commissioning software.

p9903[0...n]

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Target topology / Target topo

Changeable: -	Calculation: -	Access level: 3
Data type: Unsigned16	Dynamic index: p9902	Function plan: -
P group: Topology	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 0
Min: 0000 hex	Max: FFFF hex	Default: 0000 hex

Description:	<p>Sets the target topology of the drive unit.</p> <p>The target topology is sub-divided into several sections. Each of the following data is saved under an index.</p> <p>General data on the topology:</p> <ul style="list-style-type: none"> - version - attribute to compare the actual topology and target topology - number of components <p>Data on a component:</p> <ul style="list-style-type: none"> - type component of the Node Identifier of the component - number of DRIVE-CLiQ sockets in the Node Identifier - manufacturer and version of the Node Identifier - serial number of the Node Identifier (4 indices) - index of the component - order number (8 indices) - attribute to compare the actual topology and target topology of the component - component number - number of port types - port type - number of ports of the port type - component number of the associated/linked component - number of the associated/linked port - component number of the associated/linked component - number of the associated port, etc. <p>Data on the next component:</p> <ul style="list-style-type: none"> - etc.
Dependency:	See also: p9902

Note

The target topology can only be modified using the commissioning software.
The parameter is not displayed for the STARTER commissioning software.
Changes only become effective when the state of p0009 = 101 changes to 0 or 111.

p9904	Topology comparison acknowledge differences / Topo_compare ackn		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex

Description: If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.

Differences that can be acknowledged:

- topology comparison, component shifted
- topology comparison, serial number of a component has been detected to be different (byte 3 = 1)
- topology comparison shows one component that is connected differently

The following parameter values are available:

p9904 = 1 --> the procedure is started.

p9904 = 0 after starting --> the procedure has been successfully completed.

p9904 = 1 after starting --> the procedure has not been successfully completed.

The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.

Byte 2:
Number of structural differences.

Byte 3:
Number of differences that can be acknowledged (p9904).

Byte 4:
Number of differences. These differences can be resolved as follows:

- sets the topology comparison (p9906 or p9907/p9908).
- change over the actual topology.

The appropriate action should be selected corresponding to the message that is displayed/output.

Note

In order to permanently accept the acknowledgment of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).

p9905

CU_I_828,
CU_I_COMBI,
CU_NX_828

Device specialization / Specialization

Changeable: C1(1)
Data type: Unsigned16
P group: Topology
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
2

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
0

Description:

With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started.

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.

With p9905 = 2, the serial numbers, the hardware versions and the order numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started.

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and order numbers.

Note

p9905 is automatically set to 0 at the end of the operation.
In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).

p9906

CU_I_828,
CU_I_COMBI,
CU_NX_828

Topology comparison comparison stage of all components / Topo_cmptr tot comp

Changeable: C1(1)
Data type: Integer16
P group: Topology
Not for motor type: -
Min:
0

Calculation: -
Dynamic index: -
Unit group: -
Scaling: -
Max:
99

Access level: 3
Function plan: -
Unit selection: -
Expert list: 1
Default:
0

Description: Sets the type of comparison between the actual topology and target topology.
The comparison is started by setting the required value.

Value:

- 0: High: Compares the complete electronic rating plate
- 1: Average: Compares the component type and the Order number
- 2: Low: Compares the component type
- 3: Minimum: Compares the component class
- 99: Topology has different comparison stages

Note

The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:

- p9906 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.
- p9906 = 1: Component type, Order No.
- p9906 = 2: Component type
- p9906 = 3: Component class (e.g. Sensor Module or Motor Module)

p9907 Topology comparison comparison stage of the component number / Topo_cmpr comp_no

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: C1(1)

Calculation: -

Access level: 3

Data type: Unsigned8

Dynamic index: -

Function plan: -

P group: Topology

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

199

0

Description: Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed.

Dependency: See also: p9908

p9908 Topology comparison comparison stage of a component / Topo_cmpr 1 comp

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: C1(1)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: -

P group: Topology

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

99

0

Description: Sets the type of comparison of a component in the target topology with the actual topology.
The comparison is started by setting the required value.

Value:

- 0: High: Compares the complete electronic rating plate
- 1: Average: Compares the component type and the Order number
- 2: Low: Compares the component type
- 3: Minimum: Compares the component class
- 99: Topology has different comparison stages

Dependency: See also: p9907

Note

The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:

- p9908 = 0: Component type, Order No., Hardware version, Manufacturer, Serial No.
- p9908 = 1: Component type, Order No.
- p9908 = 2: Component type
- p9908 = 3: Component class (e.g. Sensor Module or Motor Module)

p9909

CU_I_828,
CU_I_COMBI,
CU_NX_828

Topology comparison component replacement / Topo_cmpr replace

Changeable: C1(1)	Calculation: -	Access level: 3
Data type: Unsigned8	Dynamic index: -	Function plan: -
P group: Topology	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 1	Default: 1

Description:

For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion.

For the components that have been replaced, the electronic rating plate must match as far as the following data is concerned:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

Dependency:

See also: p9904, p9905

Note

The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).

Special case for Control Unit and option slot modules:

When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

p9910

CU_I_828,
CU_I_COMBI,
CU_NX_828

Target topology accept additional components / Add comp accept

Changeable: C1(1)	Calculation: -	Access level: 1
Data type: Integer16	Dynamic index: -	Function plan: -
P group: Topology	Unit group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min: 0	Max: 6	Default: 0

Description:

Accept additional inserted DRIVE-CLiQ components into the target topology.

The corresponding drive objects are added to the project.

Value:

- 0: No selection
- 1: Drive object type SERVO
- 2: Drive object type VECTOR
- 3: SINAMICS GM (DFEMV & VECTORMV)
- 4: SINAMICS SM (AFEMV & VECTORMV)
- 5: SINAMICS GL (VECTORGL)

6: SINAMICS SL (VECTORSL)

p9911[0...6]	Insert drive object / Drv_obj insert		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1) Data type: Unsigned32 P group: All groups Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 4294967295	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: 0
Description:	New drive objects can be created using this parameter. Index 0: The values 2 ... 62 are permissible. Index 1: Number of the drive object type (e.g. 11 for type SERVO). Index 2, 4, 5, 6: Function modules defined for the drive object. Index 3: = 0: Ready. = 1: Reset (only indices 0 ... 3). = 2: Reset all (indices 0 ... 3 and flagged entries). = 3: Check and flag for insertion.		
Index:	[0] = Drive object number [1] = Drive object type [2] = Drive object function module [3] = Reset or check and flag for insertion [4] = Drive object function module expansion 1 [5] = Drive object function module expansion 2 [6] = Drive object function module expansion 3		
	Note Only for internal Siemens use. The parameter is not displayed for the STARTER commissioning software.		

p9912[0...1]	Delete drive object / Drv_obj delete		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(3) Data type: Unsigned16 P group: All groups Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 62	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: 0
Description:	Drive objects can be deleted using this parameter. Index 0: The values 2 ... 62 are permissible. Index 1: = 0: Ready. = 1: Reset (only indices 0 and 1) = 2: Reset all (indices 0 and 1 and flagged entries). = 3: Check and flag for deletion. = 30: Check and flag for deletion. Keep target topology.		
Index:	[0] = Drive object number [1] = Reset or check and flag for deletion		

Note

Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

p9913[0...2]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Change drive object number / Change drv_obj_no

Changeable: C1(4)

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: All groups

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 0

Min:

Max:

Default:

0

62

0

Description:

Existing drive objects can be assigned new numbers using these parameters.

Index 0:

The values 2 ... 62 are permissible.

Index 1:

The values 2 ... 62 are permissible.

Index 2:

= 0: Ready.

= 1: Reset (only indices 0 ... 2).

= 2: Reset all (indices 0 ... 2 and flagged entries).

= 3: Check and flag for modification.

Index:

[0] = Drive object number old

[1] = Drive object number new

[2] = Reset or check and flag for modification

Note

Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

p9914[0...2]

CU_I_828,
CU_I_COMBI,
CU_NX_828

Change component number / Change comp_no

Changeable: C1

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: All groups

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 0

Min:

Max:

Default:

0

199

0

Description:

You can change the number of topology components using this parameter.

Index 0:

The values 2 ... 199 are permissible.

Index 1:

The values 2 ... 199 are permissible.

Index 2:

= 0: Ready.

= 1: Reset (only indices 0 ... 2).

= 2: Reset all (indices 0 ... 2 and flagged entries).

= 3: Check and flag for modification.

Index:

[0] = Component number old

[1] = Component number new

[2] = Reset or check and flag for modification

Note

Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

p9915	DRIVE-CLiQ data transfer error shutdown threshold master / DQ fault master		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1)	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 0007 07FF hex	Default: 0007 02FF hex
Description:	Only for internal Siemens service purposes.		

p9916	DRIVE-CLiQ data transfer error shutdown threshold slave / DQ fault slave		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1)	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Topology	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: 0007 07FF hex	Default: 0007 02FF hex
Description:	Only for internal Siemens service purposes.		

p9917[0...1]	Delete component / Delete comp		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(30)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: All groups	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min: 0	Max: 199	Default: 0
Description:	Excessive components that have not been assigned can be removed from the component target topology using this parameter. Index 0: The values 2 ... 199 are permissible. Index 1: = 0: Ready. = 1: Reset (only indices 0 and 1) = 2: Reset all (indices 0 and 1 and flagged entries). = 3: Check and flag for deletion.		
Index:	[0] = Component number [1] = Reset or check and flag for deletion		

Note

Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

r9925[0...99]	Firmware file incorrect / FW file incorr		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned8 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.		
Dependency:	See also: r9926 See also: A01016		
Note			
The directory and name of the file is displayed in the ASCII code.			

r9926	Firmware check status / FW check status		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Unsigned8 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 2 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the status when the firmware is checked when the system is booted. 0: Firmware not yet checked. 1: Check running. 2: Check successfully completed. 3: Check indicates an error.		
Dependency:	See also: r9925 See also: A01016		

p9930[0...8]	System logbook activation / SYSLOG activation		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Unsigned8 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 255	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Only for service purposes.		
Index:	[0] = System logbook stage (0: Not active) [1] = COM2/COM1 (0: COM2, 1: COM1) [2] = Activate file write (0: Not active) [3] = Display time stamp (0: Not displayed) [4...7] = Reserved [8] = System logbook file size (stages, each 10 kB)		

NOTICE

Before powering down the Control Unit, ensure that the system logbook is switched out (p9930[0] = 0).
If writing to the file is activated (p9930[2] = 1), writing to the file must be de-activated again before switching off the Control Unit (p9930[2] = 0) in order to ensure that the system logbook has been completely written to the file.

p9931[0...179]	System logbook module selection / SYSLOG mod select.				
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex		
Description:	Only for service purposes.				
p9932	Save system logbook EEPROM / SYSLOG EEPROM save				
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4		
	Data type: Unsigned8	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: 0	Max: 255	Default: 0		
Description:	Only for service purposes.				
r9935.0	BO: POWER ON delay signal / POWER ON t_delay				
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned8	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Display and binector output for a delay after POWER ON. After power-on, binector output r9935.0 is set with the start of the first sampling time and is again reset after approx. 100 ms.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	POWER ON delay signal	High	Low	-
r9936[0...199]	DRIVE-CLiQ diagnostic error counter connection / DQdiag err counter				
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4		
	Data type: Integer32	Dynamic index: -	Function plan: -		
	P group: -	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min: -	Max: -	Default: -		
Description:	Displays the error counter for the individual DRIVE-CLiQ connections/cables. r9936[0]: sum of the error counter for all connections r9936[1]: not used r9936[2]: error counter for the feeder cable to DRIVE-CLiQ components with component number 2 ... r9936[199]: error counter for the feeder cable to DRIVE-CLiQ components with component number 199 The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit.				
Dependency:	See also: p9937, p9938				

p9937	DRIVE-CLiQ diagnostic configuration / DQ diag config		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 0000 0000 0000 bin

Description: Sets the configuration for the DRIVE-CLiQ diagnostics (error counter r9936).
Using this function, connections and cables of DRIVE-CLiQ connections can be checked for transfer errors. The error counter is evaluated in the PHY blocks involved.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Alarm for connection error	Yes	No	-
	08	Reset error counter	Yes	No	-

Dependency: See also: r9936, p9938
See also: A01839

Note

For bit 00:
To activate this function, p9938 must be set to 0 (inactive).
After changing the error counter (r9936), an appropriate alarm is output.
The alarm automatically disappears after 5 seconds.
For bit 08:
With p9937.8 = 1, the error counters are reset (r9936[0...199]).
After the reset, p9937.8 is automatically set to 0.

p9938	DRIVE-CLiQ detailed diagnostics configuration / DQ diag config		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	6	0

Description: Sets the configuration for the DRIVE-CLiQ detailed diagnostics (r9943).
Using the detailed diagnostics, it is possible to investigate data transfer errors on an individual connection, selected using p9942.

Value:

0:	Inactive
1:	Sum send and receive errors
2:	Only send errors
3:	Only receive errors
4:	Siemens internal
5:	Siemens internal
6:	Siemens internal

Dependency: The functions in p9938 can only be set for p9937.0 = 0.
See also: r9936, p9937, p9939, p9942

NOTICE

For a value = 0:
- detailed diagnostics is inactive.
- the error counter is active (r9936).
For a value > 0:
- the error counter is inactive (r9936).
- the detailed diagnostics as configured is active (r9943).

p9939	DRIVE-CLiQ detailed diagnostics time interval / DQ detail t_interv		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: FloatingPoint32 P group: - Not for motor type: - Min: 1 [s]	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 3600 [s]	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 1 [s]
Description:	Sets the time interval for recording the error counter in r9943.		
Dependency:	See also: r9936, p9938, p9942, r9943		
p9941	Target topology feature delete all components / Feature delete		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: C1(1) Data type: Unsigned32 P group: Topology Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 1	Access level: 3 Function plan: - Unit selection: - Expert list: 0 Default: 0
Description:	For p9941 = 1, the serial numbers of all components in the target topology are deleted (zero is written). Through activation and de-activation this enables the actual topology components to be newly assigned to the target topology components.		
	Note p9941 is automatically set to 0 at the end of the operation. A warm restart is triggered automatically after p0009 = 0.		
p9942	DRIVE-CLiQ detailed diagnostics select individual connection / DQ detail conn		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U Data type: Unsigned16 P group: - Not for motor type: - Min: 0	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: 199	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: 0
Description:	Sets the component, whose feeder cable is monitored for data transfer errors. The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit. Errors that have occurred in the selected time interval (p9939) can be read-out from r9943.		
Dependency:	See also: r9936, p9938, p9939, r9943		
r9943	DRIVE-CLiQ detailed diagn. individual connection error counter / DQ det err counter		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: - Data type: Integer32 P group: - Not for motor type: - Min: -	Calculation: - Dynamic index: - Unit group: - Scaling: - Max: -	Access level: 4 Function plan: - Unit selection: - Expert list: 1 Default: -
Description:	Displays the connection errors of the individual connection that have occurred within the time interval (p9939). The detailed diagnostics for the individual connection is activated via p9938 > 0 and is selected via p9942.		
Dependency:	See also: r9936, p9938, p9939, p9942		

r9975[0...7]	System utilization measured / Sys util meas		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [%]	Max: - [%]	Default: - [%]
Description:	Displays the measured system utilization. The higher the value displayed, the higher the system utilization.		
Index:	[0] = Computing time utilization (min) [1] = Computing time utilization (averaged) [2] = Computing time utilization (max) [3] = Largest total utilization (min) [4] = Largest total utilization (averaged) [5] = Largest total utilization (max) [6] = Reserved [7] = Reserved		
Dependency:	See also: r9976, r9979, r9980, r9981 See also: A01053, F01054, F01205		
	Note For index 3 ... 5: The total utilizations are determined using all sampling times used. The largest total utilizations are mapped here. The sampling time with the largest total utilization is displayed in r9979. Total utilization: Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).		

r9976[0...7]	System utilization / Sys util		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: - [%]	Max: - [%]	Default: - [%]
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:	See also: r9979, r9980 See also: A01053, F01054, F01205		

Note

For index 1:

The value shows the total computing time load of the system.

For index 5:

The total utilization is determined using all sampling times used. The largest total utilization is mapped here. The sampling time with the largest total utilization is displayed in r9979.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9979**Sampling time with largest total utilization / t_sampl lg total**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -

Calculation: -

Access level: 3

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [µs]

- [µs]

- [µs]

Description:

Displays the sampling time with the largest total utilization.

Dependency:

See also: r7901, r9976

See also: F01054

Note

The largest total utilization is displayed in r9976[5].

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9980[0...165]**Sampling times utilization calculated / t_sampl util calc**

CU_I_828,
CU_I_COMBI,
CU_NX_828

Changeable: -

Calculation: -

Access level: 4

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [%]

- [%]

- [%]

Description:

Displays the calculated utilizations for the active sampling times based on the existing target topology.

Index:	[0] = Net utilization 0
	[1] = Total utilization 0
	[2] = Net utilization 1
	[3] = Total utilization 1
	[4] = Net utilization 2
	[5] = Total utilization 2
	[6] = Net utilization 3
	[7] = Total utilization 3
	[8] = Net utilization 4
	[9] = Total utilization 4
	[10] = Net utilization 5
	[11] = Total utilization 5
	[12] = Net utilization 6
	[13] = Total utilization 6
	[14] = Net utilization 7
	[15] = Total utilization 7
	[16] = Net utilization 8
	[17] = Total utilization 8
	[18] = Net utilization 9
	[19] = Total utilization 9
	[20] = Net utilization 10
	[21] = Total utilization 10
	[22] = Net utilization 11
	[23] = Total utilization 11
	[24] = Net utilization 12
	[25] = Total utilization 12
	[26] = Net utilization 13
	[27] = Total utilization 13
	[28] = Net utilization 14
	[29] = Total utilization 14
	[30] = Net utilization 15
	[31] = Total utilization 15
	[32] = Net utilization 16
	[33] = Total utilization 16
	[34] = Net utilization 17
	[35] = Total utilization 17
	[36] = Net utilization 18
	[37] = Total utilization 18
	[38] = Net utilization 19
	[39] = Total utilization 19
	[40] = Net utilization 20
	[41] = Total utilization 20
	[42] = Net utilization 21
	[43] = Total utilization 21
	[44] = Net utilization 22
	[45] = Total utilization 22
	[46] = Net utilization 23
	[47] = Total utilization 23
	[48] = Net utilization 24
	[49] = Total utilization 24
	[50] = Net utilization 25
	[51] = Total utilization 25

[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
[55] = Total utilization 27
[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32
[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47
[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51

- [104] = Net utilization 52
- [105] = Total utilization 52
- [106] = Net utilization 53
- [107] = Total utilization 53
- [108] = Net utilization 54
- [109] = Total utilization 54
- [110] = Net utilization 55
- [111] = Total utilization 55
- [112] = Net utilization 56
- [113] = Total utilization 56
- [114] = Net utilization 57
- [115] = Total utilization 57
- [116] = Net utilization 58
- [117] = Total utilization 58
- [118] = Net utilization 59
- [119] = Total utilization 59
- [120] = Net utilization 60
- [121] = Total utilization 60
- [122] = Net utilization 61
- [123] = Total utilization 61
- [124] = Net utilization 62
- [125] = Total utilization 62
- [126] = Net utilization 63
- [127] = Total utilization 63
- [128] = Net utilization 64
- [129] = Total utilization 64
- [130] = Net utilization 65
- [131] = Total utilization 65
- [132] = Net utilization 66
- [133] = Total utilization 66
- [134] = Net utilization 67
- [135] = Total utilization 67
- [136] = Net utilization 68
- [137] = Total utilization 68
- [138] = Net utilization 69
- [139] = Total utilization 69
- [140] = Net utilization 70
- [141] = Total utilization 70
- [142] = Net utilization 71
- [143] = Total utilization 71
- [144] = Net utilization 72
- [145] = Total utilization 72
- [146] = Net utilization 73
- [147] = Total utilization 73
- [148] = Net utilization 74
- [149] = Total utilization 74
- [150] = Net utilization 75
- [151] = Total utilization 75
- [152] = Net utilization 76
- [153] = Total utilization 76
- [154] = Net utilization 77
- [155] = Total utilization 77

[156] = Net utilization 78
 [157] = Total utilization 78
 [158] = Net utilization 79
 [159] = Total utilization 79
 [160] = Net utilization 80
 [161] = Total utilization 80
 [162] = Net utilization 81
 [163] = Total utilization 81
 [164] = Net utilization 82
 [165] = Total utilization 82

Dependency: See also: r7901, r9976, r9979
 See also: F01054

Note

The corresponding sampling times can be read out in parameter r7901.

Net utilization:

Computing time load that is only called by the sampling time involved.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9981[0...165]

Sampling times utilization measured / t_sampl util meas

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Changeable: -

Calculation: -

Access level: 4

Data type: FloatingPoint32

Dynamic index: -

Function plan: -

P group: -

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

- [%]

- [%]

- [%]

Description:

Displays the utilizations measured for the active sampling times.

Index:	[0] = Net utilization 0
	[1] = Total utilization 0
	[2] = Net utilization 1
	[3] = Total utilization 1
	[4] = Net utilization 2
	[5] = Total utilization 2
	[6] = Net utilization 3
	[7] = Total utilization 3
	[8] = Net utilization 4
	[9] = Total utilization 4
	[10] = Net utilization 5
	[11] = Total utilization 5
	[12] = Net utilization 6
	[13] = Total utilization 6
	[14] = Net utilization 7
	[15] = Total utilization 7
	[16] = Net utilization 8
	[17] = Total utilization 8
	[18] = Net utilization 9
	[19] = Total utilization 9
	[20] = Net utilization 10
	[21] = Total utilization 10
	[22] = Net utilization 11
	[23] = Total utilization 11
	[24] = Net utilization 12
	[25] = Total utilization 12
	[26] = Net utilization 13
	[27] = Total utilization 13
	[28] = Net utilization 14
	[29] = Total utilization 14
	[30] = Net utilization 15
	[31] = Total utilization 15
	[32] = Net utilization 16
	[33] = Total utilization 16
	[34] = Net utilization 17
	[35] = Total utilization 17
	[36] = Net utilization 18
	[37] = Total utilization 18
	[38] = Net utilization 19
	[39] = Total utilization 19
	[40] = Net utilization 20
	[41] = Total utilization 20
	[42] = Net utilization 21
	[43] = Total utilization 21
	[44] = Net utilization 22
	[45] = Total utilization 22
	[46] = Net utilization 23
	[47] = Total utilization 23
	[48] = Net utilization 24
	[49] = Total utilization 24
	[50] = Net utilization 25
	[51] = Total utilization 25

[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
[55] = Total utilization 27
[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32
[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47
[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51

- [104] = Net utilization 52
- [105] = Total utilization 52
- [106] = Net utilization 53
- [107] = Total utilization 53
- [108] = Net utilization 54
- [109] = Total utilization 54
- [110] = Net utilization 55
- [111] = Total utilization 55
- [112] = Net utilization 56
- [113] = Total utilization 56
- [114] = Net utilization 57
- [115] = Total utilization 57
- [116] = Net utilization 58
- [117] = Total utilization 58
- [118] = Net utilization 59
- [119] = Total utilization 59
- [120] = Net utilization 60
- [121] = Total utilization 60
- [122] = Net utilization 61
- [123] = Total utilization 61
- [124] = Net utilization 62
- [125] = Total utilization 62
- [126] = Net utilization 63
- [127] = Total utilization 63
- [128] = Net utilization 64
- [129] = Total utilization 64
- [130] = Net utilization 65
- [131] = Total utilization 65
- [132] = Net utilization 66
- [133] = Total utilization 66
- [134] = Net utilization 67
- [135] = Total utilization 67
- [136] = Net utilization 68
- [137] = Total utilization 68
- [138] = Net utilization 69
- [139] = Total utilization 69
- [140] = Net utilization 70
- [141] = Total utilization 70
- [142] = Net utilization 71
- [143] = Total utilization 71
- [144] = Net utilization 72
- [145] = Total utilization 72
- [146] = Net utilization 73
- [147] = Total utilization 73
- [148] = Net utilization 74
- [149] = Total utilization 74
- [150] = Net utilization 75
- [151] = Total utilization 75
- [152] = Net utilization 76
- [153] = Total utilization 76
- [154] = Net utilization 77
- [155] = Total utilization 77

[156] = Net utilization 78
 [157] = Total utilization 78
 [158] = Net utilization 79
 [159] = Total utilization 79
 [160] = Net utilization 80
 [161] = Total utilization 80
 [162] = Net utilization 81
 [163] = Total utilization 81
 [164] = Net utilization 82
 [165] = Total utilization 82

Dependency: See also: r7901, r9975, r9980
 See also: F01054

Note

The corresponding sampling times can be read out in parameter r7901.

Net utilization:

Computing time load that is only called by the sampling time involved.

Total utilization:

Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9982[0...4]

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Data memory utilization / Mem_util dat_mem

Changeable: -

Data type: FloatingPoint32

P group: -

Not for motor type: -

Min:

- [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

- [%]

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [%]

Description:

Displays the calculated data memory utilization rates based on the existing target topology.

Index:

[0] = Fast data memory 1
 [1] = Fast data memory 2
 [2] = Fast data memory 3
 [3] = Fast data memory 4
 [4] = Reserved

Dependency:

See also: F01068

r9983[0...4]

CU_I_828,
 CU_I_COMBI,
 CU_NX_828

Measured data memory utilization (actual load) / Mem_ut dat_mem ms

Changeable: -

Data type: FloatingPoint32

P group: -

Not for motor type: -

Min:

- [%]

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

- [%]

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

- [%]

Description:

Displays the measured data memory utilization rates based on the existing target topology.

Index:

[0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

Dependency:

See also: F01068

r9984[0...4] **Data memory utilization OA / Mem_ut dat_mem OA**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Displays the utilization of the data memory by OA applications.

Index:
 [0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Reserved

Dependency: See also: F01068

r9986[0...7] **DRIVE-CLiQ system load / DQ system load**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ system load based on the existing target topology.
 The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
 Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: See also: F01340

r9987[0...7] **DRIVE-CLiQ bandwidth load / DQ bandw load**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ bandwidth load based on the existing target topology.
 The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
 Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: See also: F01340

r9988[0...7] **DRIVE-CLiQ DPRAM load / DQ DPRAM load**

CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ DPRAM load based on the existing target topology.
 The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
 Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: See also: F01340

p9990	DO memory usage actual value determination selection / Mem_use ActVal sel		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: T, U	Calculation: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 65535	Default: 0

Description: The meaning of the parameter differs for reading and writing.
 Read:
 - Returns the number of memory areas monitored.
 Write:
 - Memory usage of a drive object: Enter drive object number
 - Memory usage of the complete system: Enter value 65535

r9991[0...4]	Memory usage drive object actual value / Mem_use DO ActVal		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Displays the memory usage for each drive object as actual value.

Index:
 [0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

r9992[0...4]	Memory usage drive object reference value / Mem_use DO ref val		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Displays the memory usage for each drive object as reference value.

Index:
 [0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

r9993[0...4]	Memory usage OA application / Mem_use OA		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the memory usage of an OA application.

Index:
 [0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

r9999[0...99]	Software error internal supplementary diagnostics / SW_err int diag		
CU_I_828, CU_I_COMBI, CU_NX_828	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Diagnostics parameter to display additional information for internal software errors.

Note

Only for internal Siemens troubleshooting.

p10000[0...5]	SI TM54F communication clock cycle / TM54F comm_cycle		
TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0.00000 [ms]	25.00000 [ms]	[0] 12.00000 [ms] [1...5] 0.00000 [ms]

Description: Sets the safety communication clock cycle with which the TM54F communicates with a drive. The communication clock cycle must correspond to the safety monitoring clock cycle of the drive. Presently, the TM54F only supports one communication clock cycle for all drives. This is entered into p10000[0].

Index:
 [0] = Drive 1
 [1] = Drive 2
 [2] = Drive 3
 [3] = Drive 4
 [4] = Drive 5
 [5] = Drive 6

Note

- If only index 0 of p10000 is used, then p10000[0] defines the communication clock cycle that is applicable for all drives used in p10010[]. In this case, all safety monitoring clock cycles on the Control Unit must be identical with p10000[0].
 - The minimum communication clock cycle is 1 ms.

p10001	SI TM54F delay time for test stop at DO 0 ... DO 3 / SI t_delay DO		
TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 2.00 [ms]	Max: 2000.00 [ms]	Default: 500.00 [ms]
Description:	Sets the delay time for testing the digital outputs 0 ... 3 (DO 0 ... DO 3). Within this time, for a forced checking procedure of the digital outputs, the signal must have been detected via the corresponding readback input (p10047).		
Dependency:	See also: p10003, p10007, p10041, p10046		
	Note The delay time must be set to a value greater than the debounce time (p10017). The set time is rounded internally to an integer multiple of the TM54F sampling time (r10015).		
p10002	SI TM54F F-DI changeover discrepancy time / SI F-DI chg t		
TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2850, 2851
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1.00 [ms]	Max: 2000.00 [ms]	Default: 500.00 [ms]
Description:	Sets the discrepancy time for digital inputs. The signal states at the two associated digital inputs (F-DI) must assume the same state within this discrepancy time.		
	Note The discrepancy time of the F-DIs must always be set higher than the highest value of parameter p9780 or p9500 of the drives that use safety with TM54F. The set time is rounded internally to an integer multiple of the TM54F sampling time (r10015).		
p10003	SI TM54F forced checking procedure timer / SI dyn t		
TM54F_MA	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2848
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.00 [h]	Max: 8760.00 [h]	Default: 8.00 [h]
Description:	Sets the time to carry out the forced checking procedure (test stop). Within the parameterized time, the digital inputs/outputs must have been subject to a forced checking procedure at least once. The forced checking procedure is started with binector input p10007 = 0/1 signal.		
Dependency:	See also: p10001, p10007, p10046		
r10004[0...1]	SI TM54F parameter actual checksum / SI par CRC act		
TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2847
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -
Description:	Displays the actual checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).		

Index: [0] = Checksum HW-independent TM54F parameters
 [1] = Checksum HW-dependent TM54F parameters (MM)

p10005[0...1] SI TM54F parameter target checksum / SI par CRC target

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2847
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0000 hex	Max: FFFF FFFF hex	Default: 0000 hex

Description: Displays the reference checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).

Index: [0] = Checksum HW-independent TM54F parameters
 [1] = Checksum HW-dependent TM54F parameters (MM)

p10006 SI TM54F acknowledgment internal event input terminal / SI ackn int event

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 255	Default: 0

Description: Select a fail-safe digital input for the signal "acknowledge internal event" (internal fault).
 The signal is transferred to the corresponding control signal of all drives.
 The falling edge at this input resets the status "internal event" in the drives.
 The rising edge at this input acknowledges any existing discrepancy errors.

Value:

0:	Statically active
1:	F-DI 0 (X521.2/3/6)
2:	F-DI 1 (X521.4/5/7)
3:	F-DI 2 (X522.1/2/7)
4:	F-DI 3 (X522.3/4/8)
5:	F-DI 4 (X522.5/6/9)
6:	F-DI 5 (X531.2/3/6)
7:	F-DI 6 (X531.4/5/7)
8:	F-DI 7 (X532.1/2/7)
9:	F-DI 8 (X532.3/4/8)
10:	F-DI 9 (X532.5/6/9)
255:	Statically inactive

Dependency: See also: A35081

Note

The values "static active" and "static inactive" result in an inactive function of the safe acknowledgment.
 F-DI: Failsafe Digital Input

p10007 BI: SI TM54F forced checking procedure F-DI/F-DO signal source / SI dynF-DI/DOs_src

TM54F_MA	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2848
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: 0

Description: Sets the signal source to initiate the test stop.
 For example, a digital input of the Control Unit or one of the other Terminal Modules can be set as signal source.
 The test stop is triggered on a 0/1 signal edge.
 The TM54F must be in the "ready" state (p0010 = 0).

Dependency: See also: p10001, p10003, p10041, p10046

NOTICE

Digital inputs of the TM54F must not be used to trigger the test stop.

p10008 SI TM54F operating mode / SI op_mod

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	1

Description: Sets the operating mode for the Terminal Module 54F (TM54F).

Value:
 0: Function interface
 1: Control interface

Note

Parameter being prepared. For this firmware version, the function interface is not supported.

p10009 SI TM54F SLP retract F-DI / SI SLP retr F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	10	0

Description: Selects a fail-safe digital input for the "SLP retract" function.
 A rising edge at this F-DI makes it possible to retract the drives, which at this instant in time indicate a violation of the SLP limit.
 After safe acknowledgment of the active safety faults, the drives can be traversed in the direction of the permitted position range.
 In the retract mode, SLP becomes inactive, and SDI, if enabled, is selected in the direction of the permitted position range.
 A 0 signal at the F-DI for retraction, deactivates the active retraction mode (SLP becomes active again, and SDI selected corresponding to the actual F-DIs).

Value:
 0: Function inactive
 1: F-DI 0 (X521.2/3/6)
 2: F-DI 1 (X521.4/5/7)
 3: F-DI 2 (X522.1/2/7)
 4: F-DI 3 (X522.3/4/8)
 5: F-DI 4 (X522.5/6/9)
 6: F-DI 5 (X531.2/3/6)
 7: F-DI 6 (X531.4/5/7)
 8: F-DI 7 (X532.1/2/7)
 9: F-DI 8 (X532.3/4/8)
 10: F-DI 9 (X532.5/6/9)

Note

- Retraction is only possible, if SDI in the opposite direction of the permitted position range is not already selected.
- A discrepancy at this F-DI must be acknowledged using a safe acknowledgment.

F-DI: Failsafe Digital Input

SDI: Safe Direction (safe motion direction)

SLP: Safely-Limited Position

p10010[0...5] SI TM54F drive object assignment / SI drv_obj assign

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2847, 2848
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	62	0

Description: Sets the drive object number for the drives that are available.

- Index:**
- [0] = Drive 1
 - [1] = Drive 2
 - [2] = Drive 3
 - [3] = Drive 4
 - [4] = Drive 5
 - [5] = Drive 6

Note

A change only becomes effective after a POWER ON.

p10011[0...5] SI TM54F drive group assignment / SI drv_gr assign

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: 2848
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	4	1

Description: Sets the drive group for the drives that are available.

A drive group is a combination of several drives with the same types of behavior.

- Index:**
- [0] = Drive 1
 - [1] = Drive 2
 - [2] = Drive 3
 - [3] = Drive 4
 - [4] = Drive 5
 - [5] = Drive 6

Note

If the basic functions are controlled via the TM54F, then within a drive group, only drives with basic functions or drives with extended functions can be assigned.

p10012[0...5] SI TM54F Motor/Hydraulic Module Node Identifier Word 1 / SI MM/HM Node ID 1

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the actual Node Identifier (word 1, bit 0 ... 31) for the Motor/Hydraulic Modules.

Index:
 [0] = Drive 1
 [1] = Drive 2
 [2] = Drive 3
 [3] = Drive 4
 [4] = Drive 5
 [5] = Drive 6

Dependency: See also: p10013, p10014

Note

The Node Identifier (96 bit) is represented in the following 3 parameters.

p10012[0] word 1 (bit 0 ... 31) for Motor/Hydraulic Module 1

...

p10012[5] word 1 (bit 0 ... 31) for Motor/Hydraulic Module 6

p10013[0] word 2 (bit 32 ... 63) for Motor/Hydraulic Module 1

...

p10013[5] word 2 (bit 32 ... 63) for Motor/Hydraulic Module 6

p10014[0] word 3 (bit 64 ... 95) for Motor/Hydraulic Module 1

...

p10014[5] word 3 (bit 64 ... 95) for Motor/Hydraulic Module 6

p10013[0...5] SI TM54F Motor/Hydraulic Module Node Identifier Word 2 / SI MM Node ID 2

TM54F_MA, TM54F_SL **Changeable:** C2(95)

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

0000 hex

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

FFFF FFFF hex

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

0000 hex

Description: Sets the actual Node Identifier (word 2, bit 32 ... 63) for the Motor/Hydraulic Modules.

Index:
 [0] = Drive 1
 [1] = Drive 2
 [2] = Drive 3
 [3] = Drive 4
 [4] = Drive 5
 [5] = Drive 6

Dependency: See also: p10012, p10014

Note

The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.

p10014[0...5] SI TM54F Motor/Hydraulic Module Node Identifier Word 3 / SI MM Node ID 3

TM54F_MA, TM54F_SL **Changeable:** C2(95)

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

0000 hex

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

FFFF FFFF hex

Access level: 4

Function plan: -

Unit selection: -

Expert list: 1

Default:

0000 hex

Description: Sets the actual Node Identifier (word 3, bit 64 ... 95) for the Motor/Hydraulic Modules.

Index: [0] = Drive 1
 [1] = Drive 2
 [2] = Drive 3
 [3] = Drive 4
 [4] = Drive 5
 [5] = Drive 6

Dependency: See also: p10012, p10013

Note

The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.

r10015 SI TM54F sampling time / SI t_sample

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [ms]	- [ms]	- [ms]

Description: Displays the active sampling time of the TM54F.

In this clock cycle, the debounced F-DIs (p10017) are evaluated, and converted over to SGEs.

In this clock cycle, also the F-DOs are controlled corresponding to the presently available SGAs.

This clock cycle corresponds to the smallest communication clock cycle that was entered in p10000[].

SGEs are transferred to the drives, and the SGAs received from the drives are transferred with the specific communication clock cycle of each drive in p10000[].

The value of a specific index of p10000[] represents the communication clock cycle of the drive, which is entered in the same index of p10010[].

Note

F-DO: Failsafe Digital Output / SGA: Safety-related output
 SGE: Safety-relevant input

p10017 SI TM54F digital inputs debounce time / SI DI t_debounce

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1.00 [ms]	100.00 [ms]	1.00 [ms]

Description: Sets the debounce time for digital inputs.

The debounce time is accepted rounded off to whole milliseconds.

The debounce time acts on the following digital inputs:

- Fail-safe digital inputs (F-DI).
- Single-channel digital inputs (DI).

Note

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.

The debounce result can be read in r10051.

p10020[0...3] SI TM54F special operating mode selection / SI spec op sel

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	3	1

Description: Sets the special operating mode for the operating mode "function interface".
0 = Inactive
1 = Safe Operating Stop with braking (SS2)
2 = Safe Operating Stop without braking (SOS)
3 = Safely reduced speed without standstill (SLS)
4 = Safely reduced speed with agreement (SS2 --> SLS)

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Dependency: See also: p10008

Note

Parameter being prepared. For this firmware version, the function interface is not supported.
SLS: Safely-Limited Speed
SOS: Safe Operating Stop
SS2: Safe Stop 2

p10021[0...3] SI TM54F Emergency Stop stop response / SI Emergency Stop

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2	0

Description: Sets the stop response for the drive group for Emergency Stop.
The input terminal for Emergency Stop is set in p10038.
0 = Stop reaction STO
1 = Stop reaction SS1
2 = Stop reaction SS2

Index:
[0] = Drive group 1
[1] = Drive group 2
[2] = Drive group 3
[3] = Drive group 4

Dependency: See also: p10008, p10038

Note

Parameter being prepared. For this firmware version, the function interface is not supported.

p10022[0...3] SI TM54F STO input terminal / SI STO F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for the "STO" function (operating mode "control interface").

Value:

- 0: Statically active
- 1: F-DI 0 (X521.2/3/6)
- 2: F-DI 1 (X521.4/5/7)
- 3: F-DI 2 (X522.1/2/7)
- 4: F-DI 3 (X522.3/4/8)
- 5: F-DI 4 (X522.5/6/9)
- 6: F-DI 5 (X531.2/3/6)
- 7: F-DI 6 (X531.4/5/7)
- 8: F-DI 7 (X532.1/2/7)
- 9: F-DI 8 (X532.3/4/8)
- 10: F-DI 9 (X532.5/6/9)
- 255: Statically inactive

Index:

- [0] = Drive group 1
- [1] = Drive group 2
- [2] = Drive group 3
- [3] = Drive group 4

Note

For a value = 0:
 No terminal assigned, safety function always active.
 For a value = 255:
 No terminal assigned, safety function always inactive.
 F-DI: Failsafe Digital Input
 STO: Safe Torque Off

p10023[0...3] SI TM54F SS1 input terminal / SI SS1 F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SS1 (operating mode "control interface").

Value:

- 0: Statically active
- 1: F-DI 0 (X521.2/3/6)
- 2: F-DI 1 (X521.4/5/7)
- 3: F-DI 2 (X522.1/2/7)
- 4: F-DI 3 (X522.3/4/8)
- 5: F-DI 4 (X522.5/6/9)
- 6: F-DI 5 (X531.2/3/6)
- 7: F-DI 6 (X531.4/5/7)
- 8: F-DI 7 (X532.1/2/7)

	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive
Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4

Note

For a value = 0:
No terminal assigned, safety function always active.

For a value = 255:
No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input
SS1: Safe Stop 1

p10024[0...3] SI TM54F SS2 input terminal / SI SS2 F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SS2 (operating mode "control interface").

Value:	0:	Statically active
	1:	F-DI 0 (X521.2/3/6)
	2:	F-DI 1 (X521.4/5/7)
	3:	F-DI 2 (X522.1/2/7)
	4:	F-DI 3 (X522.3/4/8)
	5:	F-DI 4 (X522.5/6/9)
	6:	F-DI 5 (X531.2/3/6)
	7:	F-DI 6 (X531.4/5/7)
	8:	F-DI 7 (X532.1/2/7)
	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive

Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4

Note

For a value = 0:
No terminal assigned, safety function always active.

For a value = 255:
No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input
SS2: Safe Stop 2

p10025[0...3] SI TM54F SOS input terminal / SI SOS F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the fail-safe digital input (F-DI) for the "SOS" function (operating mode = control interface).

Value:

- 0: Statically active
- 1: F-DI 0 (X521.2/3/6)
- 2: F-DI 1 (X521.4/5/7)
- 3: F-DI 2 (X522.1/2/7)
- 4: F-DI 3 (X522.3/4/8)
- 5: F-DI 4 (X522.5/6/9)
- 6: F-DI 5 (X531.2/3/6)
- 7: F-DI 6 (X531.4/5/7)
- 8: F-DI 7 (X532.1/2/7)
- 9: F-DI 8 (X532.3/4/8)
- 10: F-DI 9 (X532.5/6/9)
- 255: Statically inactive

Index:

- [0] = Drive group 1
- [1] = Drive group 2
- [2] = Drive group 3
- [3] = Drive group 4

Note

For a value = 0:
 No terminal assigned, safety function always active.

For a value = 255:
 No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input
 SOS: Safe Operating Stop

p10026[0...3] SI TM54F SLS input terminal / SI SLS F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SLS (operating mode "control interface").

Value:

- 0: Statically active
- 1: F-DI 0 (X521.2/3/6)
- 2: F-DI 1 (X521.4/5/7)
- 3: F-DI 2 (X522.1/2/7)
- 4: F-DI 3 (X522.3/4/8)
- 5: F-DI 4 (X522.5/6/9)
- 6: F-DI 5 (X531.2/3/6)
- 7: F-DI 6 (X531.4/5/7)
- 8: F-DI 7 (X532.1/2/7)

	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive
Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4

Note

For a value = 0:
No terminal assigned, safety function always active.

For a value = 255:
No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input
SLS: Safely-Limited Speed

p10027[0...3] SI TM54F SLS limit bit 0 input terminal / SI SLS lim 0 F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SLS limit bit 0 (operating mode "control interface").

Value:	0:	Statically active
	1:	F-DI 0 (X521.2/3/6)
	2:	F-DI 1 (X521.4/5/7)
	3:	F-DI 2 (X522.1/2/7)
	4:	F-DI 3 (X522.3/4/8)
	5:	F-DI 4 (X522.5/6/9)
	6:	F-DI 5 (X531.2/3/6)
	7:	F-DI 6 (X531.4/5/7)
	8:	F-DI 7 (X532.1/2/7)
	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive

Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4

Note

For a value = 0:
No terminal assigned, selection bit remains statically at "0".

For a value = 255:
No terminal assigned, selection bit remains statically at "1".

F-DI: Failsafe Digital Input
SLS: Safely-Limited Speed

p10028[0...3] SI TM54F SLS limit bit 1 input terminal / SI SLS lim 1 F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SLS limit bit 1 (operating mode "control interface").

Value:

0:	Statically active
1:	F-DI 0 (X521.2/3/6)
2:	F-DI 1 (X521.4/5/7)
3:	F-DI 2 (X522.1/2/7)
4:	F-DI 3 (X522.3/4/8)
5:	F-DI 4 (X522.5/6/9)
6:	F-DI 5 (X531.2/3/6)
7:	F-DI 6 (X531.4/5/7)
8:	F-DI 7 (X532.1/2/7)
9:	F-DI 8 (X532.3/4/8)
10:	F-DI 9 (X532.5/6/9)
255:	Statically inactive

Index:

[0]	= Drive group 1
[1]	= Drive group 2
[2]	= Drive group 3
[3]	= Drive group 4

Note

For a value = 0:
 No terminal assigned, selection bit remains statically at "0".
 For a value = 255:
 No terminal assigned, selection bit remains statically at "1".
 F-DI: Failsafe Digital Input
 SLS: Safely-Limited Speed

p10030[0...3] SI TM54F SDI positive input terminal / SI SDI pos F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SDI positive (operating mode "control interface").

Value:

0:	Statically active
1:	F-DI 0 (X521.2/3/6)
2:	F-DI 1 (X521.4/5/7)
3:	F-DI 2 (X522.1/2/7)
4:	F-DI 3 (X522.3/4/8)
5:	F-DI 4 (X522.5/6/9)
6:	F-DI 5 (X531.2/3/6)
7:	F-DI 6 (X531.4/5/7)
8:	F-DI 7 (X532.1/2/7)

9: F-DI 8 (X532.3/4/8)
 10: F-DI 9 (X532.5/6/9)
 255: Statically inactive

Index:
 [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Note

For a value = 0:
 No terminal assigned, safety function always active.
 For a value = 255:
 No terminal assigned, safety function always inactive.
 F-DI: Failsafe Digital Input
 SDI: Safe Direction (safe motion direction)

p10031[0...3] SI TM54F SDI negative input terminal / SI SDI neg F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for SDI negative (operating mode "control interface").

Value:
 0: Statically active
 1: F-DI 0 (X521.2/3/6)
 2: F-DI 1 (X521.4/5/7)
 3: F-DI 2 (X522.1/2/7)
 4: F-DI 3 (X522.3/4/8)
 5: F-DI 4 (X522.5/6/9)
 6: F-DI 5 (X531.2/3/6)
 7: F-DI 6 (X531.4/5/7)
 8: F-DI 7 (X532.1/2/7)
 9: F-DI 8 (X532.3/4/8)
 10: F-DI 9 (X532.5/6/9)
 255: Statically inactive

Index:
 [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Note

For a value = 0:
 No terminal assigned, safety function always active.
 For a value = 255:
 No terminal assigned, safety function always inactive.
 F-DI: Failsafe Digital Input
 SDI: Safe Direction (safe motion direction)

p10032[0...3] SI TM54F SLP input terminal / SI SLP F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for the "SLP" function

Value:

- 0: Statically active
- 1: F-DI 0 (X521.2/3/6)
- 2: F-DI 1 (X521.4/5/7)
- 3: F-DI 2 (X522.1/2/7)
- 4: F-DI 3 (X522.3/4/8)
- 5: F-DI 4 (X522.5/6/9)
- 6: F-DI 5 (X531.2/3/6)
- 7: F-DI 6 (X531.4/5/7)
- 8: F-DI 7 (X532.1/2/7)
- 9: F-DI 8 (X532.3/4/8)
- 10: F-DI 9 (X532.5/6/9)
- 255: Statically inactive

Index:

- [0] = Drive group 1
- [1] = Drive group 2
- [2] = Drive group 3
- [3] = Drive group 4

Note

For a value = 0:
 No terminal assigned, safety function always active.

For a value = 255:
 No terminal assigned, safety function always inactive.

F-DI: Failsafe Digital Input
 SLP: Safely-Limited Position

p10033[0...3] SI TM54F SLP position range input terminal / SI SLP pos F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for selecting the position area for "SLP".

Value:

- 0: Statically active
- 1: F-DI 0 (X521.2/3/6)
- 2: F-DI 1 (X521.4/5/7)
- 3: F-DI 2 (X522.1/2/7)
- 4: F-DI 3 (X522.3/4/8)
- 5: F-DI 4 (X522.5/6/9)
- 6: F-DI 5 (X531.2/3/6)
- 7: F-DI 6 (X531.4/5/7)
- 8: F-DI 7 (X532.1/2/7)

	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive
Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4

Note

For a value = 0:

No terminal assigned, selection bit remains statically at "0".

For a value = 255:

No terminal assigned, selection bit remains statically at "1".

F-DI: Failsafe Digital Input

SLP: Safely-Limited Position

p10036[0...3] SI TM54F special operating mode input terminal / SI spec mode F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for "special operating mode" (operating mode "function interface").

Value:	0:	Statically active
	1:	F-DI 0 (X521.2/3/6)
	2:	F-DI 1 (X521.4/5/7)
	3:	F-DI 2 (X522.1/2/7)
	4:	F-DI 3 (X522.3/4/8)
	5:	F-DI 4 (X522.5/6/9)
	6:	F-DI 5 (X531.2/3/6)
	7:	F-DI 6 (X531.4/5/7)
	8:	F-DI 7 (X532.1/2/7)
	9:	F-DI 8 (X532.3/4/8)
	10:	F-DI 9 (X532.5/6/9)
	255:	Statically inactive

Index:	[0]	= Drive group 1
	[1]	= Drive group 2
	[2]	= Drive group 3
	[3]	= Drive group 4

Note

Parameter being prepared. For this firmware version, the function interface is not supported.

For a value = 0:

No terminal assigned, static special operation.

For a value = 255:

No terminal assigned, static normal operation.

p10037[0...3] SI TM54F agreement input terminal / SI agreement F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for "agreement" (operating mode "function interface").

Value:

0:	Statically active
1:	F-DI 0 (X521.2/3/6)
2:	F-DI 1 (X521.4/5/7)
3:	F-DI 2 (X522.1/2/7)
4:	F-DI 3 (X522.3/4/8)
5:	F-DI 4 (X522.5/6/9)
6:	F-DI 5 (X531.2/3/6)
7:	F-DI 6 (X531.4/5/7)
8:	F-DI 7 (X532.1/2/7)
9:	F-DI 8 (X532.3/4/8)
10:	F-DI 9 (X532.5/6/9)
255:	Statically inactive

Index:

[0]	= Drive group 1
[1]	= Drive group 2
[2]	= Drive group 3
[3]	= Drive group 4

Note

Parameter being prepared. For this firmware version, the function interface is not supported.
 For a value = 0:
 No terminal assigned, no static agreement.
 For a value = 255:
 No terminal assigned, static agreement.

p10038[0...3] SI TM54F Emergency Stop input terminal / SI E-Stop F-DI

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	255	0

Description: Sets the input terminal for input "Emergency Stop" (operating mode "function interface").
 The behavior of this input signal is set in p10021.

Value:

0:	Statically active
1:	F-DI 0 (X521.2/3/6)
2:	F-DI 1 (X521.4/5/7)
3:	F-DI 2 (X522.1/2/7)
4:	F-DI 3 (X522.3/4/8)
5:	F-DI 4 (X522.5/6/9)
6:	F-DI 5 (X531.2/3/6)
7:	F-DI 6 (X531.4/5/7)
8:	F-DI 7 (X532.1/2/7)

9: F-DI 8 (X532.3/4/8)
 10: F-DI 9 (X532.5/6/9)
 255: Statically inactive

Index:
 [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Dependency: See also: p10008, p10021

Note

Parameter being prepared. For this firmware version, the function interface is not supported.

For a value = 0:

No terminal assigned, "Emergency Stop" statically active.

For a value = 255:

No terminal assigned, no "Emergency Stop" statically active.

p10039[0...3] SI TM54F Safe State signal selection / SI Safe State Sel

TM54F_MA, TM54F_SL **Changeable:** C2(95)

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: 2856

Unit selection: -

Expert list: 1

Default:

0000 0001 bin

Index:
 [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power_removed	Selected	Not selected	-
	01	SS1_active	Selected	Not selected	-
	02	SS2_active	Selected	Not selected	-
	03	SOS_active	Selected	Not selected	-
	04	SLS_active	Selected	Not selected	-
	05	SDI_pos_active	Selected	Not selected	-
	06	SDI_neg_active	Selected	Not selected	-
	07	SLP_active	Selected	Not selected	-

p10040 SI TM54F F-DI input mode / SI F-DI inp_mode

TM54F_MA, TM54F_SL **Changeable:** C2(95)

Data type: Unsigned32

P group: Safety Integrated

Not for motor type: -

Min:

-

Calculation: -

Dynamic index: -

Unit group: -

Scaling: -

Max:

-

Access level: 3

Function plan: -

Unit selection: -

Expert list: 1

Default:

0000 0000 0000 0000 bin

Description: Sets the input mode for the safety digital inputs (F-DI).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0, DI 1+ (X521.3)	NO contact	NC contact	2850
	01	F-DI 1, DI 3+ (X521.5)	NO contact	NC contact	2850
	02	F-DI 2, DI 5+ (X522.2)	NO contact	NC contact	2850
	03	F-DI 3, DI 7+ (X522.4)	NO contact	NC contact	2850

04	F-DI 4, DI 9+ (X522.6)	NO contact	NC contact	2850
05	F-DI 5, DI 11+ (X531.3)	NO contact	NC contact	2851
06	F-DI 6, DI 13+ (X531.5)	NO contact	NC contact	2851
07	F-DI 7, DI 15+ (X532.2)	NO contact	NC contact	2851
08	F-DI 8, DI 17+ (X532.4)	NO contact	NC contact	2851
09	F-DI 9, DI 19+ (X532.6)	NO contact	NC contact	2851

Note

Only an NC contact can be connected for the safety digital inputs not listed.

p10041 SI TM54F F-DI enable for test / SI F-DI enab test

TM54F_MA, TM54F_SL **Changeable:** C2(95) **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2848
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - 0000 0000 0000 0000 bin

Description: Enable signal for the integration of F-DI in the test (forced checking procedure) of the sensor power supply.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0, power supply L1+	Test active	No test	-
	01	F-DI 1, power supply L1+	Test active	No test	-
	02	F-DI 2, power supply L1+	Test active	No test	-
	03	F-DI 3, power supply L1+	Test active	No test	-
	04	F-DI 4, power supply L1+	Test active	No test	-
	05	F-DI 5, power supply L2+	Test active	No test	-
	06	F-DI 6, power supply L2+	Test active	No test	-
	07	F-DI 7, power supply L2+	Test active	No test	-
	08	F-DI 8, power supply L2+	Test active	No test	-
	09	F-DI 9, power supply L2+	Test active	No test	-

Note

F-DI: Failsafe Digital Input

p10042[0...5] SI TM54F F-DO 0 signal sources / SI F-DO 0 S_src

TM54F_MA, TM54F_SL **Changeable:** C2(95) **Calculation:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Function plan:** 2857
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0 783 0

Description: Sets the signal sources for F-DO 0.
The 6 signal sources in p10042[0...5] are AND'ed and the result is output at F-DO 0.

Value:

0:	No function
1:	Drive group 1 STO active
2:	Drive group 1 SS1 active
3:	Drive group 1 SS2 active
4:	Drive group 1 SOS active
5:	Drive group 1 SLS active
6:	Drive group 1 SSM feedback signal active
7:	Drive group 1 safe state

8:	Drive group 1 SOS selected
9:	Drive group 1 internal event
10:	Drive group 1 active SLS stage bit 0
11:	Drive group 1 active SLS stage bit 1
12:	Drive group 1 SDI positive active
13:	Drive group 1 SDI negative active
14:	Drive group 1 SLP active
15:	Drive group 1 active SLP area
257:	Drive group 2 STO active
258:	Drive group 2 SS1 active
259:	Drive group 2 SS2 active
260:	Drive group 2 SOS active
261:	Drive group 2 SLS active
262:	Drive group 2 SSM feedback signal active
263:	Drive group 2 safe state
264:	Drive group 2 SOS selected
265:	Drive group 2 internal event
266:	Drive group 2 active SLS stage bit 0
267:	Drive group 2 active SLS stage bit 1
268:	Drive group 2 SDI positive active
269:	Drive group 2 SDI negative active
270:	Drive group 2 SLP active
271:	Drive group 2 active SLP area
513:	Drive group 3 STO active
514:	Drive group 3 SS1 active
515:	Drive group 3 SS2 active
516:	Drive group 3 SOS active
517:	Drive group 3 SLS active
518:	Drive group 3 SSM feedback signal active
519:	Drive group 3 safe state
520:	Drive group 3 SOS selected
521:	Drive group 3 internal event
522:	Drive group 3 active SLS stage bit 0
523:	Drive group 3 active SLS stage bit 1
524:	Drive group 3 SDI positive active
525:	Drive group 3 SDI negative active
526:	Drive group 3 SLP active
527:	Drive group 3 active SLP area
769:	Drive group 4 STO active
770:	Drive group 4 SS1 active
771:	Drive group 4 SS2 active
772:	Drive group 4 SOS active
773:	Drive group 4 SLS active
774:	Drive group 4 SSM feedback signal active
775:	Drive group 4 safe state
776:	Drive group 4 SOS selected
777:	Drive group 4 internal event
778:	Drive group 4 active SLS stage bit 0
779:	Drive group 4 active SLS stage bit 1

- 780: Drive group 4 SDI positive active
- 781: Drive group 4 SDI negative active
- 782: Drive group 4 SLP active
- 783: Drive group 4 active SLP area

Index:

- [0] = AND logic operation input 1
- [1] = AND logic operation input 2
- [2] = AND logic operation input 3
- [3] = AND logic operation input 4
- [4] = AND logic operation input 5
- [5] = AND logic operation input 6

Note

F-DO: Failsafe Digital Output

p10043[0...5] SI TM54F F-DO 1 signal sources / SI F-DO 1 S_src

TM54F_MA, TM54F_SL **Changeable:** C2(95)

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: 2857

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

783

0

Description:

Sets the signal sources for F-DO 1.
The 6 signal sources in p10043[0...5] are AND'ed and the result is output at F-DO 1.

Value:

- 0: No function
- 1: Drive group 1 STO active
- 2: Drive group 1 SS1 active
- 3: Drive group 1 SS2 active
- 4: Drive group 1 SOS active
- 5: Drive group 1 SLS active
- 6: Drive group 1 SSM feedback signal active
- 7: Drive group 1 safe state
- 8: Drive group 1 SOS selected
- 9: Drive group 1 internal event
- 10: Drive group 1 active SLS stage bit 0
- 11: Drive group 1 active SLS stage bit 1
- 12: Drive group 1 SDI positive active
- 13: Drive group 1 SDI negative active
- 14: Drive group 1 SLP active
- 15: Drive group 1 active SLP area
- 257: Drive group 2 STO active
- 258: Drive group 2 SS1 active
- 259: Drive group 2 SS2 active
- 260: Drive group 2 SOS active
- 261: Drive group 2 SLS active
- 262: Drive group 2 SSM feedback signal active
- 263: Drive group 2 safe state
- 264: Drive group 2 SOS selected
- 265: Drive group 2 internal event
- 266: Drive group 2 active SLS stage bit 0
- 267: Drive group 2 active SLS stage bit 1

268:	Drive group 2 SDI positive active
269:	Drive group 2 SDI negative active
270:	Drive group 2 SLP active
271:	Drive group 2 active SLP area
513:	Drive group 3 STO active
514:	Drive group 3 SS1 active
515:	Drive group 3 SS2 active
516:	Drive group 3 SOS active
517:	Drive group 3 SLS active
518:	Drive group 3 SSM feedback signal active
519:	Drive group 3 safe state
520:	Drive group 3 SOS selected
521:	Drive group 3 internal event
522:	Drive group 3 active SLS stage bit 0
523:	Drive group 3 active SLS stage bit 1
524:	Drive group 3 SDI positive active
525:	Drive group 3 SDI negative active
526:	Drive group 3 SLP active
527:	Drive group 3 active SLP area
769:	Drive group 4 STO active
770:	Drive group 4 SS1 active
771:	Drive group 4 SS2 active
772:	Drive group 4 SOS active
773:	Drive group 4 SLS active
774:	Drive group 4 SSM feedback signal active
775:	Drive group 4 safe state
776:	Drive group 4 SOS selected
777:	Drive group 4 internal event
778:	Drive group 4 active SLS stage bit 0
779:	Drive group 4 active SLS stage bit 1
780:	Drive group 4 SDI positive active
781:	Drive group 4 SDI negative active
782:	Drive group 4 SLP active
783:	Drive group 4 active SLP area

Index:

[0] = AND logic operation input 1
 [1] = AND logic operation input 2
 [2] = AND logic operation input 3
 [3] = AND logic operation input 4
 [4] = AND logic operation input 5
 [5] = AND logic operation input 6

Note

F-DO: Failsafe Digital Output

p10044[0...5]	SI TM54F F-DO 2 signal sources / SI F-DO 2 S_src		
TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2857
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	783	0

Description: Sets the signal sources for F-DO 2.
 The 6 signal sources in p10044[0...5] are AND'ed and the result is output at F-DO 2.

- Value:**
- 0: No function
 - 1: Drive group 1 STO active
 - 2: Drive group 1 SS1 active
 - 3: Drive group 1 SS2 active
 - 4: Drive group 1 SOS active
 - 5: Drive group 1 SLS active
 - 6: Drive group 1 SSM feedback signal active
 - 7: Drive group 1 safe state
 - 8: Drive group 1 SOS selected
 - 9: Drive group 1 internal event
 - 10: Drive group 1 active SLS stage bit 0
 - 11: Drive group 1 active SLS stage bit 1
 - 12: Drive group 1 SDI positive active
 - 13: Drive group 1 SDI negative active
 - 14: Drive group 1 SLP active
 - 15: Drive group 1 active SLP area
 - 257: Drive group 2 STO active
 - 258: Drive group 2 SS1 active
 - 259: Drive group 2 SS2 active
 - 260: Drive group 2 SOS active
 - 261: Drive group 2 SLS active
 - 262: Drive group 2 SSM feedback signal active
 - 263: Drive group 2 safe state
 - 264: Drive group 2 SOS selected
 - 265: Drive group 2 internal event
 - 266: Drive group 2 active SLS stage bit 0
 - 267: Drive group 2 active SLS stage bit 1
 - 268: Drive group 2 SDI positive active
 - 269: Drive group 2 SDI negative active
 - 270: Drive group 2 SLP active
 - 271: Drive group 2 active SLP area
 - 513: Drive group 3 STO active
 - 514: Drive group 3 SS1 active
 - 515: Drive group 3 SS2 active
 - 516: Drive group 3 SOS active
 - 517: Drive group 3 SLS active
 - 518: Drive group 3 SSM feedback signal active
 - 519: Drive group 3 safe state
 - 520: Drive group 3 SOS selected
 - 521: Drive group 3 internal event

522:	Drive group 3 active SLS stage bit 0
523:	Drive group 3 active SLS stage bit 1
524:	Drive group 3 SDI positive active
525:	Drive group 3 SDI negative active
526:	Drive group 3 SLP active
527:	Drive group 3 active SLP area
769:	Drive group 4 STO active
770:	Drive group 4 SS1 active
771:	Drive group 4 SS2 active
772:	Drive group 4 SOS active
773:	Drive group 4 SLS active
774:	Drive group 4 SSM feedback signal active
775:	Drive group 4 safe state
776:	Drive group 4 SOS selected
777:	Drive group 4 internal event
778:	Drive group 4 active SLS stage bit 0
779:	Drive group 4 active SLS stage bit 1
780:	Drive group 4 SDI positive active
781:	Drive group 4 SDI negative active
782:	Drive group 4 SLP active
783:	Drive group 4 active SLP area

Index:	[0] = AND logic operation input 1
	[1] = AND logic operation input 2
	[2] = AND logic operation input 3
	[3] = AND logic operation input 4
	[4] = AND logic operation input 5
	[5] = AND logic operation input 6

Note

F-DO: Failsafe Digital Output

p10045[0...5] SI TM54F F-DO 3 signal sources / SI F-DO 3 S_src

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2857
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	783	0

Description: Sets the signal sources for F-DO 3.
The 6 signal sources in p10045[0...5] are AND'ed and the result is output at F-DO 3.

Value:	0: No function
	1: Drive group 1 STO active
	2: Drive group 1 SS1 active
	3: Drive group 1 SS2 active
	4: Drive group 1 SOS active
	5: Drive group 1 SLS active
	6: Drive group 1 SSM feedback signal active
	7: Drive group 1 safe state
	8: Drive group 1 SOS selected
	9: Drive group 1 internal event

10:	Drive group 1 active SLS stage bit 0
11:	Drive group 1 active SLS stage bit 1
12:	Drive group 1 SDI positive active
13:	Drive group 1 SDI negative active
14:	Drive group 1 SLP active
15:	Drive group 1 active SLP area
257:	Drive group 2 STO active
258:	Drive group 2 SS1 active
259:	Drive group 2 SS2 active
260:	Drive group 2 SOS active
261:	Drive group 2 SLS active
262:	Drive group 2 SSM feedback signal active
263:	Drive group 2 safe state
264:	Drive group 2 SOS selected
265:	Drive group 2 internal event
266:	Drive group 2 active SLS stage bit 0
267:	Drive group 2 active SLS stage bit 1
268:	Drive group 2 SDI positive active
269:	Drive group 2 SDI negative active
270:	Drive group 2 SLP active
271:	Drive group 2 active SLP area
513:	Drive group 3 STO active
514:	Drive group 3 SS1 active
515:	Drive group 3 SS2 active
516:	Drive group 3 SOS active
517:	Drive group 3 SLS active
518:	Drive group 3 SSM feedback signal active
519:	Drive group 3 safe state
520:	Drive group 3 SOS selected
521:	Drive group 3 internal event
522:	Drive group 3 active SLS stage bit 0
523:	Drive group 3 active SLS stage bit 1
524:	Drive group 3 SDI positive active
525:	Drive group 3 SDI negative active
526:	Drive group 3 SLP active
527:	Drive group 3 active SLP area
769:	Drive group 4 STO active
770:	Drive group 4 SS1 active
771:	Drive group 4 SS2 active
772:	Drive group 4 SOS active
773:	Drive group 4 SLS active
774:	Drive group 4 SSM feedback signal active
775:	Drive group 4 safe state
776:	Drive group 4 SOS selected
777:	Drive group 4 internal event
778:	Drive group 4 active SLS stage bit 0
779:	Drive group 4 active SLS stage bit 1
780:	Drive group 4 SDI positive active
781:	Drive group 4 SDI negative active

	782:	Drive group 4 SLP active
	783:	Drive group 4 active SLP area
Index:	[0]	= AND logic operation input 1
	[1]	= AND logic operation input 2
	[2]	= AND logic operation input 3
	[3]	= AND logic operation input 4
	[4]	= AND logic operation input 5
	[5]	= AND logic operation input 6

Note

F-DO: Failsafe Digital Output

p10046 SI TM54F F-DO feedback signal input activation / SI F-DO FS act

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2848
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 bin

Description: Activates the readback input for the safety digital outputs (F-DO)
The test mode for the particular safety digital output is set in p10047.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Read back F-DO 0	Test active	No test	-
	01	Read back F-DO 1	Test active	No test	-
	02	Read back F-DO 2	Test active	No test	-
	03	Read back F-DO 3	Test active	No test	-

Dependency: See also: p10047

Note

F-DO: Failsafe Digital Output

p10047[0...3] SI TM54F F-DO test stop mode / SI F-DO test mode

TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	1	3	2

Description: Sets the test stop mode for the particular safety digital output (F-DO)
Index 0: F-DO 0
Index 1: F-DO 1
Index 2: F-DO 2
Index 3: F-DO 3

Value:	1:	Test mode 1 evaluation of int. diagnostic signal (passive load)
	2:	Test mode 2 read back F-DO in DI (relay circuit)
	3:	Test mode 3 read back F-DO in DI (actuator with feedback signal)

Note

For a value = 1:

When this test mode is being used, and excessive resistance of the load between DO+ and DO- can lead to problems during the test stop. It is therefore important to make sure that the load resistance at an individual F-DO does not exceed 10 kOhm.

p10048 **SI TM54F F-DI F-DO test stop configuration / SI teststop config**
 TM54F_MA **Changeable:** C2(95) **Calculation:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Function plan:** -
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 0 1 0

Description: Configures the test stop for F-DI and F-DO of the TM54F.
 If the automatic test stop is activated, then the test stop can still be started using binector input p10007.

Note:

The automatic test stop is started after power up, partial power up or a warm restart.

Value: 0: Manual test stop via BICO p10007
 1: Automatic test stop

r10051.0...9 **CO/BO: SI TM54F digital inputs status / SI DI status**
 TM54F_MA, TM54F_SL **Changeable:** - **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2850, 2851
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
 - - -

Description: Display and BICO output for the single-channel, logical, and debounced status of the safety digital inputs F-DI 0 ... 9 at Terminal Module 54F (TM54F).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0	Logical 1	Logical 0	2850
	01	F-DI 1	Logical 1	Logical 0	2850
	02	F-DI 2	Logical 1	Logical 0	2850
	03	F-DI 3	Logical 1	Logical 0	2850
	04	F-DI 4	Logical 1	Logical 0	2850
	05	F-DI 5	Logical 1	Logical 0	2851
	06	F-DI 6	Logical 1	Logical 0	2851
	07	F-DI 7	Logical 1	Logical 0	2851
	08	F-DI 8	Logical 1	Logical 0	2851
	09	F-DI 9	Logical 1	Logical 0	2851

Dependency: See also: p10017, p10040

Note

If a safety function is assigned to an input (e.g. via p10022), then the following applies:

- logical "0": Safety function is selected
- logical "1": Safety function is de-selected

The interrelationship between the logical level and the external voltage level at the input depends on the parameterization (refer to p10040) of the input as either NC or NO contact and is aligned to the use of a safety function: With 24 V at the input, NC contacts have a logical "1" level, for 0 V at the input, a logical "0" level.

This means that an NC/NC contact parameterization of 0 V at both inputs of the F-DI selects the safety function, for 24 V at both inputs, de-selects the safety function.

With 24 V at the input, NO contacts have a logical "0" level, for 0 V at the input, a logical "1" level.

This means that for an NC/NO contact parameterization, the level 0 V/24 V selects the safety function, the level 24 V/0 V de-selects the safety function.

F-DI: Failsafe Digital Input

r10052.0...3 CO/BO: SI TM54F digital outputs status / SI DO status

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of the digital outputs at the Terminal Module 54F (TM54F).
 TM54F_MA (master): display of DO-
 TM54F_SL (slave): display of DO+

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0	High	Low	2853
	01	DO 1	High	Low	2853
	02	DO 2	High	Low	2853
	03	DO 3	High	Low	2853

Note

F-DO: Failsafe Digital Output

r10053.0...3 CO/BO: SI TM54F digital inputs 20 ... 23 status / SI DI 20...23 stat

TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2848
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the status of the digital inputs at the Terminal Module 54F (TM54F).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 20	High	Low	2853
	01	DI 21	High	Low	2853
	02	DI 22	High	Low	2853
	03	DI 23	High	Low	2853

r10054 SI TM54F failsafe events active / SI failsafe act

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the events that lead to the transfer of failsafe signals to all drives assigned to the TM54F. If the second channel of the TM54F transmits failsafe signals, then these are synchronized to the other channel. In this particular case, p10054 of the other TM54F channel should be evaluated.

Possibilities of resolving the situation:

- error during test stop: correctly perform the test stop.
- internal software error: no possibility of resolving this problem, POWER ON.
- internal synchronization problem: no possibility of resolving this problem, POWER ON.
- internal status error: no possibility of resolving this problem, POWER ON.
- parameterizing error: evaluate description of alarms F35004 or F35006. Resolve parameterizing error. POWER ON. After updating the firmware of the TM54F it is possible that a power on is required.
- all other causes: remove the cause of the error and carry out a safe acknowledgment (p10006).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Commissioning mode active (p0010 = 95)	Yes	No	2847
	01	Checksum error of the safety parameters	Yes	No	-
	02	Internal synchronization problem within TM54F	Yes	No	-
	03	Internal software error	Yes	No	-
	04	Overvoltage in the TM54F	Yes	No	-
	05	Undervoltage in the TM54F	Yes	No	-
	06	Error at test stop	Yes	No	-
	07	Error for crosswise data comparison within TM54F	Yes	No	-
	08	Overtemperature in the TM54F	Yes	No	-
	09	Internal status error	Yes	No	-
	10	Param error	Yes	No	-
	31	Failsafe events active on another channel	Yes	No	-

r10055 **SI TM54F communication status drive-specific / SI comm_stat drv**

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Displays the communication status of the individual drives with the Terminal Module 54F (TM54F).
 For r10055 = 0, the following applies:
 All drives assigned in p10010 communicate with the TM54F.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Communication between drive 1 and TM54F	Not configured	Configured	-
	01	Communication between drive 2 and TM54F	Not configured	Configured	-
	02	Communication between drive 3 and TM54F	Not configured	Configured	-
	03	Communication between drive 4 and TM54F	Not configured	Configured	-
	04	Communication between drive 5 and TM54F	Not configured	Configured	-
	05	Communication between drive 6 and TM54F	Not configured	Configured	-

r10056.0 **CO/BO: SI TM54F status / SI stat**

TM54F_MA	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: -	Max: -	Default: -

Description: Display and BICO output for the status of the Terminal Module 54F (TM54F).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Test stop status	Active	Inactive	-

p10061	SI TM54F password input / SI password inp		
TM54F_MA, TM54F_SL	Changeable: T, U	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2847
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Enters the Safety Integrated password for the Terminal Module 54F (TM54F). This password is required to change the safety-relevant parameters.		

p10062	SI TM54F password new / SI password new		
TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2847
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Enters the new Safety Integrated password for the Terminal Module 54F (TM54F).		
Dependency:	A change made to the Safety Integrated password must be acknowledged in the following parameter: See also: p10063		

p10063	SI TM54F password acknowledgment / SI ackn password		
TM54F_MA, TM54F_SL	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: 2847
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Acknowledgment of the new Safety Integrated password for the Terminal Module 54F (TM54F).		
Dependency:	See also: p10062		

Note

The new password entered into p10062 must be re-entered in order to acknowledge.
p10062 = p10063 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.

r10070	SI TM54F module identifier / SI module ID		
TM54F_MA	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	4294967295	-
Description:	CRC via Node Identifier of the TM54F		

r10090[0...3] SI TM54F version / SI Version

TM54F_MA, TM54F_SL	Changeable: -	Calculation: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	-

Description: Displays the Safety Integrated version for the Terminal Module 54F (TM54F).

Index:
 [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)
 [3] = Safety Version (hotfix)

Dependency: See also: r9390, r9590, r9770, r9870, r9890

Note

Example:
 r10090[0] = 2, r10090[1] = 60, r10090[2] = 1, r10090[3] = 0 -> SI TM54F version V02.60.01.00

p10201 SI Motion SBT enable / SBT enable

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0000 bin

Description: Sets the enable for the safe brake test.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable safe brake test	Yes	No	-

Note

SBT: Safe Brake Test

p10202[0...1] SI Motion SBT brake selection / SBT brake select

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2	0

Description: Selects the brakes to be tested.

Value:
 0: Inhibit
 1: Test motor holding brake
 2: Test external brake

Index:
 [0] = Brake 1
 [1] = Brake 2

Dependency: See also: p10203, p10230, p10235
 See also: A01785

Note

It is not possible to test two motor holding brakes. An appropriate message is output for an incorrect parameterization. The brake to be tested is selected using p10230[2] or p10235.2.

p10203	SI Motion SBT control selection / SBT control select		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2837
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	2	0
Description:	Selects the control for the safe brake test.		
Value:	0: SBT via SCC (p10235)		
	1: SBT via BICO (p10230)		
	2: SBT for test stop selection (p9705/p10250.8)		
Dependency:	See also: p9705, p10230, p10235, p10250		
	Note		
	SCC: Safety Control Channel		
	For a value = 2, the following applies:		
	Brake 1 with sequence 1 (p10210[0], p10211[0], p10212[0], p10218) is tested. Brake 1 must be configured as motor holding brake (p10202[0] = 1).		
p10204	SI Motion SBT motor type / SBT motor type		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: -
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	0	1	0
Description:	Selects the motor type for the safe brake test.		
Value:	0: Rotating		
	1: Linear		
Dependency:	See also: F01787		
	Note		
	For safe functions that are not enabled (p9501 = 0), the following applies:		
	- p10204 is automatically set the same as r0108.12 when the system boots.		
	When the safe brake test is enabled (10201.0 = 1), the following applies:		
	- p10204 is checked when the system boots to see that it matches r0108.12.		
p10208[0...1]	SI Motion SBT test torque ramp time / SBT M_test t_ramp		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	20 [ms]	10000 [ms]	1000 [ms]
Description:	Sets the time, during which the test torque is ramped up against the closed brake. The test torque is then ramped down after the safe brake test.		
Index:	[0] = Brake 1		
	[1] = Brake 2		
	Note		
	The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.		

p10209[0...1] SERVO_828, SERVO_COMBI	SI Motion SBT brake holding torque / SBT brake M_stop		
	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 1.00 [Nm]	Max: 60000.00 [Nm]	Default: 10.00 [Nm]
Description:	Sets the effective holding torque on the motor side of the brake to be tested.		
Index:	[0] = Brake 1 [1] = Brake 2		
Dependency:	The holding torque of an external brake should be converted to the motor side. Conversion factor: - motor type = rotary and axis type = linear: p9522 / (p9521 x p9520) - otherwise: p9522 / p9521 Further, the efficiency of the mechanical system should be taken into account. See also: p10210, p10220		
	Note The test torque effective for the brake test can be set for each sequence using a factor (p10210, p10220).		

p10210[0...1] SERVO_828, SERVO_COMBI	SI Motion SBT test torque factor sequence 1 / SBT M_test fact 1		
	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.30	Max: 1.00	Default: 1.00
Description:	Sets the factor for the test torque of sequence 1 for the safe brake test. The factor is referred to the holding torque of the brake (p10209).		
Index:	[0] = Brake 1 [1] = Brake 2		
Dependency:	See also: p10209, p10230, p10235		
	Note The test sequence is selected using p10230[4] or p10235.4.		

p10211[0...1] SERVO_828, SERVO_COMBI	SI Motion SBT test duration sequence 1 / SBT t_test seq 1		
	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 20 [ms]	Max: 10000 [ms]	Default: 1000 [ms]
Description:	Sets the test duration for sequence 1 for the safe brake test. The test torque is available for this time at the closed brake.		
Index:	[0] = Brake 1 [1] = Brake 2		
Dependency:	See also: p10230, p10235		
	Note The test sequence is selected using p10230[4] or p10235.4. The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.		

p10212[0...1]	SI Motion SBT position tolerance sequence 1 / SBT pos_tol seq 1		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [mm]	Max: 360.000 [mm]	Default: 1.000 [mm]
Description:	Sets the tolerated position deviation for sequence 1 for the safe brake test.		
Index:	[0] = Brake 1 [1] = Brake 2		
Dependency:	See also: p10230, p10235		
	Note The test sequence is selected using p10230[4] or p10235.4.		

p10212[0...1]	SI Motion SBT position tolerance sequence 1 / SBT pos_tol seq 1		
SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [°]	Max: 360.000 [°]	Default: 1.000 [°]
Description:	Sets the tolerated position deviation for sequence 1 for the safe brake test.		
Index:	[0] = Brake 1 [1] = Brake 2		
Dependency:	See also: p10230, p10235		
	Note The test sequence is selected using p10230[4] or p10235.4.		

p10218	SI Motion SBT test torque sign / SBT M_test sign		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Function plan: 2837
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0	Max: 1	Default: 0
Description:	Sets the sign for the test torque for the safe brake test. This parameter is only valid for "SBT for test stop selection" (p10203 = 2).		
Value:	0: Positive 1: Negative		
Dependency:	See also: p10203		

p10220[0...1]	SI Motion SBT test torque factor sequence 2 / SBT M_test fact 2		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.30	Max: 1.00	Default: 1.00

Description: Sets the factor for the test torque of sequence 2 for the safe brake test.
The factor is referred to the holding torque of the brake (p10209).

Index: [0] = Brake 1
[1] = Brake 2

Dependency: See also: p10209, p10230, p10235

Note

The test sequence is selected using p10230[4] or p10235.4.

p10221[0...1] SI Motion SBT test duration sequence 2 / SBT t_test seq 2

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 20 [ms]	Max: 10000 [ms]	Default: 1000 [ms]

Description: Sets the test duration for sequence 2 for the safe brake test.
The test torque is available for this time at the closed brake.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: See also: p10230, p10235

Note

The test sequence is selected using p10230[4] or p10235.4.
The set time is rounded internally to an integer multiple of the monitoring clock (p9500/p9300) cycle.

p10222[0...1] SI Motion SBT position tolerance sequence 2 / SBT pos_tol seq 2

SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [mm]	Max: 360.000 [mm]	Default: 1.000 [mm]

Description: Sets the tolerated position deviation for sequence 2 for the safe brake test.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: See also: p10230, p10235

Note

The test sequence is selected using p10230[4] or p10235.4.

p10222[0...1] SI Motion SBT position tolerance sequence 2 / SBT pos_tol seq 2

SERVO_828 (Safety rot), SERVO_COMBI (Safety rot)	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min: 0.001 [°]	Max: 360.000 [°]	Default: 1.000 [°]

Description: Sets the tolerated position deviation for sequence 2 for the safe brake test.

Index: [0] = Brake 1
[1] = Brake 2

Dependency: See also: p10230, p10235

Note

The test sequence is selected using p10230[4] or p10235.4.

p10230[0...5]	BI: SI Motion SBT control word / SBT STW		
SERVO_828, SERVO_COMBI	Changeable: C2(95)	Calculation: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Function plan: 2837
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0
Description:	Sets the signal sources for the control word of the safe brake test This parameter is only valid for "SBT via BICO" (p10203 = 1).		
Index:	[0] = Select brake test [1] = Start brake test [2] = Select brake [3] = Select test torque sign [4] = Select test sequence [5] = External brake status		
	Note		
	For BI: p10230[0]: 0/1 signal: select brake test. 0 signal: inactive.		
	For BI: p10230[1]: 0/1 signal: start brake test.		
	For BI: p10230[2]: 1 signal: select brake 2. 0 signal: select brake 1.		
	For BI: p10230[3]: 1 signal: select negative test torque. 0 signal: select positive test torque.		
	For BI: p10230[4]: 1 signal: select test sequence 2. 0 signal: select test sequence 1.		
	For BI: p10230[5]: 1 signal: external brake closed. 0 signal: external brake open.		

r10231	SI Motion SBT control word diagnostics / SBT STW diag				
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Function plan: 2836, 2837		
	P group: Safety Integrated	Unit group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min:	Max:	Default:		
	-	-	-		
Description:	Displays the diagnostic bits for the control word of the safe brake test				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Select brake test	Yes	No	-
	01	Start brake test	Yes	No	-
	02	Select brake	Brake 2	Brake 1	-
	03	Select test torque sign	Negative	Positive	-
	04	Select test sequence	Test sequence 2	Test sequence 1	-

Dependency: 05 External brake status Closed Open -
See also: p10203

Note

The bits indicate the actual control signals of the control set in p10203.

r10234.14...15 **CO/BO: SI Safety Info Channel status word S_ZSW3B / SIC S_ZSW3B**
HLA_828
Changeable: - **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2836
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: - **Max:** - **Default:** -

Description: Display and BICO output for status word S_ZSW3B of the safety information channel.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	14	Acceptance test SLP (SE) active	Yes	No	-
	15	Acceptance test mode selected	Yes	No	-

Note

SIC: Safety Info Channel
SLP: Safely-Limited Position / SE: Safe software limit switches

r10234.0...15 **CO/BO: SI Safety Info Channel status word S_ZSW3B / SIC S_ZSW3B**
SERVO_828,
SERVO_COMBI
Changeable: - **Calculation:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** - **Function plan:** 2836
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: - **Max:** - **Default:** -

Description: Display and BICO output for status word S_ZSW3B of the safety information channel.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Brake test selected	Yes	No	-
	01	Setpoint input drive/external	Drive	External	-
	02	Active brake	Brake 2	Brake 1	-
	03	Brake test active	Yes	No	-
	04	Brake test result	Successful	With error	-
	05	Brake test completed	Yes	No	-
	06	External brake request	Close	Open	-
	07	Actual load sign	Negative	Positive	-
	14	Acceptance test SLP (SE) active	Yes	No	-
	15	Acceptance test mode selected	Yes	No	-

Note

SIC: Safety Info Channel
SLP: Safely-Limited Position / SE: Safe software limit switches

p10235	CI: SI Safety Control Channel control word S_STW3B / SCC S_STW3B		
SERVO_828, SERVO_COMBI	Changeable: T	Calculation: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Function plan: 2837
	P group: -	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	-	-	0

Description: Sets the signal source for control word S_STW3B of the Safety Control Channel.

Dependency: This parameter is used as control word for the safe brake test only for "SBT via SCC" (p10203 = 0).
See also: p10203

Note

SBT: Safe Brake Test
SCC: Safety Control Channel

r10240	SI Motion SBT test torque diagnostics / SBT M_test diag		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]

Description: Displays the effective maximum test torque on the motor side for a safe brake test.

Dependency: The test torque for an external brake should be converted to the load side.

Conversion factor:

- motor type = rotary and axis type = linear: (p9521 x p9520) / p9522

- otherwise: p9521 / p9522

Further, the efficiency of the mechanical system should be taken into account.

See also: p10210, p10220

Note

The value remains displayed until the start of the next test sequence.

r10241	SI Motion SBT load torque diagnostics / SBT M_load diag		
SERVO_828, SERVO_COMBI	Changeable: -	Calculation: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Function plan: 2836
	P group: Safety Integrated	Unit group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min:	Max:	Default:
	- [Nm]	- [Nm]	- [Nm]

Description: Displays the load torque for a safe brake test.

When initializing the brake test, this load torque is available at the drive.

Note

The value remains displayed until the brake test is deselected.

r10242 **SI Motion SBT state diagnostics / SBT state diag**
SERVO_828, **Changeable:** - **Calculation:** - **Access level:** 4
SERVO_COMBI **Data type:** Integer16 **Dynamic index:** - **Function plan:** -
P group: Safety Integrated **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
0 16 -

Description: Displays the actual state of the safe brake test.
Value: 0: Brake test inactive, wait for SBT selection
1: Setpoint input drive
2: Determining the load
3: Brake test is initialized, wait for start of test sequence
4: Start test seq
5: Closing the brake, establishing the test torque
6: Brake test active, wait for test duration sequence
7: Reduce test torque
8: Wait for the brake to open
9: Brake test successfully completed, wait for start deselection
10: Change to brake test initialized - fault acknowledgment
11: Brake test canceled, torque is reduced
12: Brake test canceled, wait for brake to open
13: Brake test ended with error, wait for acknowledgment
14: Brake opening timer elapsed
15: Error when initializing the brake test, wait for acknowledgment
16: Change to brake test inactive, acknowledgment active

p10250 **CI: SI Safety Control Channel control word S_STW1B / SCC S_STW1B**
HLA_828, **Changeable:** T **Calculation:** - **Access level:** 3
SERVO_828, **Data type:** Unsigned32 / Integer16 **Dynamic index:** - **Function plan:** -
SERVO_COMBI **P group:** - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - 0

Description: Sets the signal source for control word S_STW1B of the Safety Control Channel.
Dependency: See also: p10203, r10251

Note
SCC: Safety Control Channel

r10251.8...12 **CO/BO: SI Safety Control Channel control word S_STW1B diagnostics / SCC S_STW1B diag**
HLA_828, **Changeable:** - **Calculation:** - **Access level:** 3
SERVO_828, **Data type:** Unsigned32 **Dynamic index:** - **Function plan:** -
SERVO_COMBI **P group:** - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Default:**
- - -

Description: Display and BICO output for the diagnostics of control word S_STW1B of the safety control channel.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Extended functions test stop selection	Selected	Not selected	2837

09	Extended Functions referencing trigger	Selected	Not selected	-
10	Extended Functions referencing reset	Selected	Not selected	-
12	Extended Functions premature SOS after STOP D	Selected	Not selected	-

Dependency: See also: p10250

Note

SCC: Safety Control Channel

p60022

PROFIsafe telegram selection / Ps telegram_sel

SERVO_COMBI

Changeable: T

Calculation: -

Access level: 3

Data type: Unsigned16

Dynamic index: -

Function plan: -

P group: Safety Integrated

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

0

902

0

Description: Sets the telegram number for PROFIsafe.

Value: 0: No PROFIsafe telegram selected

30: PROFIsafe standard telegram 30, PZD-1/1

31: PROFIsafe standard telegram 31, PZD-2/2

901: PROFIsafe SIEMENS telegram 901, PZD-3/5

902: PROFIsafe SIEMENS telegram 902, PZD-3/6

Dependency: See also: p9611, p9811

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

p60122

IF1 PROFIdrive SIC/SCC telegram selection / IF1 SIC/SCC teleg

HLA_828,
SERVO_828,
SERVO_COMBI

Changeable: T

Calculation: -

Access level: 3

Data type: Integer16

Dynamic index: -

Function plan: 2423

P group: Communications

Unit group: -

Unit selection: -

Not for motor type: -

Scaling: -

Expert list: 1

Min:

Max:

Default:

700

999

999

Description: Sets the telegram for the safety information channel (SIC) / safety control channel (SCC).

The SIC/SCC telegram p60122 is attached directly to the PZD telegram p0922/p2079.

Value: 700: Supplementary telegram 700, PZD-0/3

701: Supplementary telegram 701, PZD-2/5

999: Free telegram configuration with BICO

Note

The clearance to the PZD telegram can be increased using p2070/p2071.

After changing p0922/p2079 or p2070/p2071, then p60122 must be set again.

The telegram interconnections can only be changed if p60122 and p0922 are both set to 999.

Appendix

A.1 List of abbreviations

Abbreviation	Source of abbreviation	Meaning
ADI4	Analog Drive Interface for 4 axes	
AC	Adaptive Control	
ALM	Active Line Module	Infeed module for drives
UP	User Program	
AS	Automation System	
ASCII	American Standard Code for Information Interchange	American coding standard for the exchange of information
ASIC	Application Specific Integrated Circuit	User switching circuit
ASUP	Asynchronous subprogram	
AUTO		Operating mode "Automatic"
AUXFU	Auxiliary Function:	Auxiliary functions
STL	Statement List	
BA	Operating mode	
Mode group	Mode group	
BERO	Proximity limit switch with feedback oscillator	
BI	Binector Input	
HHU	Handheld unit	
BICO	Binector Connector	Interconnection technology for the drive
BIN	Binary files	Binary files
BIOS	Basic Input Output System	
BCS	Basic Coordinate System	
BO	Binector Output	
OPI	Operator Panel Interface	
CAD	Computer-Aided Design	
CAM	Computer-Aided Manufacturing	
CC	Compile Cycle	Compile cycles
CI	Connector Input	
CF Card	Compact Flash Card	
CNC	Computerized Numerical Control	Computer-Supported Numerical Control
CO	Connector Output	
COM board	Communication Board	
CP	Communications Processor	
CPU	Central Processing Unit	Central processing unit
CR	Carriage Return	
CRC	Cyclic Redundancy Check	Checksum test
CRT	Cathode Ray Tube	picture tube

Abbreviation	Source of abbreviation	Meaning
CSB	Central Service Board	PLC module
CTS	Clear To Send	Signal from serial data interfaces
CUTCOM	Cutter radius compensation	Tool radius compensation
DB	Data block	Data block in the PLC
DBB	Data-block byte	Data block-byte in the PLC
DBW	Data-block word	Data-block word in the PLC
DBX	Data-block bit	Data-block bit in the PLC
DDE	Dynamic Data Exchange	Dynamic Data Exchange
DDS	Drive Data Set	Drive data set
DIN	Deutsche Industrie Norm (German Industry Standard)	
DIR	Directory	Directory
DLL	Dynamic Link Library	
DO	Drive Object	Drive object
DPM	Dual-Port Memory	
DRAM	Dynamic Random Access Memory	Dynamic memory block
DRF	Differential Resolver Function	Differential resolver function (handwheel)
DRIVE-CLiQ	Drive Component Link with IQ	
DRY	DRY run	DRY run feedrate
DSB	Decoding Single Block	Decoding single block
DSC	Dynamic Servo Control / Dynamic Stiffness Control	
DSR	Data Send Ready	Signals that data is ready to be sent from the serial data interfaces
DW	Data word	
DWORD	Double Word (currently 32 bits)	
E	Input	
I/O	Input/Output	
ENC	Encoder	Actual value encoder
EPROM	Erasable Programmable Read Only Memory	Erasable, electronically programmable read-only memory
ePS Network Services		Services for Internet-based remote machine maintenance
EQN		Designation for an absolute encoder with 2048 sine signals per revolution
ESR	Extended stop and retract	
ETC	ETC key	Expansion of the softkey bar in the same menu
FB	Function block	
FBS	Slimline screen	
FC	Function call	Function block in the PLC
FEPROM	Flash EPROM	Read and write memory
FIFO	First In - First Out	Method of storing and retrieving data in a memory
FIPO	Fine InterPOLator	
FM	Function Module	

A.1 List of abbreviations

Abbreviation	Source of abbreviation	Meaning
FM-NC	Function Module Numerical Control	Numerical control
FPU	Floating-Point Unit	Floating-point unit
FRA	Frame block	
FRAME	Data set	Coordinate conversion with the components work off-set, rotation, scaling, mirroring
CRC	Cutter Radius Compensation	
FST	Feed Stop	Feedrate stop
CSF	Function plan (PLC programming method)	
FW	Firmware	
GC	Global control	PROFIBUS: Broadcast telegram
GD	Global data	
GEO	Geometry, e.g. geometry axis	
GP	Basic program	
GS	Gear stage	
GUD	Global User Data	Global user data
HD	Hard Disk	Hard disk
HEX	Abbreviation for hexadecimal number	
AuxF	Auxiliary function	
HMI	Human Machine Interface	SINUMERIK user interface
MSD	Main Spindle Drive	
HT	Handheld Terminal	Handheld unit
HW	Hardware	
IBN	Startup	
IF	Drive module pulse enable	
IK (GD)	Implicit communication (global data)	
IKA	Interpolative Compensation	Interpolatory compensation
IM	Interface module	Interconnection module
INC	Increment	Increment
INI	Initializing Data	Initializing data
IGBT	Insulated Gate Bipolar Transistor	
IPO	Interpolator	
ISO	International Standardization Organization	International Standards Organization
JOG	"Jogging" operating mode	
COR	Coordinate rotation	
KDV	Crosswise data comparison	Crosswise data comparison between the NC and PLC
K_v	Servo-gain factor	Gain factor of control loop
LAD	Ladder diagram	PLC programming method
LCD	Liquid Crystal Display	Liquid crystal display
LED	Light Emitting Diode	Light Emitting Diode
LF	Line Feed	
PMS		
LSB	Least Significant Bit	Least significant bit
LUD	Local User Data	User data

Appendix

A.1 List of abbreviations

Abbreviation	Source of abbreviation	Meaning
MAC	Media Access Control	
MAIN	Main program	Main program (OB1, PLC)
MB	Megabyte	
MCI	Motion Control Interface	
MCIS	Motion Control Information System	
MCP	Machine control panel	Machine control panel
MD	Machine data	
MDI	"Manual Data Automatic" operating mode	Manual input
MCS	Machine coordinate system	
MPF	Main Program File	Main program (NC part program)
MPI	Multi-Point Interface	Multi-point interface
MCP	Machine control panel	
NC	Numerical Control	Numerical Control
NCK	Numerical Control Kernel	Numerical control kernel
NCU	Numerical Control Unit	The NC hardware unit
IS	Interfaces	Interface signal
WO	Zero offset	
NX	Numerical Extension	Axis expansion board
OB	Organization block in the PLC	
OEM	Original Equipment Manufacturer	
OP	Operator panel	Operator panel
OPI	Operator Panel Interface	Interface for connection to the operator panel
OSI	Open Systems Interconnection	Standard for computer communications
OPT	Options	Options
PIQ	Process Image Output	
PII	Process Image Input	
P bus	Peripheral Bus	
PC	Personal Computer	
PCMCIA	Personal Computer Memory Card International Association	Standard for plug-in memory cards
PCU	Programmable Control Unit	
PI	Program Instance	
PG	Programming device	
PLC	Programmable logic controller	Programmable Logic Controller
PN	PROFINET	
PO	POWER ON	
POU	Program Organization Unit	Unit in the PLC user program
PPU	Panel Processing Unit	Panel-based control
PTP	Point-to-point	Point-to-Point
PZD	Process data for drives	
QEC	Quadrant Error Compensation	Quadrant error compensation
QEC	Quadrant error compensation	
RAM	Random Access Memory	Program memory that can be read and written to

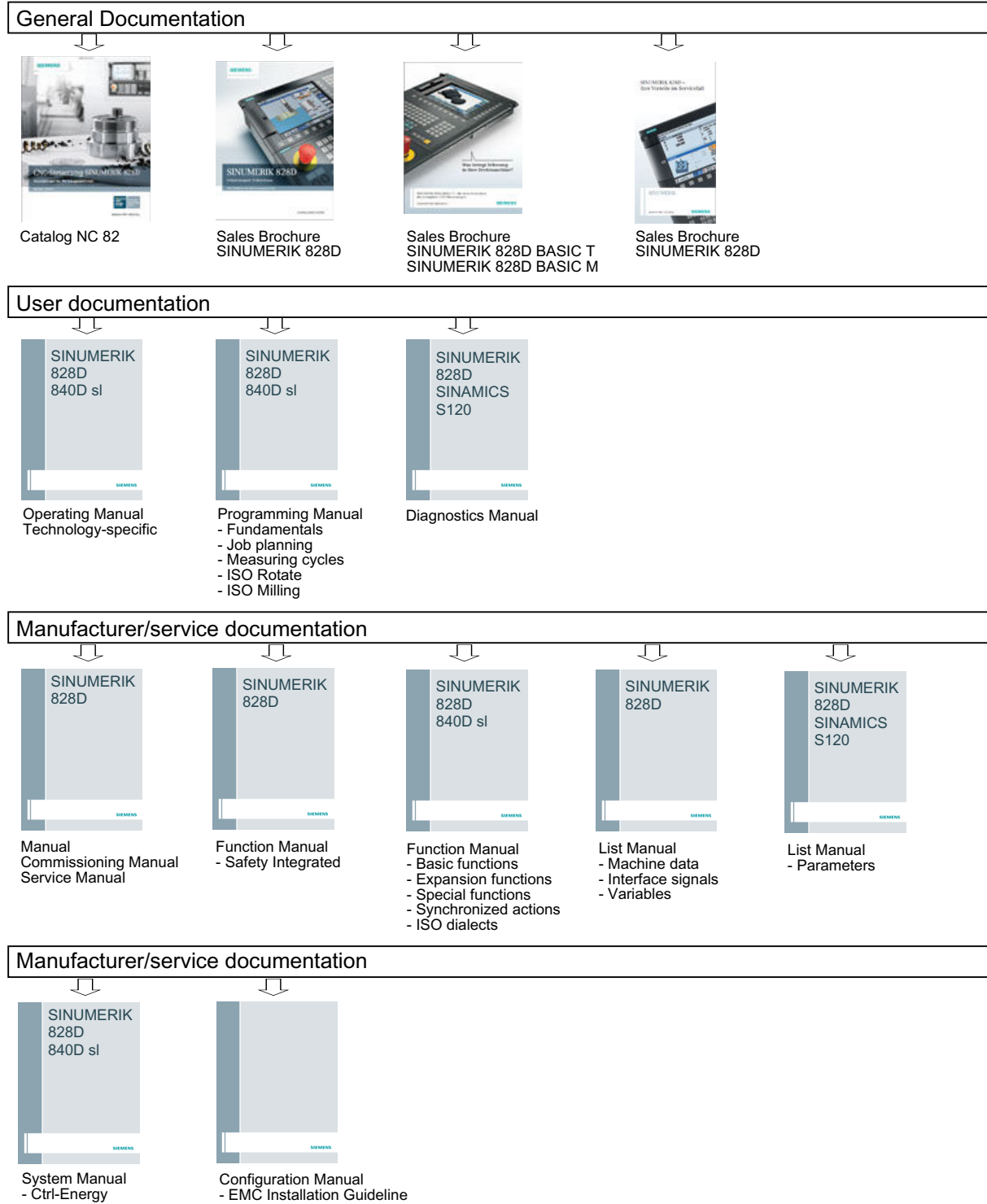
Abbreviation	Source of abbreviation	Meaning
REF POINT		Function "Reference point approach" in JOG mode
REPOS		Function "Repositioning" in JOG mode
RPA	R parameter Active	Memory area on the NC for R parameter numbers
RPY	Roll Pitch Yaw	Rotation type of a coordinate system
RTC	Real-Time Clock	Real-time clock
RTS	Request To Send	RTS, control signal of serial data interfaces
SBL	Single Block	Single block
SBR	Subroutine	Subroutine (PLC)
SBT	Safe brake test	
SCC	Safety Control Channel	
SD	Setting Data	
SDB	System Data Block	
SEA	Setting Data Active	Identifier (file type) for setting data
SERUPRO	SEArch RUn by PROgram test	Search run by program test
SFC	System Function Call	
SGE	Safety-related input	
SGA	Safety-related output	
SH	Safe standstill	
SIC	Safety Info Channel	
SK	Softkey	
SKP	Skip	Skip block
SLM	Smart Line Module	
SM	Stepper Motor	
SPF	Subprogram file	Subprogram (NC)
SPL	Safe programmable logic	
PLC	Programmable Logic Controller	
SRAM	Static Random Access Memory	Static memory block
TNRC	Tool Nose Radius Compensation	
LEC	Leadscrew error compensation	
SSI	Serial Synchronous Interface	Synchronous serial interface
STW	Control word	
GWPS	Grinding Wheel Peripheral Speed	
SW	Software	
SYF	System Files	System files
SYNACT	SYNACT synchronized action	Synchronized Action
TB	Terminal Board (SINAMICS)	
TEA	Testing Data Active	Identifier for machine data
TCP	Tool Center Point	Tool tip
TCU	Thin Client Unit	
TEA	Testing Data Active	Identifier for machine data
TM	Terminal Module (SINAMICS)	
TO	Tool offset	Tool offset
TOA	Tool Offset Active	Identifier (file type) for tool offsets

Appendix

A.1 List of abbreviations

Abbreviation	Source of abbreviation	Meaning
TRANSMIT	Transform Milling Into Turning	Coordinate conversion on turning machine for milling operations
TTL	Transistor-transistor logic	Interface type
UFR	User frame	Work offset
SR	Subroutine	
USB	Universal Serial Bus	
UPS	Uninterruptible Power Supply	
VDI		Internal communication interface between NC and PLC
FDD	Feed Drive	
VPM	Voltage Protection Module	
VSM	Voltage Sensing Module	
WAB		Function "Smooth Approach and Retraction"
Work	Workpiece coordinate system	
T	Tool	
TLC	Tool length compensation	
WPD	Workpiece Directory	Workpiece directory
T	Tool	
TM	Tool management	
TC	Tool change	
ZWS		Buffer location
ZOA	Work Offset Active	Identifier (file type) for zero offset data
SW	Status word (of drive)	

A.2 Documentation overview



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