

SIEMENS

SINUMERIK

SINUMERIK 828D, SINAMICS S120 Parameter description

Parameter Manual

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Valid for:
SINAMICS S120 Combi and Booksize
Version 4.3 SP2

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
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
NOTICE
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.


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 for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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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 adhered to. The information in the relevant documentation must be observed.

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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

Preface

SINUMERIK documentation

The SINUMERIK documentation is organized in three parts:

- General documentation
- User documentation
- Manufacturer/service documentation

Information on the following topics is available at <http://www.siemens.com/motioncontrol/docu>:

- Ordering documentation:

Here you can find an up-to-date overview of publications.

- Downloading documentation:

Links to more information for downloading files from Service & Support.

- Researching documentation online

Information on DOConCD and direct access to the publications in DOConWEB.

- Compiling individual documentation on the basis of Siemens contents with the My Documentation Manager (DM), refer to <http://www.siemens.com/mdm>.

My Documentation Manager provides you with a range of features for generating your own machine documentation.

- Training and FAQs

Information on our range of training courses and FAQs (frequently asked questions) is available via the page navigation.

Target group

This documentation is intended for commissioning personnel.

The plant or system is readily assembled and wired. For the following steps, e.g. configuring the individual components, the Commissioning Manual contains all necessary information or at least references.

Benefits

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

Utilization phase: Setup and commissioning phase

Standard version

This List Manual only describes the functionality of the standard version. Extensions or changes 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 reasons of clarity, this documentation does not contain all the detailed information about all types of the product and cannot cover every conceivable case of installation, operation or maintenance.

Questions about this documentation

If you have any queries (suggestions, corrections) in relation to this documentation, please send a fax or e-mail to the following address:

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A fax form is available at the end of this document.
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SINUMERIK Internet address

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

Technical Support

If you have any technical questions, please contact our hotline:

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Note

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

EC Declaration of Conformity

The EC Declaration of Conformity for the EMC Directive can be found on the Internet at:

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

under the Product Order No. 15257461, or at the relevant branch office of I DT MC Division of Siemens AG.

Subject matter of this manual

The manual provides you with a complete overview of the machine data and interface signals. In the brief statements provided on the machine data, you will generally find a link to a reference that contains detailed information.

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Explanation of list of parameters

1.1 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 example -----

Parameter number pxxx[0...n]	BICO: Full parameter name / abbreviated name			
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. 0.00 [Nm]	Max 10.00. [Nm]	Factory setting 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

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 example -----

-

1.2 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.

1.2 Meaning of the parameter descriptions

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
AFE_SINUMERIK_828	103	Active Infeed closed-loop control Closed-loop controlled, self-commutated infeed/regenerative feedback unit for generating a constant DC-link voltage.
AFE_SINUMERIK_828 (line transformer)		Active Infeed closed-loop control with "line transformer" function module
AFE_SINUMERIK_828 (Brk Mod Ext)		Active Infeed closed-loop control with "Brk Mod Ext?" function module
AFE_SINUMERIK_828 (Master/Slave)		Active Infeed closed-loop control with "Master/Slave" function module

Explanation of list of parameters

1.2 Meaning of the parameter descriptions

Drive object (function module)	Type	Meaning
AFE_SINUMERIK_828 (Parallel)		Active Infeed closed-loop control with "Parallel?" function module
AFE_SINUMERIK_828 (Cooling unit)		Active Infeed closed-loop control with "Cooling unit" function module
BIC_SINUMERIK_828	103	Basic Infeed closed loop control Uncontrolled infeed unit (without energy recovery) to rectify the line voltage for the DC link.
BIC_SINUMERIK_828 (Brk Mod Ext)		Basic Infeed closed-loop control with "Brk Mod Ext?" function module
BIC_SINUMERIK_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_SINUMERIK_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_SINUMERIK828	103	Servo drive
SERVO_SINUMERIK828 (Safety rot)		Servo drive with "Safety rot?" function module
SIC_COMBI	102	
SIC_COMBI (Brk Mod Ext)		
SIC_SINUMERIK_828 (Parallel)		
SIC_SINUMERIK_828	103	
SIC_SINUMERIK_828 (Brk Mod Ext)		
SIC_SINUMERIK_828 (Cooling 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).

5. Macro (the parameter can only be changed via macro)

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 (refers only to access via BOP (Basic Operator Panel)) (SINAMICS)

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

Unit, Unit Group and Unit Selection (SINAMICS)

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.

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.

NOTICE

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

Product: 828D COMBI, Version: 4302800, Language: eng
 Objects: AFE_SINUMERIK_828, BIC_SINUMERIK_828, CU_I_COMBI, CU_I_SINUMERIK_828, CU_LINK, CU_NX_828, HUB, SERVO_COMBI,
 SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828, TM120, TM54F_MA, TM54F_SL

r0002	Infeed operating display / INF op_display		
AFE_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	250	-
Description:	Operating display for the infeed.		
Value:	0: Operation - everything enabled 21: Ready for operation - set "Operation enable" = "1" (p0852) 31: Rdy for sw on - pre-chrg 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 200: Wait for booting/partial booting 250: Device signals a topology error		
Dependency:	Refer to: 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		
BIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	250	-
Description:	Operating display for the infeed.		
Value:	0: Operation - everything enabled 31: Rdy for sw on - pre-chrg 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 200: Wait for booting/partial booting 250: Device signals a topology error		
Dependency:	Refer to: r0046		

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.
Note: OC: Operating condition
 COMM: Commissioning

r0002 Control Unit operating display / CU op_display

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 117	Factory setting -

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-CLiQ Hub Module operating display / Hub op_display

HUB	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 250	Factory setting -

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.

r0002 Drive operating display / Drv op_display			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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, SOS 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 200: Wait for booting/partial booting 250: Device signals a topology error		
Dependency:	Refer to: 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 SOS: Safe Operating Stop STO: Safe Torque Off		

r0002 TM120 operating display / TM120 op_display			
TM120	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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 TM54F operating display / TM54F op_display

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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

p0003 BOP access level / BOP acc_level

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1, U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	4	1

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

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

Note:

- Access level 0 (user-defined):
- Parameters from the user-defined list (p0013). Not used as of firmware version 2.6 (p0016).
- Access level 1 (standard):
- Parameters for the simplest operator control possibility (e.g. p1120 = ramp-function generator, ramp-up time).
- Access level 2 (extended):
- Parameters to operate the basic functions of the drive unit.
- Access level 3 (experts):
- Expert know-how is required for these parameters (e.g. BICO parameterization).
- Access level 4 (service):
- For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).

p0004 BOP display filter / BOP disp_filter

CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C2(1), U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: ASM	Scaling: -	Expert list: 1
	Min 0	Max 99	Factory setting 0

Description: Sets the display filter for parameters with the Basic Operator Panel (BOP).

Value:

0:	All parameters
1:	Displays, signals
2:	Power unit
3:	Motor
4:	Encoder/pos enc
5:	Technology/units
7:	Digital inputs/outputs commands sequence control
8:	Analog inputs/outputs
10:	Setpoint channel/ramp-fct generator
12:	Functions
13:	V/f control
14:	Control
15:	Data sets
17:	Basic positioner
18:	Gating unit
19:	Motor identification
20:	Communication
21:	Faults, alarms, monitoring functions
25:	Closed-loop position control
28:	Free function blocks
47:	Trace and function generator
50:	OA parameters
90:	Topology
95:	Safety Integrated
98:	Command Data Sets (CDS)
99:	Drive Data Sets (DDS)

Dependency: Refer to: p0003

Notice: The display filter via p0004 provides precise filtering and displays the corresponding parameters only when p0009 and p0010 = 0.

Note: The set access level via p0003 is also relevant for the display filter via p0004.

Examples (assumption: p0009 = p0010 = 0):

p0003 = 1, p0004 = 3

--> Only the parameters for the motor are displayed with access level 1.

p0003 = 2, p0004 = 3

--> Only the parameters for the motor are displayed with access levels 1 and 2.

p0005[0...1] BOP operating display selection / BOP op_disp sel

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, HUB, SERVO_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
---	--	---	---

Min	Max	Factory setting
0	65535	[0] 2 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 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)
- p0005[0] = 27, p0005[1] = 0: Absolute current actual value, smoothed (r0027)

Index: [0] = Parameter number
[1] = Parameter index

Dependency: Refer to: p0006

Note: Procedure:

1.
The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object.
If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.
2.
The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0006 BOP operating display mode / BOP op_disp mode

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	---	---	---

Min	Max	Factory setting
0	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:

- 0: Operation --> r0021, otherwise r0020 <--> r0021
- 1: Operation --> r0021, otherwise r0020
- 2: Operation --> p0005, otherwise p0005 <--> r0020
- 3: Operation --> r0002, otherwise r0002 <--> r0020
- 4: p0005

Dependency: Refer to: p0005

Note: Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object.
Mode 4 is available for all drive objects.

p0006	BOP operating display mode / BOP op_ disp mode		
HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 4	Max 4	Factory setting 4
Description:	Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".		
Value:	4: p0005		
Dependency:	Refer to: p0005		
Note:	Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object. Mode 4 is available for all drive objects.		
p0009	Device commissioning parameter filter / Dev comm par_filt		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 10000	Factory setting 1
Description:	Sets the device and basic drive commissioning. By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.		
Value:	0: Ready 1: Device configuration 2: Defining the drive type/function module 3: Drive base configuration 4: Data set base configuration 29: Device download 30: Parameter reset 50: OA application configuration 55: OA application installation 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 (asynchronous)		
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 basis 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 basis 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 Infeed commissioning parameter filter / INF comm par_filt

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: C2(1), T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 1
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	30	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 Drive commissioning parameter filter / Drv comm. par_filt

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: C2(1), T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 1
Unit selection: -
Expert list: 1

Min	Max	Factory setting
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	TM120 commissioning parameter filter / TM120 com par_filt		
TM120	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 30	Factory setting 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:	Refer to: p0970		
Note:	Only the following values are possible: p0010 = 0, 30 Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.		

p0010	TM54F commissioning parameter filter / TM54F com par_filt		
TM54F_MA	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 95	Factory setting 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:	Refer to: p0970		
Note:	Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.		

p0013[0...49] BOP user-defined list / BOP list

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, HUB, SERVO_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
---	--	---	---

Min	Max	Factory setting
0	65535	0

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

Dependency: Refer to: p0009, p0976

Note: The following parameters can be read and written on the Control Unit drive object:
- p0003 (access stage)
- p0009 (device commissioning, parameter filter)
- p0012 (BOP password acknowledgement (p0013))
The following applies for the user-defined list:
- password protection is only available on the drive object Control Unit and is valid for all of the drive objects.
- p0013 cannot be included in the user-defined list for all drive objects.
- p0003, p0009, p0011, p0012, p0976 cannot, for the drive object Control Unit, be included in the user-defined list.
- the user-defined list can be cleared and de-activated "restore factory setting".
A value of 0 means: Entry is empty.

p0015 Macro drive object / Macro DO

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: C2(1) Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1
---	--	---	---

Min	Max	Factory setting
0	999999	0

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

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

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.
 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.
 The parameter is not influenced by setting the factory setting.

p0015 Macro drive unit / Macro drv unit

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1 Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting: 0
	Min 0	Max 999999	

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

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

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

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

r0018 Control Unit Firmware-Version / CU FW version

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting: -
	Min -	Max -	

Description: Displays the firmware version of the Control Unit.

Dependency: Refer to: r0128, r0148, r0158, r0197, r0198

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

r0020 Speed setpoint smoothed / n_set smth

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1 Scaling: p2000	Access level: 2 Unit selection: p0505 Expert list: 1 Factory setting: - [rpm]
	Min - [rpm]	Max - [rpm]	

Description: Displays the currently smoothed speed setpoint at the input of the speed controller or V/f characteristic (after the interpolator).

Dependency: Refer to: r0060

Note: Smoothing time constant = 100 ms
 The signal is not suitable as a process quantity and may only be used as a display quantity.
 The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0021 CO: Actual speed smoothed / n_act smoothSERVO_COMBI,
SERVO_SINUMERI
K828**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** FloatingPoint32**Dynamic index:** -**P-Group:** Displays, signals**Units group:** 3_1**Unit selection:** p0505**Not for motor type:** -**Scaling:** p2000**Expert list:** 1**Min**

- [rpm]

Max

- [rpm]

Factory setting

- [rpm]

Description: Displays the smoothed actual value of the motor speed.**Dependency:** Refer to: 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 value displayed in r0021 is the smoothed value of r0063.

r0022 Speed actual value rpm smoothed / n_ist rpm smoothSERVO_COMBI,
SERVO_SINUMERI
K828**Can be changed:** -**Calculated:** -**Access level:** 2**Data type:** FloatingPoint32**Dynamic index:** -**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** p2000**Expert list:** 1**Min**

- [rpm]

Max

- [rpm]

Factory setting

- [rpm]

Description: Displays the smoothed actual value of the motor speed.

r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over.

Dependency: Refer to: 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 value displayed in r0022 is the smoothed value of r0063.

r0024 CO: Line supply frequency smoothed / f_line smoothAFE_SINUMERIK_8
28, SIC_COMBI,
SIC_SINUMERIK_82
8**Can be changed:** -**Calculated:** -**Access level:** 3**Data type:** FloatingPoint32**Dynamic index:** -**P-Group:** Displays, signals**Units group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** p2000**Expert list:** 1**Min**

- [Hz]

Max

- [Hz]

Factory setting

- [Hz]

Description: Displays the smoothed line supply frequency.**Dependency:** Refer to: 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.

r0024	Output frequency smoothed / f_outp smooth		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the smoothed converter frequency.		
Dependency:	Refer to: r0066		
Note:	Smoothing time constant = 100 ms The signal is not suitable as a process quantity and may only be used as a display quantity. The output frequency is available smoothed (r0024) and unsmoothed (r0066).		

r0025[0...3]	CO: Input voltage smoothed / V_inp smooth		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [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:	Refer to: 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). Re 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. Re 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. Re r0025[2]: Estimated value for the voltage of the voltage source that is calculated in the voltage model of the line supply PLL. Re r0025[3]: Smoothed display value of the filtered source voltage from r0072[3].		

r0025	CO: Output voltage smoothed / V_outp smooth		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the smoothed output voltage of the power unit.		
Dependency:	Refer to: r0072		

Note: Smoothing time constant = 100 ms
 The signal is not suitable as a process quantity and may only be used as a display quantity.
 The output voltage is available smoothed (r0025) and unsmoothed (r0072).

r0026 CO: DC link voltage smoothed / Vdc smooth

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: p2001	Access level: 2 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
- [V]	- [V]	- [V]

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

Dependency: Refer to: 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).

r0026 CO: DC link voltage smoothed / Vdc smooth

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: p2001	Access level: 2 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
- [V]	- [V]	- [V]

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

Dependency: Refer to: 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).

r0027 CO: Absolute actual current smoothed / I_act abs val smth

AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: p2002	Access level: 2 Unit selection: - Expert list: 1
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Min	Max	Factory setting
- [Arms]	- [Arms]	- [Arms]

Description: Displays the smoothed absolute actual current value.

Dependency: Refer to: r0068

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

Note: 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 CO: Absolute actual current smoothed / I_act abs val smth

BIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_4	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]

Description: Displays the smoothed absolute actual current value.
Dependency: Refer to: r0068
Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.
 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 Modulation depth smoothed / Mod_depth smth

AFE_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the smoothed actual value of the modulation depth.
Dependency: Refer to: 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 Reactive current actual value smoothed / I_react smooth

AFE_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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).

r0029	Current actual value field-generating smoothed / Id_act smooth		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed field-generating actual current.		
Dependency:	Refer to: 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).		
r0030	Active current actual value smoothed / I_active smooth		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed actual value of the active current components.		
Dependency:	Refer to: 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).		
r0030	Current actual value torque-generating smoothed / Iq_act smooth		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed torque-generating actual current.		
Dependency:	Refer to: 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).		

r0031 **Actual torque smoothed / M_act smooth**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 7_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]

Description: Displays the smoothed torque actual value.

Dependency: Refer to: 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 active current actual value is available smoothed (r0031) and unsmoothed (r0080).

r0032 **CO: Active power actual value smoothed / P_actv_act smth**

AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 14_10	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]

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

Dependency: Refer to: 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**

BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 14_10	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]

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

Dependency: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

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 Motor utilization / Motor utilization

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the motor utilization from the thermal I2t motor model.

Dependency: The motor utilization is only determined for permanent-magnet synchronous motors and if the I2t motor model is activated.
 The motor utilization is formed from the ratio between the I2t motor model temperature (minus 40 Kelvin) and the reference value p0605 (motor overtemperature, fault threshold) - 40 Kelvin. If p0605 is reduced, r0034 increases and the motor temperature remains the same.

Refer to: p0611, p0612, p0615

Note: Smoothing time constant = 100 ms
 The signal is not suitable as a process quantity and may only be used as a display quantity.
 A value of r0034 = -200.0 % indicates an invalid display, for example, because the thermal I2t motor model was not activated or was incorrectly parameterized.

r0035	CO: Temperature input / Temp_input		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	<p>Displays the temperature currently measured at X21 (booksize) or X41 (chassis).</p> <p>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.</p> <p>Temperature within permissible limit values: r0035 = -50°C Temperature outside the permissible limit values: r0035 = -250°C</p>		
Dependency:	Refer to: 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 KTY84 is selected in p0601 but is not connected! - the temperature display is not valid (temperature sensor error)!		

r0035	CO: Temperature input / Temp_input		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	<p>Displays the temperature currently measured at X21 (booksize) or X41 (chassis).</p> <p>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.</p> <p>Temperature within permissible limit values: r0035 = -50°C Temperature outside the permissible limit values: r0035 = -250°C</p>		
Dependency:	Refer to: 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 KTY84 is selected in p0601 but is not connected! - the temperature display is not valid (temperature sensor error)!		

r0035	CO: Motor temperature / Mot_temp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the actual temperature in the motor.		

Note:

- For r0035 not equal to -200.0 °C, the following applies:
 - this temperature display is valid.
 - a KTY sensor is connected.
 - 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).

r0036 CO: Power unit overload I2t / PU overload I2t

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: PERCENT	Access level: 3 Unit selection: - Expert list: 1
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Min	Max	Factory setting
- [%]	- [%]	- [%]

Description: Displays the power unit overload determined using the I2t calculation.
A current reference value is defined for the I2t monitoring of the power unit. It represents the current that can be conducted by the power unit without any influence of the switching losses (e.g. the continuously permissible current of the capacitors, inductances, busbars, etc.).
If the I2t reference current of the power unit is not exceeded, then an overload (0 %) is not displayed.
In the other case, the degree of thermal overload is calculated, whereby 100% results in a trip.

Dependency: Refer to: p0290, p0294
Refer to: F30005

r0037[0...19] CO: Power unit temperatures / PU temperatures

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1
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Min	Max	Factory setting
- [°C]	- [°C]	- [°C]

Description: Displays the temperatures in the power unit.

- Index:**
- [0] = Inverter, maximum value
 - [1] = Depletion layer maximum value
 - [2] = Rectifier maximum value
 - [3] = Air intake
 - [4] = Interior of power unit
 - [5] = Inverter 1
 - [6] = Inverter 2
 - [7] = 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 system liquid intake

Note: The value of -200 indicates that there is no measuring signal.
 r0037[0]: Maximum value of the inverter temperatures (r0037[5...10]).
 r0037[1]: Maximum value of the depletion layer temperatures (r0037[13...18]).
 r0037[2]: Maximum value of the rectifier temperatures (r0037[11...12]).
 The maximum value is the temperature of the hottest inverter, depletion layer, or rectifier.

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

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]

Description: Displays the Control Unit temperature.
 An appropriate message is output when 87 °C is exceeded.

Index: [0] = Control Unit temperature actual
 [1] = Control Unit temperature maximum

Dependency: Refer to: A01009

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

r0038 Power factor smoothed / Cos phi smooth

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the smoothed actual power factor.

Note: Smoothing time constant = 300 ms
 The signal is not suitable as a process quantity and may only be used as a display quantity.
 Significance for the motor: Motor power factor
 Significance for the infeed: Power factor at the connection point (p3470, p3471)

p0040		Reset energy consumption display / Energy usage reset			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned8 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0		
Min	Max				
0	1				
Description:	Setting to reset the energy consumption display (r0039). Procedure: Set p0040 = 0 --> 1. The display is reset and the parameter is automatically set to zero.				
p0045		Smoothing time constant, display values / T_smth display			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 1.00 [ms]		
Min	Max				
0.00 [ms]	1000.00 [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].				
r0046.0...29		CO/BO: Missing enable sig / Missing enable sig			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting -		
Min	Max				
-	-				
Description:	Displays 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 system ready signal missing	Yes	No	
Dependency:	Refer to: 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 system ready signal via BI: p0266[1] missing.

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

BIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 1 Unit selection: - Expert list: 1 Factory setting -
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Description: Displays 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 system ready signal missing	Yes	No	

Dependency: Refer to: 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 system ready signal via BI: p0266[1] missing.

r0046.0...31	CO/BO: Missing enable sig / Missing enable sig		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays 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	
	04	Armature short-circuit / DC current brake, enable missing	Yes	No	
	05	STOP2 enable missing	Yes	No	
	06	STOP1 enable missing	Yes	No	
	08	EP terminals 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 current brake internal enable missing	Yes	No	
	21	STOP2 enable internal missing	Yes	No	
	22	STOP1 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 system ready signal missing	Yes	No	
	30	Speed controller inhibited	Yes	No	
	31	Jog setpoint active	Yes	No	

Dependency: Refer to: r0002

- Note:** The value r0046 = 0 indicates that all enable signals 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:
 - the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).
 - 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 (V/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).
 - 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 system ready signal via BI: p0266[1] missing.
- Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:
 - A 0 signal is available via BI: 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.

r0047	Status, identification / Status ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 104	Factory setting -
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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: 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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CDS eff., bit 0	On	Off	
	01	CDS eff., bit 1	On	Off	
	02	CDS eff., bit 2	On	Off	
	03	CDS eff., bit 3	On	Off	

Dependency: Refer to: p0810, r0836

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

r0051.0...4 CO/BO: Drive Data Set DDS effective / DDS effective

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DDS eff., bit 0	On	Off	
	01	DDS eff., bit 1	On	Off	
	02	DDS eff., bit 2	On	Off	
	03	DDS eff., bit 3	On	Off	
	04	DDS eff., bit 4	On	Off	

Dependency: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	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	

Note: Re 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: Speed setpoint before the setpoint filter / n_set before filt.

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min	Max	Factory setting
	- [rpm]	- [rpm]	- [rpm]

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

Dependency: Refer to: r0020

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

r0061[0...1] CO: Actual speed unsmoothed / n_act unsmoothed

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min	Max	Factory setting
	- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual speed values sensed by the encoders (unsmoothed).

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

r0062	CO: Speed setpoint after the filter / n_set after filter		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
Description:	Displays the actual speed setpoint after the setpoint filters.		
r0063	CO: Actual speed smoothed / n_act smooth		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
Description:	Displays the current smoothed actual speed for speed control.		
Dependency:	Refer to: r0021, r0061, p1441		
Note:	The speed actual value is calculated in encoderless operation. For operation with encoder, r0063 is smoothed with p1441. The actual speed is available as a display quantity with additional smoothing in r0021.		
r0064	CO: Speed controller system deviation / n_ctrl system dev		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [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	Slip frequency / f_Slip		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 2_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the slip frequency for induction motors (ASM).		

r0066	CO: Line frequency / f_line		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: - Min - [Hz]	Calculated: - Dynamic index: - Units group: 2_1 Scaling: p2000 Max - [Hz]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Hz]
Description:	Displays the line frequency.		
Dependency:	Refer to: r0024		
Note:	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.		

r0066	CO: Output frequency / f_outp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: - Min - [Hz]	Calculated: - Dynamic index: - Units group: 2_1 Scaling: p2000 Max - [Hz]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Hz]
Description:	Displays the Motor Module output frequency.		
Dependency:	Refer to: r0024		
Note:	The output frequency is available smoothed (r0024) and unsmoothed (r0066).		

r0067[0...1]	Absolute current value permissible / I_abs val perm		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Scaling: p2002 Max - [Arms]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [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). Refer to: p3530, p3531, r3534		

r0067	CO: Output current, maximum / I_outp max		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Scaling: p2002 Max - [Arms]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the maximum output current of the Motor Module.		
Dependency:	The maximum output current is determined by the parameterized current limit and the motor and converter thermal protection. Refer to: p0290, p0640		

r0068	CO: Absolute current actual value / I_act abs val		
AFE_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays actual absolute current.		
Dependency:	Refer to: r0027		
Notice:	Bei 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	CO: DC current in the DC link / Idc DC link		
BIC_SINUMERIK_828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_4 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the DC current in the DC link.		
Dependency:	Refer to: 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[0...6]	Phase current actual value / I_phase act value		
AFE_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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.		

r0070	CO: Actual DC link voltage / Vdc act val		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the measured actual value of the DC link voltage.		
Dependency:	Refer to: r0026		
Note:	The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).		

r0070	CO: Actual DC link voltage / Vdc act val		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 5_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the measured actual value of the DC link voltage.		
Dependency:	Refer to: 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).		

r0072[0...3]	CO: Input voltage / V_input		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the current power unit input voltage (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.		

r0072	CO: Output voltage / V_output		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1 Scaling: p2001	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Vrms]
Description:	Displays the actual power unit output voltage (Motor Module).		
Dependency:	Refer to: r0025		
Note:	The output voltage is available smoothed (r0025) and unsmoothed (r0072).		
r0074	CO: Modulat_depth / Modulat_depth		
AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: PERCENT	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the actual modulation depth.		
Dependency:	Refer to: r0028		
Note:	For space vector modulation, 100% corresponds to the maximum output voltage without overcontrol. Values above 100 % indicate an overcontrol condition - values below 100% have no overcontrol. The phase voltage (phase-to-phase, rms) is calculated as follows: $(r0074 * r0070) / (\sqrt{2} * 100 \%)$. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).		
r0075	CO: Reactive current setpoint / I_react_set		
AFE_SINUMERIK_8 28	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the reactive current setpoint.		
Dependency:	Refer to: 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 current 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.		
r0075	CO: Current setpoint field-generating / Id_set		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_2 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays the field-generating current setpoint (Id_set).		
Note:	This value is irrelevant for the V/f control mode.		

r0076 **CO: Reactive current actual value / I_{reactive_act}**

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

Description: Displays the reactive current actual value.

Dependency: Refer to: r0029, r0075

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

r0076 **CO: Current actual value field-generating / Id_act**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

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

Dependency: Refer to: r0029

Note: This value is irrelevant for the V/f control mode.
The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).

r0077 **CO: Active current setpoint / I_{active_set}**

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

Description: Displays the active current setpoint (Iq_set).

r0077 **CO: Current setpoint torque-generating / Iq_set**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

Description: Displays the torque/force generating current setpoint.

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

r0078	CO: Active current actual value / I_active_act		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the actual value for the active current.		
Dependency:	Refer to: r0030		
Note:	The active current actual value is available smoothed (r0030) and unsmoothed (r0078).		
r0078[0...1]	CO: Current actual value torque-generating / Iq_act		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the torque-generating current actual value (Iq_act).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	Refer to: r0030, p0045		
Note:	These values are irrelevant for the V/f control mode. The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		
r0079[0...1]	CO: Torque setpoint total / M_set total		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 7_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the speed controller (before clock cycle interpolation).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
r0080	CO: Torque actual value / M_act		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 7_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the actual torque value.		
Dependency:	Refer to: r0031		
Note:	The torque actual value is available smoothed (r0031) and unsmoothed (r0080).		

r0081	CO: Torque utilization / M_Utilization		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the torque utilization as a percentage. The torque utilization is obtained from the required smoothed torque referred to the torque limit.		
Dependency:	Refer to: r0033		
Note:	The torque utilization is available smoothed (r0033) and unsmoothed (r0081). The torque utilization is obtained from the required torque referred to the torque limit as follows: - Positive torque: $r0081 = ((r0079 + p1532) / (r1538 - p1532)) * 100 \%$ - Negative torque: $r0081 = ((-r0079 + p1532) / (-r1539 + p1532)) * 100 \%$ For SERVO, the following applies: The calculation of the torque utilization depends on the selected smoothing time constant (p0045).		

r0082	CO: Active power actual value / P_act		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 14_7	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the instantaneous active power.		
Dependency:	Refer to: r0032		
Note:	The active power is available smoothed (r0032) and unsmoothed (r0082).		

r0082	CO: Active power actual value / P_act		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 14_7	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the instantaneous active power.		
Dependency:	Refer to: 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).		

r0082[0...2]	CO: Active power actual value / P_act		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 14_5	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the instantaneous active power.		

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

Dependency: Refer to: r0032

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

r0083 **CO: Flux setpoint / Flux setpoint**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Displays, signals **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1

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

Description: Displays the flux setpoint.

r0084 **CO: Flux actual value / Flux act val**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Displays, signals **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1

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

Description: Displays the flux actual value.

r0088 **CO: DC link voltage setpoint / Vdc setpoint**

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
28 **Data type:** FloatingPoint32 **Dynamic index:** -
P-Group: Displays, signals **Units group:** 5_2 **Unit selection:** p0505
Not for motor type: - **Scaling:** p2001 **Expert list:** 1

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

Description: Displays the setpoint for the DC link voltage.

r0089[0...2] **Actual phase voltage / U_phase act val**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Displays, signals **Units group:** 5_3 **Unit selection:** p0505
Not for motor type: - **Scaling:** p2001 **Expert list:** 1

Min **Max** **Factory setting**
- [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 / Clock sync op

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 1

Description: Setting to pre-assign/check the sampling times for the internal controller clock cycles for clock-synchronous PROFIBUS operation.

p0092 = 1:
The controller clock cycles are set so that clock synchronous PROFIBUS operation is possible. If it is not possible to change the controller clock cycles of the clock-cycle synchronous PROFIBUS operation, then an appropriate message is output.

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).

When the drive unit utilization (r9976) is calculated, its maximum computing time load has already been calculated during ramp-up for clock-cycle synchronous operation and taken into account in r9976 (V4.3 and higher), if fixed DCC run-time groups "Receive AFTER IF1 PROFIdrive PZD" and "Send BEFORE IF1 PROFIdrive PZD" are used.

p0092 = 0:
The controller clock cycles are set without any restrictions by the clock-cycle PROFIBUS operation (as for up to version V2.3).

When the drive unit utilization (r9976) is calculated, its maximum computing time load has already been calculated during ramp-up for non-clock-cycle-synchronous operation and taken into account in r9976 (V4.3 and higher), if fixed DCC run-time groups "Receive AFTER IF1 PROFIdrive PZD" and "Send BEFORE IF1 PROFIdrive PZD" are used.

Value:
0: No isochronous PROFIBUS
1: Isochronous PROFIBUS

Dependency:
Refer to: r0110, p0115
Refer to: A01223, A01224

Caution: Only current controller clock cycles (p0115[0]) which are integers of 125 µs are permitted for isochronous mode.



Notice: p0092 only affects the automatic default for the clock cycles (p0115) in the drive. If the clock cycles 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.

Current controller clock cycle values must continue to be integers of 125 µs for synchronous mode.

r0093 CO: Pole position angle electrically scaled / Pole pos el scale

SERVO_COMBI, SERVO_SINUMERIK K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]

Description: Displays the scaled electrical pole position angle.

Dependency: Refer to: r0094, p0431, r1778

- Notice:** 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.
- 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	CO: Transformation angle / Transformat_angle		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the transformation angle.		
Note:	The transformation angle corresponds to the line supply angle.		

r0094	CO: Transformation angle / Transformat_angle		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the transformation angle.		
Dependency:	Refer to: 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).		

p0097	Select drive object type / Select DO type		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 17	Factory setting 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

Dependency: Refer to: r0098, p0099
Refer to: A01330

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

r0098[0...5] Actual device topology / Device_act topo

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Index:

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

Dependency: Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning.
De-activated or non-available components are also counted

Index:	[0] = DRIVE-CLiQ socket X100 [1] = DRIVE-CLiQ socket X101 [2] = 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 acknowledgement. An index of the device actual topology with a value other than 0 must be selected. Refer to: p0097, r0098 Refer to: 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	Can be changed: C2(1) Data type: Integer16 P-Group: Converter Not for motor type: FEM	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Min	Max		
0	1		
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. The following applies for IEC drives: The power factor (p0308) should be parameterized. The following applies for NEMA drives: 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). Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0310, p0311, p0312, p0314, p0320, p0322, p0323, p0335, r0336, r0337, p0338		
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...23] Drive object numbers / DO numbers

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
Min	Max		
0	62		
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. The numbers are automatically assigned once and can no longer be changed as long as the object has not been deleted. In the commissioning software, this object number cannot be entered using the expert list, but is automatically assigned when inserting an object.		

- 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

Note: Value = 0: No drive object is defined.

r0102[0...1] Number of drive objects / DO count

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of existing or existing and prepared drive objects.

Index: [0] = Existing drive objects
[1] = Existing and prepared drive objects

Dependency: Refer to: p0101

Note: The numbers of the drive objects are in p0101.

Index 0:

Displays the number of drive objects that have already been set up.

Index 1:

Displays the number of drive objects that have already been set up and, in addition, the drive objects that still have to be set up.

r0103 Application-specific view / Appl_spec view

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	65535	-

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

Dependency: Refer to: r0107, p0107

p0103[0...23]	Application-specific view / Appl_spec view		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(2)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 999	Factory setting 0
Description:	The application-specific view of an existing drive object is entered into each index. The parameter cannot be changed.		
Dependency:	Refer to: r0107, p0107		
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		

p0105	Activate/de-activate drive object / DO act/deact		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_LINK, HUB, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Setting to activate/de-activate a drive object.		
Value:	0: De-activate drive object 1: Activate drive object 2: Drive object, de-activate and not present		
Recommend.:	After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.		
Dependency:	Refer to: r0106 Refer to: A01316		
Caution:	It is not permissible to de-activate drive objects with safety functions enabled.		
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:	Setting a drive object to de-activate principally corresponds to the "parking axis" function. however, here, all of the DRIVE-CLiQ components, assigned to the drive object, are involved.		

p0105	Activate/de-activate drive object / DO act/deact		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Setting to activate/de-activate a drive object.		
Value:	0: De-activate drive object 1: Activate drive object		
Dependency:	Refer to: r0106		
Notice:	The following applies when activating: If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.		

p0105	Activate/de-activate drive object / DO act/deact		
TM54F_MA, TM54F_SL	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Setting to activate/de-activate a drive object.		
Value:	0: De-activate drive object 1: Activate drive object 2: Drive object, de-activate and not present		
Recommend.:	After inserting all of the components of a drive object, before activating, first wait for Alarm A01316.		
Dependency:	Refer to: r0106 Refer to: A01316		
Caution:	It is not permissible to de-activate drive objects with safety functions enabled: TM54F can only be de-activated if all of the axes connected to it via P10010 have been de-activated or are not enabled on the connected safety axes.		
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:	Setting a drive object to de-activate principally corresponds to the "parking axis" function. however, here, all of the DRIVE-CLiQ components, assigned to the drive object, are involved.		

r0106 Drive object active/inactive / DO act/inact

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, CU_I_COMBI,
CU_I_SINUMERIK_8
28, CU_LINK,
CU_NX_828, HUB,
SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8, TM120

Can be changed: -
Data type: Integer16
P-Group: Closed-loop control
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 2
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	1	-

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

Value:
0: Drive object inactive
1: Drive object active

Dependency: Refer to: p0105

r0107 Drive object type / DO type

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, CU_LINK, HUB,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8, TM120,
TM54F_MA,
TM54F_SL

Can be changed: -
Data type: Integer16
P-Group: Closed-loop control
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 2
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	300	-

Description: Displays the type of each drive object.

- Value:**
- 0: -
 - 1: SINAMICS S
 - 2: SINAMICS G
 - 3: SINAMICS I
 - 4: SINAMICS CX32
 - 5: SINAMICS GM
 - 6: SINAMICS DC
 - 7: SINAMICS GL
 - 9: SINAMICS S110
 - 10: ACTIVE INFEED CONTROL
 - 11: SERVO
 - 12: VECTOR
 - 13: VECTORMV
 - 14: VECTORGL
 - 16: VECTORSL
 - 17: DC_CTRL
 - 18: VECTORM2C
 - 19: VECTORDM
 - 20: SMART INFEED CONTROL
 - 30: BASIC INFEED CONTROL
 - 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)
 - 100: TB30 (Terminal Board)
 - 101: SINAMICS SL
 - 102: SINAMICS SM2
 - 104: SINAMICS SM2I
 - 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)
 - 254: CU-LINK
 - 300: ENCODER
- Dependency:** Refer to: p0103, r0103

p0107[0...23]	Drive object type / DO type		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(2)	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	300	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 CX32
	5:	SINAMICS GM
	6:	SINAMICS DC
	7:	SINAMICS GL
	9:	SINAMICS S110
	10:	ACTIVE INFEED CONTROL
	11:	SERVO
	12:	VECTOR
	13:	VECTORMV
	14:	VECTORGL
	16:	VECTORSL
	17:	DC_CTRL
	18:	VECTORM2C
	19:	VECTORDM
	20:	SMART INFEED CONTROL
	30:	BASIC INFEED CONTROL
	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)
	100:	TB30 (Terminal Board)
	101:	SINAMICS SL
	102:	SINAMICS SM2
	104:	SINAMICS SM2I
	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)
	254:	CU-LINK
	300:	ENCODER

Index:

- [0] = Drive object type, Control Unit
- [1] = Drive object type, object 1
- [2] = Drive object type, object 2
- [3] = Drive object type, object 3
- [4] = Drive object type, object 4
- [5] = Drive object type, object 5
- [6] = Drive object type, object 6
- [7] = Drive object type, object 7
- [8] = Drive object type, object 8
- [9] = Drive object type, object 9
- [10] = Drive object type, object 10
- [11] = Drive object type, object 11
- [12] = Drive object type, object 12
- [13] = Drive object type, object 13
- [14] = Drive object type, object 14
- [15] = Drive object type, object 15
- [16] = Drive object type, object 16
- [17] = Drive object type, object 17
- [18] = Drive object type, object 18
- [19] = Drive object type, object 19
- [20] = Drive object type, object 20
- [21] = Drive object type, object 21
- [22] = Drive object type, object 22
- [23] = Drive object type, object 23

Dependency: Refer to: p0103, r0103

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



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

r0108 Drive object, function module / DO function module

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	Line transformer	Activated	Not activated	
	07	Dynamic line support	Activated	Not activated	
	12	Line droop reg	Activated	Not activated	
	15	Parallel cct. config.	Activated	Not activated	
	19	Master/Slave	Activated	Not activated	
	26	Braking Module external	Activated	Not activated	
	28	Cooling system	Activated	Not activated	
	31	PROFINET	Activated	Not activated	

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

r0108 Drive object, function module / DO function module

BIC_SINUMERIK_82 8, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	15	Parallel cct. config.	Activated	Not activated	
	26	Braking Module external	Activated	Not activated	
	28	Cooling system	Activated	Not activated	
	31	PROFINET	Activated	Not activated	

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

p0108[0...23] Drive object, function module / DO function module

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(2)	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: The function module of an existing drive object is entered into each index (also refer to p0101, p0107).

The following bits are available for the Control Unit (Index 0):

Bit 18: Free function blocks

Bit 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.

Index:	[0] = Function module Control Unit
	[1] = Function module object 1
	[2] = Function module object 2
	[3] = Function module object 3
	[4] = Function module object 4
	[5] = Function module object 5
	[6] = Function module object 6
	[7] = Function module object 7
	[8] = Function module object 8
	[9] = Function module object 9
	[10] = Function module object 10
	[11] = Function module object 11
	[12] = Function module object 12
	[13] = Function module object 13
	[14] = Function module object 14
	[15] = Function module object 15
	[16] = Function module object 16
	[17] = Function module object 17
	[18] = Function module object 18
	[19] = Function module object 19
	[20] = Function module object 20
	[21] = Function module object 21
	[22] = Function module object 22
	[23] = Function module object 23

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

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

r0108 Drive object, function module / DO function module

SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	02	Closed-loop speed/torque control	Activated	Not activated	
	13	Safety rotary axis	Activated	Not activated	

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

r0108 Drive object, function module / DO function module

SIC_COMBI	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	26	Braking Module external	Activated	Not activated	

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

r0108 Drive object, function module / DO function module

TM120	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	18	Free function blocks	Activated	Not activated	
	31	PROFINET	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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.00 [µs]	10000.00 [µs]	- [µs]

Description: Displays the basic sampling times.

The sampling times are set using p0112 and p0115. The values for the basic sampling times are determined as a result of these settings.

Index:
[0] = Basic sampling time 0
[1] = Basic sampling time 1
[2] = Basic sampling time 2

r0111 Basic sampling time selection / t_basis sel

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_SINUMERIK K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	2	-

Description: Displays the selected basic sampling time for this drive object.

Dependency: Refer to: r0110

p0112 Sampling times pre-setting p0115 / t_sample for p0115

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C1(3) Data type: Integer16 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
0	5	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 / 2000 / 1000 / 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 / 250 / 1000 / 2000 / 1000 µs

Value:

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

Recommend.: 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).
Refer to: p0092
- Note:** For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.
p0112 = 1 cannot be set for a power unit type PM340 (refer to r0203) for vector drives.

p0113 Minimum pulse frequency, selection / f_puls min sel

SERVO_COMBI	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 2.000 [kHz]	Max 4.000 [kHz]	Factory setting 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 clock cycle of 125 µs is obtained as an integer number.
The required pulse frequency can be set in p1800 after commissioning (p0009 = p0010 = 0).
Refer to: p0112, r0114, p0115
- 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_COMBI	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [kHz]	Max - [kHz]	Factory setting - [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:** Refer to: 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...6] Sampling times for internal control loops / t_sample int ctrl

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82, 8, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8

Can be changed: C1(3) **Calculated:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** -
P-Group: Closed-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
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).

Recommend.: 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] = Position 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]).
Refer to: 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]	Sampling time for supplementary functions / t_samp suppl_fct		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [µs]	Max 16000.00 [µs]	Factory setting 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]	Sampling time for supplementary functions / t_samp suppl_fct		
TM120	Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [µs]	Max 16000.00 [µs]	Factory setting 4000.00 [µs]
Description:	Sets the sampling times for supplementary functions (DCC, free function blocks) on this object. Only setting values that are an integer multiple of 125 µs are permissible.		
Index:	[0] = Basic sampl. time		
r0116[0...1]	Drive object clock cycle recommended / DO_clock recom		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [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:	Refer to: p0115		

p0117 Current controller computing dead time mode / I_ctrl t_dead mode			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 6	Factory setting 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:	Refer to: p0118 Refer to: A02100		
Note:	Re 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). Re 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. Re p0117 = 2: The computing dead time is manually set. The user must optimize the value in p0118. Re p0117 = 3: Only for internal Siemens use. Re p0117 = 4 ... 6: Behavior as for p0117 = 0 ... 2, however for vectors, the earliest times are not determined. The modified computing dead time mode is not effective until the drive unit is powered up again.		

p0118 Current controller computing dead time / I_ctrl t_dead			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 2000.00 [µs]	Factory setting 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:	Refer to: p0117 Refer to: 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 Power unit Data Sets (PDS) / PDS count

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: C1(3)
Data type: Unsigned8
P-Group: Data sets
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 2
Unit selection: -
Expert list: 1

Min	Max	Factory setting
1	8	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: Refer to: r0107, p0107

Note: This parameter is only significant for drive objects A_INFEED and VECTOR with a parallel circuit configuration.

p0121[0...n] Power unit component number / PU comp_no

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: C1(4)
Data type: Unsigned8
P-Group: Data sets
Not for motor type: -

Calculated: -
Dynamic index: PDS
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	199	0

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

Dependency: Refer to: r0107, p0107

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

p0124[0...n] Power unit detection via LED / PU detection LED

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: U, T
Data type: Unsigned8
P-Group: Converter
Not for motor type: -

Calculated: -
Dynamic index: PDS
Units group: -
Scaling: -

Access level: 2
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	1	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.

p0124[0...23] Detection of main components using LED / Detection LED

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned8 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 1	

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

p0125[0...n] Activate/de-activate power unit components / PU_comp act/deact

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C1(4), T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 1
	Min 0	Max 2	

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

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

Dependency: Refer to: r0126
Refer to: A01317

Caution: 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. In the case of de-activation via p0125, the power unit components of the parallel circuit may not be connected.

r0126[0...n] Power unit components active/inactive / PU comp act/inact

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting -
	Min 0	Max 1	

Description: Displays the "active/inactive" state of a power unit component.

Value:
0: Component inactive
1: Component active

Dependency: Refer to: p0105, p0125, p0897

r0127[0...n]	Power unit version EPROM data / PU EPROM version		
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: Unsigned32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the power unit.		
Dependency:	Refer to: 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		
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: Unsigned32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware version of the power unit.		
Dependency:	Refer to: 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		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 1	Max 16	Factory setting 1
Description:	Sets the number of Motor Data Sets (MDS).		

p0131[0...n]	Motor component number / Mot comp_no		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 199	Factory setting 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 31	Factory setting 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 VSM data sets / VSM count		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: C1(3)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 8	Factory setting 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.		

p0140	Number of Encoder Data Sets (EDS) / EDS count		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(3)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 16	Factory setting 1
Description:	Sets the number of Encoder Data Sets (EDS).		
Note:	When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).		

p0141[0...n]	VSM component number / VSM comp_no0		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: C1(4)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: p0140	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 199	Factory setting 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 component numbers that correspond to a VSM evaluation can be entered in this parameter.		

p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 199	Factory setting 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 component numbers can be entered into this parameter that correspond 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).		
p0142[0...n]	Encoder component number / Encoder comp_no		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 199	Factory setting 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]	Voltage Sensing Module detection via LED / VSM detection LED		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Detects the Voltage Sensing Module (VSM) module assigned to this infeed.		
p0144[0...n]	Sensor Module detection via LED / SM detection LED		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Detects the Sensor Module assigned to this drive and data set.		
Note:	While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module.		

p0145[0...n] Voltage Sensing Module, activate/de-activate / VSM act/deact

AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: C1(4), T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 1
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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

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

Dependency:
Refer to: r0146
Refer to: 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.

p0145[0...n] Activate/de-activate encoder interface / Enc_intf act/deact

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4), U, T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 1
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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

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

Dependency:
Refer to: r0146
Refer to: 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.

r0146[0...n] Voltage Sensing Module, active/inactive / VSM act/inact

AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: - Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting -
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Description: Displays the "active" or "inactive" state of a Voltage Sensing Module (VSM).

Value:
0: Component inactive
1: Component active

Dependency: Refer to: p0105, p0145

r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting -
Description:	Displays the "active" or "inactive" state of an encoder interface (Sensor Module).		
Value:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0105, p0145, p0480, p0897		

r0147[0...n]	Voltage Sensing Module, EPROM data version / VSM EEPROM version		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the Voltage Sensing Module (VSM).		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0147[0...n]	Sensor Module EEPROM data version / SM EEPROM version		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EEPROM data of the Sensor Module.		
Dependency:	Refer to: r0127, r0157		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0148[0...n]	Voltage Sensing Module firmware version / VSM FW version		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware version of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: r0018, r0128, r0158, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0148[0...n] Sensor Module firmware version / SM FW version			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware version of the Sensor Module.		
Dependency:	Refer to: r0018, 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			
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: C1(3)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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_num			
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: C1(4)	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	199	0
Description:	The VSM2 data set is assigned to a VSM2 evaluation using this parameter.		

p0151[0...1] DRIVE-CLiQ Hub Module component number / Hub comp_no			
HUB	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	199	0
Description:	This parameter is used to assign the 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		

p0151	Terminal Module component number / TM comp_no		
TM120, TM54F_MA, TM54F_SL	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	Sets the component number for the Terminal Module. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a Terminal Module.		
p0154[0...n]	Voltage Sensing Module 2 detection via LED / VSM2 detection LED		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Detects the Voltage Sensing Module 2 (VSM2) assigned to this infeed.		
p0154	DRIVE-CLiQ Hub Module detection via LED / Hub detection LED		
HUB	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Detects any DRIVE-CLiQ Hub Module that has been assigned.		
p0154	Terminal Module detection via LED / TM detection LED		
TM120, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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.		
p0155[0...n]	Voltage Sensing Module 2, activate/de-activate / VSM2 act/deact		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: C1(4), T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 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		

Recommend.: After inserting a component, before activating, first wait for Alarm A01317.
Dependency: Refer to: r0156
Refer to: A01317

r0156[0...n]	Voltage Sensing Module 2, active/inactive / VSM2 act/inact		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting -
Description:	Displays the "active" or "inactive" state of a Voltage Sensing Module 2 (VSM2).		
Value:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0155		

r0157[0...n]	Voltage Sensing Module 2, EPROM data version / VSM2 EPROM version		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the Voltage Sensing Module 2 (VSM2).		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0157	DRIVE-CLiQ Hub Module EPROM data version / Hub EPROM version		
HUB	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data for the DRIVE-CLiQ Hub Module.		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0157	Terminal Module EPROM data version / TM EPROM version		
TM120, TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the Terminal Module.		
Dependency:	Refer to: r0127, r0147		
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		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware version of the Voltage Sensing Module 2 (VSM2).		
Dependency:	Refer to: r0018, 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	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware version of the DRIVE-CLiQ Hub Module.		

r0158	Terminal Module Firmware Version / TM FW version		
TM120, TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware version of the Terminal Module.		
Dependency:	Refer to: r0018, r0128, r0148, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

p0162	CU-Link slave component number / CX32 comp_no		
CU_LINK	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 199	Factory setting 0

p0170	Number of Command Data Sets (CDS) / CDS count		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C1(3)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 2	Factory setting 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(3)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 32	Factory setting 1

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

p0186[0...n]	Motor Data Sets (MDS) number / MDS number		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 15	Factory setting 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_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 99	Factory setting 99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 1.

The value corresponds to the number of the assigned encoder data set.

Example:

Encoder data set 0 should be assigned to encoder 1 in drive data set 2.

--> p0187[2] = 0

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

p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 99	Factory setting 99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 2.

The value corresponds to the number of the assigned encoder data set.

Example:

Encoder data set 1 should be assigned to encoder 2 in drive data set 2.

--> p0188[2] = 1

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

p0189[0...n]	Encoder 3 encoder data set number / Enc 3 EDS number		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: DDS, p0180	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 99	Factory setting 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 / PU FW property		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

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	
	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	
	25	Internal fan operating hours counter available	Yes	No	
	26	Software gating unit in the CU is supported	Yes	No	

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: Re bit 09:
The Motor Module supports the internal armature short-circuit. The function is internally required for voltage protection (p1231 = 3).
Re bit 10:
The Motor Module supports the autonomous internal voltage protection. If the voltage protection function is internally activated (p1231 = 3) the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated.
Re bit 23:
The component supports the detection of current actual values (and the detection of valve close durations) with double clocking and phase shift.

r0194[0...n]	VSM properties / VSM properties		
AFE_SINUMERIK_828, SIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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] DRIVE-CLiQ component status / DLQ comp status

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of DRIVE-CLiQ components.
r0196[0...1]: Not used
r0196[2]: Status of DRIVE-CLiQ component with component number 2
...
r0196[255]: Status of DRIVE-CLiQ component with component number 255

Note: Structure of status value: Bits 31 ... 08, 07, 06 ... 04, 03 ... 00
Re Bit 31 ... 08: Reserved
Re Bit 07: 1: Part of target topology, 0: Only in actual topology
Re Bit 06 ... 04: 1: Active, 0: Inactive or parked
Re bit 03 ... 00:
0: Component data not available.
1: Power-up, acyclic DRIVE-CLiQ communication (LED = orange).
2: Ready for operation, cyclic DRIVE-CLiQ communication (LED = green).
3: Alarm (LED = green).
4: Fault (LED = red).
5: Detection via LED and ready for operation (LED = green/orange).
6: Detection via LED and alarm (LED = green/orange).
7: Detection via LED and fault (LED = red/orange).
8: Downloading firmware (LED = green/red at 0.5 Hz).
9: Firmware downloading completed, Waiting for POWER ON (LED = green/red at 2.0 Hz).

r0197 Bootloader version / Bootloader vers

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the bootloader version.
Dependency: Refer to: r0018, r0128, r0148, r0158, r0198
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0198[0...1] BIOS/EEPROM data version / BIOS/EEPROM vers

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

Dependency: Refer to: 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	Can be changed: C1	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
-	-	-

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

Note: No power unit found: r0200 = p0201.
 For parallel circuit configurations, the parameter index is assigned to a power unit.

p0201[0...n] Power unit code number / PU code no

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
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: Refer to: 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.

p0201[0...n] Power unit code number / PU code no

SERVO_SINUMERIK828	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 65535	Factory setting 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: Refer to: 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.

r0203[0...n] Actual power unit type / PU actual type

AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: PDS	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 2	Max 400	Factory setting -

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)
- 112: PM220 (SINAMICS G120)
- 113: PM230 (SINAMICS G120)
- 114: PM240 (SINAMICS G120)
- 115: PM250 (SINAMICS G120)
- 116: PM260 (SINAMICS G120)
- 118: SINAMICS G120 Px
- 120: PM340 (SINAMICS S120)
- 150: SINAMICS G
- 200: SINAMICS GM
- 250: SINAMICS SM
- 260: SINAMICS SM120
- 300: SINAMICS GL
- 350: SINAMICS SL
- 400: SINAMICS DCM

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

r0203[0...15]	Memory card name / Sp_card name		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the name of the memory card in ASCII code. r0203[0]: Name character 1 ... r0203[15]: Name character 16 For the commissioning software, the ASCII characters are displayed uncoded.		
Notice:	An ASCII table (excerpt) can be found, for example, in the Appendix of the List Manual.		

r0204[0...n]	Power unit hardware properties / PU HW property				
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: PDS			
	P-Group: Converter	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
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 system (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	
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_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: PDS		
	P-Group: Converter	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
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 system (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	

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

r0206[0...4] Rated power unit power / PU P_{rated}

AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_6 Scaling: -	Access level: 2 Unit selection: p0100 Expert list: 1
--	--	--	---

Min	Max	Factory setting
- [kW]	- [kW]	- [kW]

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

Index:
 [0] = Rating plate
 [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
 Refer to: p0100

r0207[0...4] Rated power unit current / PU PI_{rated}

AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
--	--	---	---

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

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

Index:
 [0] = Rating plate
 [1] = Load duty cycle with low overload
 [2] = Load duty cycle with high overload
 [3] = S1 cont duty cyc
 [4] = S6 load duty cycle

r0208 **Rated power unit line supply voltage / PU V_{rated}**

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 2
 28, **Data type:** FloatingPoint32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Converter **Units group:** - **Unit selection:** -
 8, SERVO_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8

	Min	Max	Factory setting
	- [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 %

r0209[0...4] **Power unit, maximum current / PU I_{max}**

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 2
 28, **Data type:** FloatingPoint32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Converter **Units group:** - **Unit selection:** -
 8, SERVO_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8

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

p0210 **Drive unit line supply voltage / Supply voltage**

AFE_SINUMERIK_8 **Can be changed:** C2(1) **Calculated:** - **Access level:** 1
 28, SIC_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** -
 SIC_SINUMERIK_82 **P-Group:** Converter **Units group:** - **Unit selection:** -
 8 **Not for motor type:** - **Scaling:** - **Expert list:** 1

	Min	Max	Factory setting
	100 [Vrms]	1000 [Vrms]	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: Refer to: p3400

Warning: 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.
 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 * p0210 and p0280 > 660 V.
 In this case, the setpoint of the DC link voltage p3510 is not automatically adapted. We recommend p3510 = 1.5 * p0210. Closed-loop voltage controlled operation is active with p3400.0 = 0 and p3400.3 = 1.



- Notice:** For $p0210 > 415$ V for booksize power units with a supply voltage of 3-ph. 380 ... 480 V, the Smart Mode is automatically activated ($p3400.0 = 1$). In this case, the Smart Mode cannot be de-activated. This is because in the voltage controlled mode, the maximum steady-state DC link voltage ($p0280$) would be exceeded.
- For booksize power units with supply voltage of 3-ph. 380 ... 480 V AC, the following applies:
 $380 \text{ V} \leq p0210 \leq 400 \text{ V} \rightarrow$ Pre-assignment, setpoint for the DC link voltage: $p3510 = 600 \text{ V}$
 $401 \text{ V} \leq p0210 \leq 415 \text{ V} \rightarrow$ Pre-assignment, setpoint for the DC link voltage: $p3510 = 625 \text{ V}$
 $416 \text{ V} \leq p0210 \leq 480 \text{ V} \rightarrow$ Smart Mode with non-regulated DC link voltage: $p3510 = 1.35 * p0210$
- Note:** When pre-assigning the setpoint for the DC link voltage ($p3510$), the following is generally valid:
 $p3510 = 1.5 * p0210$
- The voltage range for the supply voltage depends on the type and the voltage class of the power unit.
- For booksize drive units, the following applies:
Active Line Module, 400 V unit: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
Smart Line Module, 400 V unit: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
- For chassis units, the following applies:
Active Line Module, 400 V unit: $180 \text{ V} \leq p0210 \leq 480 \text{ V}$
Active Line Module, 690 V unit: $660 \text{ V} \leq p0210 \leq 690 \text{ V}$
Active Line Module, 500/690 V unit: $380 \text{ V} \leq p0210 \leq 690 \text{ V}$
Smart Line Module, 400 V unit: $380 \text{ V} \leq p0210 \leq 480 \text{ V}$
Smart Line Module, 690 V unit: $500 \text{ V} \leq p0210 \leq 690 \text{ V}$

p0210 Drive unit line supply voltage / Supply voltage

BIC_SINUMERIK_82 8	Can be changed: C2(1)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 70 [Vrms]	Max 1000 [Vrms]	Factory setting 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 $p0210 = 70$ V if $p0212$ bit 0 has been set.
- Caution:** If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.
- 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. $p0210(\text{SERVO}) = 1.35 * p0210(\text{B_INF}) = 310 \text{ V}$).
- 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 $p0212$ bit 0 = 1 has been set.

p0210	Drive unit line supply voltage / Supply voltage		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(2), T Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1 [V]	Max 63000 [V]	Factory setting 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 are then directly determined using p0210.		
Caution:	If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.		
Note:	Setting ranges for p0210 as a function of the rated power unit voltage: V _{rated} = 400 V: - p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V (DC/AC) V _{rated} = 500 V: - p0210 = 500 ... 600 V (AC/AC), 675 ... 900 V (DC/AC) V _{rated} = 660 V ... 690 V: - p0210 = 660 ... 690 V (AC/AC), 890 ... 1035 V (DC/AC) V _{rated} = 500 V ... 690 V: - p0210 = 500 ... 690 V (AC/AC), 675 ... 1035 V (DC/AC) The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210: Vdc _{pre} = p0210 * 0.82 * 1.35 (AC/AC) Vdc _{pre} = p0210 * 0.82 (DC/AC) The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage: V _{rated} = 400 V: - V _{min} = p0210 * 0.78 (AC/AC) > 330 V, p0210 * 0.60 (DC/AC) > 380 V V _{rated} = 500 V: - V _{min} = p0210 * 0.76 (AC/AC) > 410 V V _{rated} = 660 V ... 690 V: - V _{min} = p0210 * 0.82 (AC/AC) > 565 V, p0210 * 0.63 (DC/AC) > 650 V V _{rated} = 500 V ... 690 V: - V _{min} = p0210 * 0.82 (AC/AC) > 420 V, p0210 * 0.63 (DC/AC) > 480 V		

p0211	Rated line freq / Rated line freq		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 10 [Hz]	Max 100 [Hz]	Factory setting 55 [Hz]
Description:	Sets the rated line frequency for the infeed.		
Dependency:	Refer to: 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 configuration

BIC_SINUMERIK_82 8	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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	

Dependency: Re bit 00:
 Reduced supply voltages are only possible on booksize power units.
 Bit 0 = 1 can only be set if r0192 bit 22 = 1.
 The external pre-charging setting (bit 1 = 1) only affects the DC/AC power units.
 Refer to: r0192, p0210

Caution:



Re bit 00:
 Working with reduced input voltages de-activates undervoltage detection.

Note: Re bit 00 = 0:
 It is not possible to reduce the supply voltage in p0210.
 Re bit 00 = 1:
 With this setting the supply voltage in p0210 can be reduced to 100 V.
 Only operating mode p1300 = 19 is possible.
 Re bit 01 = 0:
 There is no external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is bypassed.
 Re 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 configuration

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the power unit configuration.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	External pre-charging present	Yes	No	

Dependency: The external pre-charging setting (bit 1 = 1) only affects the DC/AC power units.

Note: Re bit 01 = 0:
 There is no external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is bypassed.
 Re bit 01 = 1:
 There is external pre-charging of the DC/AC Motor Modules. The pre-charging monitoring is calculated.

p0220[0...1] Infeed line filter type / INF line filt type

AFE_SINUMERIK_8 28	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 45	Factory setting 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)

Index: [0] = Line filter
 [1] = Line filter, optional

Notice: "Booksize" 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 booksize 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[0...1] Infeed filter capacitance / INF C_filter			
AFE_SINUMERIK_8 28	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µF]	Max 100000.00 [µF]	Factory setting 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...1] Infeed filter resistance / INF R_filter			
AFE_SINUMERIK_8 28	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [Ohm]	Max 100.00000 [Ohm]	Factory setting 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			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.001 [mH]	Max 1000.000 [mH]	Factory setting 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			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [Ohm]	Max 100.00000 [Ohm]	Factory setting 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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1) Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.001 [mH]
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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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1) Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.00 [Ohm]
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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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1) Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 1.00 [mF]
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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.

p0233 Power unit motor reactor / PU mot reactor

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(2), U, T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting 0.000 [mH]
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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.
Note: The parameter cannot be changed if the power unit has an internal sine-wave filter.

p0234	Power unit sine-wave filter capacitance / PU sine filter C		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(2), U, T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.000 [µF]	Max 1000.000 [µF]	Factory setting 0.000 [µF]
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.		
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	Internal power unit resistance / PU R internal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [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.		
p0249	Power unit cooling type / PU cool type		
SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1, 2) Data type: Integer16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 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		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: Unsigned32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0 [h]	Max 4294967295 [h]	Factory setting 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:	Refer to: p0252		

p0252	Maximum operating time power unit fan / PU fan t_oper max		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: Unsigned32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0 [h]	Max 100000 [h]	Factory setting 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:	Refer to: p0251		
Note:	For chassis units, the maximum operating time in the power unit parameter is set to 50000 via the factory setting.		

p0254[0...n]	Power unit internal fan operating hours counter / PU int fan t_oper		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: Unsigned32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0 [h]	Max 4294967295 [h]	Factory setting 0 [h]
Description:	Displays the power unit internal 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:	Refer to: p0252		

p0255[0...1]	Power unit contactor monitoring time / PU cont t_monit		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 6500 [ms]	Factory setting 0 [ms]
Description:	Sets the monitoring time for internal monitoring of the contactor feedback contacts.		
Index:	[0] = Pre-charge contactor [1] = Bypass contactor		
Dependency:	Refer to: F30060, F30061		
Note:	This parameter is only effective for chassis power units with 3 AC line connection and line contactors. A value of 0 de-activates the associated line contactor monitoring.		

p0260 Cooling system, starting time 1 / RKA start time 1

AFE_SINUMERIK_8 28 (Cooling system),
 BIC_SINUMERIK_82 8 (Cooling system),
 SIC_SINUMERIK_82 8 (Cooling system)

Can be changed: U, T
Data type: FloatingPoint32
P-Group: Converter
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min 0.0 [s] **Max** 60.0 [s] **Factory setting** 5.0 [s]

Description: Sets starting time 1 to monitor the cooling system 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: Refer to: F49152, F49153

Note: RKA: Cooling system

p0261 Cooling system, starting time 2 / RKA start time 2

AFE_SINUMERIK_8 28 (Cooling system),
 BIC_SINUMERIK_82 8 (Cooling system),
 SIC_SINUMERIK_82 8 (Cooling system)

Can be changed: U, T
Data type: FloatingPoint32
P-Group: Converter
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min 0.0 [s] **Max** 1200.0 [s] **Factory setting** 180.0 [s]

Description: Sets starting time 2 to monitor the cooling system 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: Refer to: p0266

Refer to: F49151, A49171

p0262 Cooling system, fault conductivity delay time / RKA cond t_del

AFE_SINUMERIK_8 28 (Cooling system),
 BIC_SINUMERIK_82 8 (Cooling system),
 SIC_SINUMERIK_82 8 (Cooling system)

Can be changed: U, T
Data type: FloatingPoint32
P-Group: Converter
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min 0.0 [s] **Max** 30.0 [s] **Factory setting** 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: Refer to: F49151

p0263 Cooling system fault liquid flow, delay time / RKA flow t_{del}
 AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28 (Cooling system), **Data type:** FloatingPoint32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Converter **Units group:** - **Unit selection:** -
 8 (Cooling system), **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SIC_SINUMERIK_82
 8 (Cooling system)

Min	Max	Factory setting
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: Refer to: F49153

p0264 Cooling system, run-on time / RKA run-on time
 AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28 (Cooling system), **Data type:** FloatingPoint32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Converter **Units group:** - **Unit selection:** -
 8 (Cooling system), **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SIC_SINUMERIK_82
 8 (Cooling system)

Min	Max	Factory setting
0.0 [s]	180.0 [s]	30.0 [s]

Description: Sets the run-up time of the cooling system after a power-off command.

r0265.0...3 BO: Cooling system, control word / RKA CTW
 AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28 (Cooling system), **Data type:** Unsigned8 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8 (Cooling system), **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SIC_SINUMERIK_82
 8 (Cooling system)

Min	Max	Factory setting
-	-	-

Description: Displays the control word for the cooling system.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power up cooling system	Activating	De-activating	
	01	Message converter off	Off	On	
	02	Acknowledge faults	Acknowledgement	No acknowledgement	
	03	Leakage sensing OK	No leaked liquid	Leaked liquid	

p0266[0...7] BI: Cooling system, feedback signals, signal source / RKA fdbk S_{src}
 AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28 (Cooling system), **Data type:** Unsigned32 / Binary **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8 (Cooling system), **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SIC_SINUMERIK_82
 8 (Cooling system)

Min	Max	Factory setting
-	-	1

Description: Sets the signal sources for the feedback signals from the cooling system.

Index:

[0]	= Cooling system powered up
[1]	= Cooling system ready to be powered up
[2]	= Cooling system, no alarm present
[3]	= Cooling system, no fault present
[4]	= Cooling system, no leaked liquid
[5]	= Cooling system, liquid flow OK
[6]	= Cooling system, conductivity < fault threshold
[7]	= Cooling system, conductivity < alarm threshold

r0267.0...7 BO: Cooling system status word / RKA ZSW

AFE_SINUMERIK_8 28 (Cooling system), BIC_SINUMERIK_82 8 (Cooling system), SIC_SINUMERIK_82 8 (Cooling system)	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
-	-	-

Description: Displays the status word of the cooling system.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	RKA powered up	Yes	No	
	01	RKA ready to be powered up	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	
	07	RKA conductivity, no alarm	Yes	No	

Dependency: Refer to: p0266

p0278 DC link voltage undervoltage threshold reduction / Vdc V_under red

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
-80 [V]	0 [V]	0 [V]

Description: Sets the absolute value by which the threshold to initiate the undervoltage fault (F30003) is reduced.

Dependency: Refer to: p0210, r0296
Refer to: 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.

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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
0 [V]	500 [V]	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: Refer to: p0210, r0296
Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: C2(1), T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 270 [V]	Max 1500 [V]	Factory setting 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: Refer to: p0210
Refer to: 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 / V_I_over A thresh

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 100 [%]	Max 200 [%]	Factory setting 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: Refer to: 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 / V_I_under A thresh		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 10 [%]	Max 100 [%]	Factory setting 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:	Refer to: p0222, p0224, p0225, p0226, p3421, p3422 Refer to: 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 / V_I_under tr_thrs		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1), T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 10 [%]	Max 100 [%]	Factory setting 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:	Refer to: p0282 Refer to: 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		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 100.0 [%]	Max 300.0 [%]	Factory setting 118.0 [%]
Description:	Sets the alarm threshold for an excessively high line frequency.		
Dependency:	Set as a percentage of the rated line frequency. Refer to: p0211		
p0285	Line supply frequency undershot, alarm threshold / f_I_under A thresh		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 100.0 [%]	Factory setting 82.0 [%]
Description:	Sets the alarm threshold for an excessively low line frequency.		
Dependency:	Set as a percentage of the rated line frequency. Refer to: p0211		

p0287[0...1]	Ground fault monitoring thresholds / Gnd flt threshold		
AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [%]	Max 100.0 [%]	Factory setting [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 power unit current (r0209).		
Index:	[0] = Threshold at which pre-charging starts [1] = Threshold at which pre-charging stops		
Dependency:	Refer to: 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	CO: Maximum power unit output current / PU I_outp max		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the actual maximum output current of the power unit taking into account derating factors.		

p0290	Power unit overload response / PU overld response		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 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 V/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)		

- Dependency:** If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1).
If a fault or alarm is present, then r2135.13 or r2135.15 is set.
Refer to: r0036, r0037, r0108, p0108, r2135
Refer to: A05000, A05001, A07805
- Caution:** If the thermal overload of the power unit is not sufficiently reduced by the actions taken, the drive is always shut down. This means that the power unit is always protected irrespective of the setting of this parameter.
- Note:** The setting p0290 = 0, 2 is only practical if the load decreases with decreasing speed (e.g. for applications with variable torque such as for pumps and fans).
Under overload conditions, 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.
For p0290 = 2, 3, the I2t overload detection of the power unit does not influence the responses.
When the motor data identification routine is selected, p290 cannot be changed.

r0293	CO: Power unit alarm threshold model temperature / PU Tmodel_A_thresh		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Temperature alarm threshold for the difference from the chip and heat sink temperature in the thermal model.		
Dependency:	Refer to: r0037 Refer to: F30024		
Note:	The parameter is only relevant for chassis power units.		

p0294	Power unit alarm with I2t overload / PU I2t alarm thresh		
AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10.0 [%]	Max 100.0 [%]	Factory setting 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:	Refer to: r0036, p0290 Refer to: 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		
BIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10.0 [%]	Max 100.0 [%]	Factory setting 95.0 [%]
Description:	Sets the alarm threshold for the I2t power unit overload.		

Dependency: Refer to: r0036
Refer to: A07805
Note: The parameter is only relevant for booksize units!

p0295 Fan run-on time / Fan run-on time

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1
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Min 0 [s]	Max 600 [s]	Factory setting 0 [s]
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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 effective.

r0296 DC link voltage undervoltage threshold / Vdc V_lower_thresh

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
--	---	---	---

Min - [V]	Max - [V]	Factory setting - [V]
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Description: If the DC link voltage falls below the threshold specified here, the infeed is tripped due to a DC link undervoltage condition.
Dependency: Refer to: F30003

r0296 DC link voltage undervoltage threshold / Vdc V_lower_thresh

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
--	---	---	---

Min - [V]	Max - [V]	Factory setting - [V]
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Description: If the DC link voltage falls below this threshold, the Motor Module is shut down due to a DC link undervoltage condition (F30003).
Dependency: Refer to: p0278
Refer to: F30003
Note: For booksize units, the following applies:
The undervoltage threshold can be reduced with p0278.

r0297 DC link voltage overvoltage threshold / Vdc V_upper_thresh

AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
---	---	---	---

Min - [V]	Max - [V]	Factory setting - [V]
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Description: If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.

Dependency: Refer to: F30002

p0300[0...n] Motor type selection / Mot type sel

SERVO_COMBI	Can be changed: C2(1, 3) Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1
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Min 0	Max 10001	Factory setting 0
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Description: Selects the motor type or start to read in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000). The following applies for p0300 < 10000: 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 (rotating)
	2: Synchronous motor (rotating, permanent-magnet)
	102: 1PH2 induction motor
	107: 1PH7 induction motor
	108: 1PH8 induction motor
	136: 1PM6 induction motor
	206: 1FT6 synchronous motor
	207: 1FT7 synchronous motor
	236: 1FK6 synchronous motor
	237: 1FK7 synchronous motor
	261: 1FE1 synchronous motor
	286: 1FW6 synchronous motor
	291: 2SP1 synchronous motor
	10000: Motor with DRIVE-CLiQ
	10001: Motor with DRIVE-CLiQ 2nd data set

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.

Refer to: p0301

Caution: 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.

Notice: If required, the list of motor codes/encoder codes can be found in the Appendix of the List Manual.

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.

p0300[0...n] Motor type selection / Mot type sel

SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	10001	0

Description: Selects the motor type or start to read in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000).
 The following applies for p0300 < 10000: 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 (rotating)
 - 2: Synchronous motor (rotating, permanent-magnet)
 - 4: Synchronous motor (linear, permanent-magnet)
 - 102: 1PH2 induction motor
 - 104: 1PH4 induction motor
 - 107: 1PH7 induction motor
 - 108: 1PH8 induction motor
 - 134: 1PM4 induction motor
 - 136: 1PM6 induction motor
 - 166: 1PL6 induction motor
 - 200: 1PH8 synchronous motor
 - 206: 1FT6 synchronous motor
 - 207: 1FT7 synchronous motor
 - 236: 1FK6 synchronous motor
 - 237: 1FK7 synchronous motor
 - 261: 1FE1 synchronous motor
 - 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)
 - 10000: Motor with DRIVE-CLiQ
 - 10001: Motor with DRIVE-CLiQ 2nd data set

- 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.
Refer to: p0301
- Caution:** 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.
- Notice:** If required, the list of motor codes/encoder codes can be found in the Appendix of the List Manual.
- 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.

p0301[0...n]	Motor code number selection / Mot code No. sel		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3) Data type: Unsigned16 P-Group: Motor Not for motor type: FEM	Calculated: - Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 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. Refer to: p0300		
Notice:	If required, the list of motor codes/encoder codes can be found in the Appendix of the List Manual.		
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 / Motor code Mot DLQ		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
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 DLQ ZSW

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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 (p0971 = 3).
 - downloading projects.
 - POWER ON (off/on).
 - where p0300 = 10000, 10001.

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: Refer to: p0145, p0300
Note: SMI: SINAMICS Sensor Module Integrated

p0304[0...n] Rated motor voltage / Mot V_{rated}

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [Vrms]	20000 [Vrms]	0 [Vrms]

Description: Sets the rated motor voltage (rating plate).
Dependency: Refer to: p0349
Caution: This parameter is automatically pre-set for motors from the motor list (p0301).
 When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.
Note: When 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]

Description: Sets the rated motor current (rating plate).
Dependency: Refer to: p0349

- Caution:** This parameter is automatically pre-set 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.
- Notice:** 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_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Unsigned8	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	1	10	1

- Description:** Number 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).

Dependency: Refer to: 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).

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).

p0307[0...n] Rated motor power / Mot P_{rated}

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 14_6	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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
Refer to: p0100

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

Note: This parameter is automatically pre-set for motors from the motor list (p0301).

p0308[0...n]	Rated motor power factor / Mot cos_phi_rated		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0.000	Max 1.000	Factory setting 0.000
Description:	Sets the rated motor power factor (cos phi, rating plate). For a parameter value of 0.000, the power factor is internally calculated and displayed in r0332.		
Dependency:	This parameter is only available for IEC motors (p0100 = 0). Refer to: p0100, r0332		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

p0310[0...n]	Rated motor frequency / Mot f_rated		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [Hz]	Max 3000.00 [Hz]	Factory setting 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), then the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. Refer to: p0311, r0313, p0314		
Caution:	This parameter is automatically pre-set 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.		
Notice:	If p0310 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).		
Note:	The parameter is automatically pre-assigned for induction motors from the motor list (p0301). 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]	Rated motor speed / Mot n_rated		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [rpm]	Max 210000.0 [rpm]	Factory setting 0.0 [rpm]
Description:	Sets the rated motor speed (rating plate). For VECTOR the following applies (p0107): For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330. It is especially important to correctly enter the rated motor speed for vector control and slip compensation for V/f control.		

- Dependency:** If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically.
Refer to: p0310, r0313, p0314
- Caution:** This parameter is automatically pre-set 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.
- Notice:** If p0311 is changed during quick commissioning (p0010 = 1), the maximum speed p1082, which is also associated with quick commissioning, is pre-assigned accordingly. This is not the case when commissioning the motor (p0010 = 3).

p0312[0...n]	Rated motor torque / Mot M_{rated}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 7_4	Unit selection: p0100
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]

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

Caution: This parameter is automatically pre-set 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.

r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

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).

Refer to: 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]	Motor pole pair number / Mot pole pair No.		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 4000	Factory setting 0

Description: Sets the motor pole pair number.

p0314 = 1: 2-pole motor

r0314 = 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.

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 28_1	Unit selection: p0100
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Nm/A]	Max 400.00 [Nm/A]	Factory setting 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: Refer to: r0334, r1937

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

Note: This parameter is not used for induction motors (p0300 = 1xx).

p0317[0...n] Motor voltage constant / Mot kE

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.0 [Vrms]	Max 24000.0 [Vrms]	Factory setting 0.0 [Vrms]

Description: Sets the voltage constant for synchronous motors.
Units for rotating synchronous motors: Vrms/(1000 rpm), phase-to-phase

Dependency: Refer to: r1938

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

Note: This parameter is not used for induction motors (p0300 = 1xx).

p0318[0...n] Motor stall current / Mot I_standstill

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]

Description: Sets the stall current for synchronous motors (p0300 = 2xx).

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

Note: 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 7_4	Unit selection: p0100
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the standstill (stall) torque for rotating synchronous motors (p0300 = 2xx).		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL, FEM	Scaling: -	Expert list: 1
	Min 0.000 [Arms]	Max 5000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Induction motors: Sets the rated motor magnetizing current. For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331. Synchronous motors: Sets the rated motor short-circuit current.		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	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]	Maximum motor speed / Mot n_max		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [rpm]	Max 210000.0 [rpm]	Factory setting 0.0 [rpm]
Description:	Sets the maximum motor speed.		
Dependency:	Refer to: p1082		
Caution:	This parameter is automatically pre-set 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.		
Notice:	If p0322 is changed during quick commissioning (p0010 = 1), then 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).		

p0323[0...n]	Maximum motor current / Mot I_max		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 20000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).		
Caution:	This parameter is automatically pre-set 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.		
Notice:	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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [rpm]	Max 210000.0 [rpm]	Factory setting 0.0 [rpm]
Description:	Sets the electrical maximum speed of the winding.		
Dependency:	Refer to: p1082		
Caution:	This parameter is automatically pre-set 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.		
Notice:	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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.000 [Arms]	Max 10000.000 [Arms]	Factory setting 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:	Refer to: p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: 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]	Motor stall torque correction factor / Mot M_stall_corr		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL, FEM	Scaling: -	Expert list: 1
	Min 5 [%]	Max 300 [%]	Factory setting 60 [%]
Description:	Sets the correction factor for the stall torque/force at a 600 V DC link voltage.		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to 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]	Optimum motor load angle / Mot phi_load_opt		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.0 [°]	Max 135.0 [°]	Factory setting 90.0 [°]
Description:	Sets the optimum load angle for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction 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:	Refer to: r1947		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	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 (refer to p0300).		
p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min -1000.00 [mH]	Max 1000.00 [mH]	Factory setting 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:	Refer to: r1939		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors without reluctance torque, the value 0 must be set.		

p0329[0...n]	Motor pole position identification current / Mot PolID current		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the current for the pole position identification routine. For a two-stage technique, the current is set for the second phase.		
Dependency:	Refer to: p0325, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: F07995		
Caution:	This parameter is automatically pre-set 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.		

r0330[0...n]	Rated motor slip / Mot slip_rated		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the rated motor slip.		
Dependency:	The rated slip is calculated from the rated frequency, rated speed and number of pole pairs. Refer to: p0310, p0311, r0313		
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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL, FEM	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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): 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 7_4	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 28_1	Unit selection: p0100
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [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 Refer to: p0316		
Note:	This parameter is not used for induction motors (p0300 = 1xx). For synchronous motors, parameter r0334 = p0316 is displayed. If p0316 = 0, r0334 is calculated from p0305 and p0312.		

p0335[0...n]	Motor cooling type / Motor cooling type		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 0	Max 128	Factory setting 0
Description:	Sets the motor cooling system used.		
Value:	0: Non-ventilated 1: Forced cooling 2: Liquid cooling 4: Non-ventilated and internal fan 5: Forced cooling and internal fan 6: Liquid cooling and internal fan 128: No fan		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	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. 1LA7 motors, frame size 56 are operated without fan.		

r0336[0...n]	Actual rated motor frequency / Mot f_{rated act}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the rated frequency of the motor. For p0310 > 0, this value is displayed.		
Dependency:	Refer to: 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]	Rated motor EMF / Mot EMF_{rated}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the rated EMF of the motor.		
Note:	EMF: Electromagnetic force		

p0338[0...n] Motor limit current / Mot I_limit			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 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).		
Caution:	This parameter is automatically pre-set 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.		
Notice:	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).		
<hr/>			
r0339[0...n] Rated motor voltage / Mot V_rated			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [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.		
<hr/>			
p0340 Automatic calculation, control parameters / Calc auto par			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 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 setting 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.		

p0340[0...n]	Automatic calculation, motor/control parameters / Calc auto par		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 5	Factory setting 0
Description:	Setting to automatically calculate motor parameters and V/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)

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:

--> 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, p2162, p2163, 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, p1231, p1232, p1333, p1349, p1441, p1442, p1576, p1577, p1609, p1610, p1611, p1619, p1620, p1621, p1654, p1726, p1825, p1828 ... p1832, p1909, p1959, p2000, p2001, p2002, p2003, p2005, p2007, 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, p1781, p1783, p1785, p1786, p1795, p7036, p7037, p7038

p0340 = 5:

--> p260 ... p264, p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1750, p1802, p1803, p2140, p2142, p2148, p2150, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p3207, p3208, p3815, p3820 ... p3829

Note: 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 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 weight (p0344).
 For third-party linear synchronous motors (p0300 = 4) equivalent circuit diagram data are not calculated (p0340 = 2).

p0341[0...n]	Motor moment of inertia / Mot M_mom of inert		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 25_1 Scaling: -	Access level: 3 Unit selection: p0100 Expert list: 1
	Min 0.000000 [kgm ²]	Max 100000.000000 [kgm ²]	Factory setting 0.000000 [kgm ²]
Description:	Sets the motor moment of inertia (without load).		
Dependency:	IEC drives (p0100 = 0): unit kg m ² NEMA drives (p0100 = 1): unit lb ft ² The parameter value is included, together with p0342, in the rated starting time of the motor. Refer to: p0342		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1.000	Max 10000.000	Factory setting 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. Refer to: p0341, 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.		

p0344[0...n]	Motor weight (for the thermal motor model) / Mot weight th mod		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 27_1	Unit selection: p0100
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.0 [kg]	Max 50000.0 [kg]	Factory setting 0.0 [kg]
Description:	Sets the motor weight.		
Dependency:	IEC drives (p0100 = 0): unit kg NEMA drives (p0100 = 1): unit lb		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter influences the thermal 3 mass model of the induction motor. The parameter is not used for synchronous motors (p0300 = 2xx).		
p0347[0...n]	Motor de-excitation time / Mot t_de-excitat.		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 20.000 [s]	Factory setting 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 the DC current brake.		
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]	Speed at the start of field weakening Vdc = 600 V / Mot n_field weaken		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [rpm]	Max 210000.0 [rpm]	Factory setting 0.0 [rpm]
Description:	Sets the speed at the start of field weakening for a DC link voltage of 600 V.		
Dependency:	Refer to: p0320, r0331		
Caution:	This parameter is automatically pre-set 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.		

p0349 System of units, motor equivalent circuit diagram data / Unit_sys mot ESB

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 2	Factory setting 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: Refer to: 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, p305, p0310) is zero, then it is not possible to make a changeover to "referred" values (per unit values).

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [Ohm]	Max 2000.00000 [Ohm]	Factory setting 0.00000 [Ohm]

Description: Sets the stator resistance of the motor at ambient temperature p0625.

Dependency: Refer to: p0625, r1912


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

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

p0352[0...n] Cable resistance / Mot R_cable cold

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [Ohm]	Max 120.00000 [Ohm]	Factory setting 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]	Motor series inductance / Mot L_series		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [mH]	Max 1000000.000 [mH]	Factory setting 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]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0.00000 [Ohm]	Max 300.00000 [Ohm]	Factory setting 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 identification routine (p1910) (not for separately-excited synchronous motors).		
Dependency:	Refer to: p0625		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	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. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	This parameter is automatically pre-set for motors from the motor list (p0301). 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 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).

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

Note: 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0.00000 [mH]	Max 10000.00000 [mH]	Factory setting 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).

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

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

r0370[0...n] Motor stator resistance, cold / Mot R_stator cold

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]

Description: Displays the motor stator resistance at an ambient temperature p0625.
 The value does not include the cable resistance.

Dependency: Refer to: p0625

r0373[0...n]	Motor rated stator resistance / Mot R_stator rated		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the rated motor stator resistance at rated temperature (total of p0625 and p0627).		
Dependency:	Refer to: 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 / RDd		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [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:	Refer to: p0625		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0376[0...n]	Rated motor rotor resistance / Mot R_rotor rated		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the rated (nominal) rotor/secondary section resistance of the motor at the rated temperature (total of p0625 and p0628).		
Dependency:	Refer to: p0628		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0377[0...n]	Motor leakage inductance, total / Mot L_leak total		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	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] Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [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] Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]

Description: Displays the rotor time constant.
For separately-excited synchronous motors: Displays the damping time constant in 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 6000.00 [Arms]	Factory setting 0.00 [Arms]

Description: Sets the starting point of the current-dependent current controller adaptation where the current controller gain p1715 is effective.

Dependency: Refer to: p0392, p0393, p1402, p1715

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

Note: For p0393 = 100 % or p1402 bit 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 6000.00 [Arms]	Factory setting 0.00 [Arms]

Description: Sets the starting point of the current-dependent current controller adaptation where the adapted current controller gain p1715 * p0393 is effective.

Dependency: Refer to: p0391, p0393, p1402, p1715

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

Note: For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

p0393[0...n] Current controller adaptation p gain adaptation / I_adapt Kp adapt

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]

Description: Sets the factor for the current controller P gain in the adaptation range (current greater than p0392). The value is referred to p1715.

Dependency: Refer to: p0391, p0392, p1402, p1715

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

Note: For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [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.

Refer to: 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]	Actual rotor resistance / R_rotor act		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Unit selection: p0349
	P-Group: Motor	Units group: 16_1	Expert list: 1
	Not for motor type: PEM, REL, FEM	Scaling: -	Factory setting
	Min - [Ohm]	Max - [Ohm]	- [Ohm]
Description:	Displays the actual rotor/secondary section resistance (phase value). The parameter is affected by the motor temperature model.		
Dependency:	Refer to: 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]	Encoder type selection / Enc_typ sel		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 4)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: EDS, p0140	Unit selection: -
	P-Group: Encoder	Units group: -	Expert list: 1
	Not for motor type: -	Scaling: -	Factory setting
	Min 0	Max 10100	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
	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 EnDat interface identified
	10051: DRIVE-CLiQ encoder identified
	10058: Digital encoder (absolute) identified
	10059: Digital encoder (incremental) identified
	10100: Identify encoder (waiting)

Caution: 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).

Notice: If required, the list of motor codes/encoder codes can be found in the Appendix of the List Manual.

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.

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]	Encoder type, OEM selection / Enc type OEM sel		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 4) Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 32767	

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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 4) Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 9999
	Min 1	Max 10100	

Description: Selects the gearbox type to pre-set the inversion and the gearbox factor.
Measuring gear factor = motor or load revolutions / encoder revolutions.

Value:

- 1: Gearbox 1:1 not inverted
- 2: Gearbox 2:7 inverted
- 3: Gearbox 4:17 inverted
- 4: Gearbox 2:10 inverted
- 9999: Gearbox, user-defined
- 10000: Identify gearbox
- 10100: Identify gearbox

Dependency: Refer to: p0410, p0432, p0433

Note: Re p0402 = 1:
Automatic setting of p0410 = 0000 bin, p0432 = 1, p0433 = 1.
Re p0402 = 2:
Automatic setting of p0410 = 0011 bin, p0432 = 7, p0433 = 2.
Re p0402 = 3:
Automatic setting of p0410 = 0011 bin, p0432 = 17, p0433 = 4.
Re p0402 = 4:
Automatic setting of p0410 = 0011 bin, p0432 = 10, p0433 = 2.
Re p0402 = 9999:
No automatic setting of p0410, p0432, p0433. The parameters should be manually set.
Re p0402 = 10000:
It is only possible to identify the gearbox type for a motor with DRIVE-CLiQ. Parameters p0410, p0432 and p0433 are set corresponding to the identified gearbox. If an identification is not possible, then p0402 is set to 9999.

p0404[0...n]	Encoder configuration effective / Enc_config eff		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0000 bin
	Min -	Max -	

Description: Settings for the basic encoder properties.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	
	01	Abs value encoder	Yes	No	
	02	Multiturn encoder	Yes	No	
	03	Track A/B sq-wave	Yes	No	
	04	Track A/B sinus	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	

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

Notice: If an SSI encoder (bit 9 = 1) is used as motor encoder for permanent-magnet synchronous motors, then this is only permissible in conjunction with an additional A/B track (bit 3 = 1 or bit 4 = 1).

Note: ZM: Zero mark
 SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:
 The track A/B is adjusted to match the magnetic position of the motor.
 Re bit 01, 02 (absolute encoder, multiturn encoder):
 These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.
 Re bit 10 (DRIVE-CLiQ encoder):
 This bit is only used for the large-scale integrated DRIVE-CLiQ encoders that provide their encoder data directly in DRIVE-CLiQ format without converting this data. This bit is not, therefore, set for first-generation DRIVE-CLiQ encoders.
 Re bit 12 (equidistant zero mark):
 The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution or linear encoder with constant zero mark distance).
 The bit activates monitoring of the zero mark distance (p0424/p0425, linear/rotary) or in the case of the linear encoder with 1 zero mark and p0424 = 0 zero mark monitoring is activated.
 Re bit 13 (irregular zero mark):
 The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark distance is not monitored.
 Re bit 14 (distance-coded zero mark):
 The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.
 Re bit 15 (commutation with zero mark):
 Only applicable for synchronous motors.
 The function can be de-selected by priority via p0430.23.
 For distance-coded zero marks, the following applies:
 The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).
 The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.
 The fine synchronization is only started after two zero marks have been passed.

p0405[0...n]	Square-wave encoder track A/B / Sq-wave enc A/B		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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 thresh	High	Low	
	05	Pulse/direction	Yes	No	

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

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

p0407[0...n] Linear encoder grid division / Enc grid div				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: EDS, p0140		
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0 [nm]	Max 250000000 [nm]	Factory setting 16000 [nm]	
Description:	Sets the grid division for a linear encoder.			
Caution:	This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.			
Note:	The lowest permissible value is 250 nm.			
p0408[0...n] Rotary encoder pulse No. / Rot enc pulse No.				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: EDS, p0140		
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0	Max 16777215	Factory setting 2048	
Description:	Sets the number of pulses for a rotary encoder.			
Caution:	This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.			
Note:	The number of pole pairs for a resolver is entered here. The smallest permissible value is 1 pulse.			
p0410[0...n] Encoder inversion actual value / Enc inv act value				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: EDS, p0140		
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 0000 bin	
Description:	Setting to invert actual values.			
Bit field:	Bit	Signal name	1 signal	0 signal FP
	00	Invert speed actual value	Yes	No
	01	Invert position actual value	Yes	No
Note:	The inversion influences the following parameters: Bit 00: r0061, r0063 (exception: encoderless control), r0094 Bit 01: r0482, r0483			
p0411[0...n] Measuring gear, configuration / Meas gear config				
SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: EDS, p0140		
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 0000 bin	
Description:	Sets the configuration for position tracking of a measuring gear.			

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	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

SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 4194303	Factory setting 0

Description: Sets the number of rotations that can be resolved for a rotary encoder with activated position tracking of the measuring gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking (p0411.0 = 1) and for an incremental encoder with activated position tracking (p0411.3 = 1).

Note: The resolution that is set must be able to be represented using r0483.
For rotary axes/modulo axes, the following applies:
p0411.0 = 1:
This parameter is pre-set with p0421 and can be changed.
p0411.3 = 1:
The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
For linear axes, the following applies:
p0411.0 = 1:
This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.
p0411.3 = 1:
The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

p0413[0...n] Measuring gear, position tracking tolerance window / Pos track window

SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00	Max 4294967300.00	Factory setting 0.00

Description: Sets a tolerance window for position tracking.
After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:

Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.

Difference outside the tolerance window --> An appropriate message is output.

Dependency: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 16	Factory setting 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 31	Factory setting 14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Note: MSB: Most Significant Bit

p0418[0...n] Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 2	Max 18	Factory setting 11

Description: Sets the fine resolution in bits of the incremental position actual values.

Note: The parameter applies for the following process data:

- Gx_XIST1
- Gx_XIST2 for reference mark or flying measurement

The fine resolution specifies the fraction between two encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048).

For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information.

For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy.

p0419[0...n] Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: C2(4)	Calculated: -	Access level: 3
Data type: Unsigned8	Dynamic index: EDS, p0140	
P-Group: Encoder	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 2	Max 18	Factory setting 9

Description: Sets the fine resolution in bits of the absolute position actual values.

Dependency: Refer to: p0418

Note: This parameter applies to process data Gx_XIST2 when reading the absolute value.

p0420[0...n] Encoder connection / Enc_connection

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: C2(4)	Calculated: -	Access level: 4
Data type: Unsigned16	Dynamic index: EDS, p0140	
P-Group: Encoder	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min -	Max -	Factory setting 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

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: C2(4)	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: EDS, p0140	
P-Group: Encoder	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0	Max 65535	Factory setting 4096

Description: Sets the number of rotations that can be resolved for a rotary absolute encoder.

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

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

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: C2(4)	Calculated: -	Access level: 3
Data type: Unsigned32	Dynamic index: EDS, p0140	
P-Group: Encoder	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0 [nm]	Max 4294967295 [nm]	Factory setting 100 [nm]

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

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

Note: The serial protocol of an absolute encoder provides the position with a certain resolution , e.g. 100 nm. This value must be entered here.

p0423[0...n]	Absolute encoder rotary singleturn resolution / Enc abs singleturn		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 1073741823	Factory setting 8192
Description:	Sets the number of measuring steps per revolution for a rotary absolute encoder. The resolution refers to the absolute position.		
Caution:	This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
p0424[0...n]	Encoder, linear zero mark distance / Enc lin ZM_dist		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0 [mm]	Max 65535 [mm]	Factory setting 20 [mm]
Description:	Sets the distance between two zero marks for a linear encoder. This information is used for zero mark monitoring.		
Caution:	This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	For distance-coded zero marks, this means the basic distance.		
p0425[0...n]	Encoder, rotary zero mark distance / Enc rot dist ZM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 16777215	Factory setting 2048
Description:	Sets the distance in pulses between two zero marks for a rotary encoder. This information is used for zero mark monitoring.		
Caution:	This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	For distance-coded zero marks, this means the basic distance.		
p0426[0...n]	Encoder zero mark differential distance / Enc ZM Dif_dist		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1	Max 65535	Factory setting 1
Description:	Sets the differential distance with distance-coded zero marks [signal periods]. The value corresponds to jump displacement of "zero mark with interference".		

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

p0430[0...n]		Sensor Module configuration / SM config	
SERVO_SINUMERIK828	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: - Min -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 1110 0000 0000 1000 0000 0000 0000 0000 bin

Description: Sets the configuration of the Sensor Module.

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

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

- Note:**
- Re bit 17 (burst oversampling):
 - if bit = 1, burst oversampling is switched on.
 - Re bit 18 (continuous oversampling):
 - if bit = 1, continuous oversampling is switched on.
 - Re bit 19 (Safety position actual value sensing):
 - if bit = 1, the Safety position actual value is transferred in the cyclic telegram.
 - Re bit 20 (speed calculation mode):
 - if bit = 1, the speed is calculated via incremental difference without extrapolation.
 - if bit = 0, the speed is calculated via edge time measurement with extrapolation. p0453 is effective in this mode.
 - Re bit 21 (zero mark tolerance):
 - if bit = 1, a one-off zero mark distance error is tolerated. In the event of a defect, the fault F3x100/F3x101 does not appear, but alarm A3x400/A3x401 does.
 - Re bit 22 (rotor position adaptation):
 - if bit = 1, the rotor position is corrected automatically. The correction speed is +/-1/4 encoder pulse per zero mark distance.
 - Re bit 23 (de-select commutation with zero mark):
 - The bit should only be set for encoders that have not been adjusted.
 - Re bit 24 (commutation with selected zero mark):
 - if bit = 1, the commutation position is corrected via a selected zero mark.
 - Re bit 25 (disconnect the encoder power supply on parking):
 - if bit = 1, the encoder power supply is switched off on parking (0 V).
 - if bit = 0, the encoder power supply is not switched off on parking, it is reduced from 24 V to 5 V.
 - Re bit 27 (extrapolate position values):
 - if bit = 1, the extrapolation of the position values is activated.
 - Re bit 28 (cubic correction):
 - if bit = 1, the cubic correction for track A/B sine is activated.
 - Re bit 29 (phase correction):
 - if bit = 1, the phase correction for track A/B sine is activated.
 - Re bit 30 (amplitude correction):
 - if bit = 1, the amplitude correction for track A/B sine is activated.
 - Re bit 31 (offset correction):
 - if bit = 1, the offset correction for track A/B sine is activated.

p0431[0...n]	Angular commutation offset / Ang_com offset		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -180.00 [°]	Max 180.00 [°]	Factory setting 0.00 [°]
Description:	Sets the angular commutation offset.		
Dependency:	The value is taken into account in r0094. Refer to: r0094, r1778		
Caution:	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: <ul style="list-style-type: none"> - 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). 		
Notice:	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

SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
1	10000	1

Description: Sets the encoder revolutions for the gearbox factor of the encoder evaluation.
 The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.
 Refer to: p0402, p0410, p0433

Note: Negative gearbox factors should be implemented with p0410.

p0433[0...n] Gearbox factor, motor/load revolutions / Grbx_fact mot_rev

SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
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.
 Refer to: p0402, p0410, p0432

Note: Negative gearbox factors should be implemented with p0410.

p0435[0...n] Encoder SSI alarm bit / Enc SSI alarm bit

SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
0	65535	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.

p0437[0...n] Sensor Module configuration extended / SM config ext

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0011 0000 0000 0000 0000 1000 0000 0000 bin

Description: Sets the extended configuration of the Sensor Module.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activating the data logger	Yes	No	
	01	Zero mark edge detection	Yes	No	
	02	Correction position actual value XIST1	Yes	No	
	04	Edge evaluation	Yes	No	
	05	Edge evaluation	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	
	26	Track monitoring de-selection	Yes	No	
	28	EnDat linear encoder monitoring incremental/absolute	Yes	No	
	29	EnDat encoder initialization with high accuracy	Yes	No	
	31	Analog unipolar track monitoring	Yes	No	

Dependency: Refer to: p0430, r0459

Note:

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

Re bit 00:

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

Re bit 01:

If bit = 0, the zero mark is evaluated by ANDing tracks A and B and the zero mark.

For bit = 1, the zero mark is evaluated depending on the direction of rotation detected. For a positive direction of rotation, the positive edge of the zero mark is considered and for a negative direction of rotation, the negative edge of the zero mark.

Re bit 02:

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

Re Bit 04 and Bit 05:

The current hardware only supports 1x or 4x signal evaluation.

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

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

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

Bit 5/4 = 1/1: Illegal setting.

Re bit 06:

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

Re bit 07:

If the bit is set, the encoder pulses which have not been corrected are added to r4688 at the zero mark.

Re bit 11:

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

Re bit 20:

If the bit is set, the bandwidth of the analog filter for SMx10 (resolver) and SMx20 (sin/cos encoder) can be set via parameter p4660.

Re bit 26:

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

Re bit 28:

Monitoring of the difference between incremental and absolute position in the case of linear encoders.

Re bit 29:

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

Re bit 31:

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

p0438[0...n]	Squarewave encoder filter time / Enc t_filt		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 100.00 [µs]	Factory setting 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:	Refer to: r0452		
Notice:	If the filter time is too long, the track signals A/B/R may be suppressed and the appropriate messages output.		
Note:	The most suitable filter time depends on the number of pulses and maximum speed of the square-wave encoder. The filter time is automatically corrected to the next value when entering a non-specified value. In this case, no message is output. The effective filter time is displayed in r0452.		
p0439[0...n]	Encoder ramp-up time / Enc ramp-up time		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 65535 [ms]	Factory setting 0 [ms]
Description:	Sets the ramp-up time for the encoder. The encoder supplies stable track signals once this time has elapsed.		
Caution:	This parameter is automatically pre-set for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
p0440[0...n]	Copy encoder serial number / Copy enc ser_no		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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:	Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Serial number part 1 of the encoder for the commissioning.
Dependency: Refer to: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Serial number part 2 of the encoder for the commissioning.
Dependency: Refer to: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Serial number part 3 of the encoder for the commissioning.
Dependency: Refer to: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464
Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 4 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 5 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		

r0451[0...2]	Commutation angle factor / Enc commut_factor		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [µs]
Description:	Displays the effective filter time for a squarewave encoder. The filter time is set using p0438.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0438		

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

p0453[0...n] Pulse encoder evaluation zero speed measuring time / Enc_ev z 0 t_meas

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.10 [ms]	Max 10000.00 [ms]	Factory setting 1000.00 [ms]

Description: Sets the measuring time for evaluating zero speed.
If no pulses are detected from track A/B during this time, a speed actual value of zero is output.

Dependency: Refer to: r0452

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

r0455[0...2] Encoder configuration recognized / Enc config act

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the detected encoder configuration.
In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

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

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

Dependency: Refer to: p0404

Note: ZM: Zero mark
This parameter is only used for diagnostics.
A value of zero is displayed if an encoder is not present.
Re bit 20, 21 (voltage level 5 V, voltage level 24 V):
The voltage level cannot be detected. Therefore, these bits are always set to 0.

r0456[0...2] Encoder configuration supported / Enc config supp

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Contains 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	Abs value encoder	Yes	No	
	02	Multiturn encoder	Yes	No	
	03	Track A/B sq-wave	Yes	No	
	04	Track A/B sinus	Yes	No	
	05	Track C/D	Yes	No	
	06	Hall sensor	Yes	No	
	08	EnDat encoder	Yes	No	
	09	SSI encoder	Yes	No	
	10	DRIVE-CLiQ encoder	Yes	No	
	11	Digital encoder	Yes	No	
	12	Equidistant zero mark	Yes	No	
	13	Irregular zero mark	Yes	No	
	14	Distance-coded zero mark	Yes	No	
	15	Commutation with zero mark (not ASM)	Yes	No	
	16	Acceleration	Yes	No	
	17	Track A/B analog	Yes	No	
	20	Voltage level 5 V	Yes	No	
	21	Voltage level 24 V	Yes	No	
	22	Remote sense (only SMC30)	Yes	No	
	23	Resolver excit.	Yes	No	

Dependency: Refer to: p0404

Note:
ZM: Zero mark
This parameter is only used for diagnostics.
A value of zero is displayed if an encoder is not present.

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Sets the Sensor Module configuration.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = 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	Valuation figures available	Yes	No	
	16	Pole position identification	Yes	No	
	17	Burst 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	
	27	SSI position value extrapolation	Yes	No	
	28	Cubic correction	Yes	No	
	29	Phase correction	Yes	No	
	30	Amplitude correction	Yes	No	
	31	Offset correction	Yes	No	

Dependency: Refer to: p0437, p0600, p0601

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

Re bit 11:

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

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

Re bit 12:

The extended functions can be configured using p0437.

Re bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

Re bit 14:

Only for internal Siemens use.

Re bit 23:

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

Re bit 24:

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

r0459[0...2] Sensor Module properties extended / SM prop ext

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	Activating the data logger	Yes	No	
	01	Zero mark edge detection	Yes	No	
	02	Correction position actual value XIST1	Yes	No	
	04	Edge evaluation	Yes	No	
	05	Edge evaluation	Yes	No	
	06	Freeze the speed actual value for dn/dt errors	Yes	No	
	07	Accumulate uncorrected encoder pulses	Yes	No	
	09	Support function p0426, p0439	Yes	No	
	10	Pulse/direction interface	Yes	No	
	11	Fault handling after PROFIdrive	Yes	No	
	26	Track monitoring de-selection	Yes	No	
	28	EnDat linear encoder monitoring incremental/absolute	Yes	No	
	29	EnDat encoder initialization with high accuracy	Yes	No	
	31	Analog unipolar track monitoring	Yes	No	

Dependency: Refer to: p0437

Note: A value of zero is displayed if an encoder is not present.
Re bit 09:

Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module.

r0460[0...2] Encoder serial number part 1 / Enc ser_no 1

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual serial number part 1 of the appropriate encoder.

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

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

r0461[0...2] Encoder serial number part 2 / Enc ser_no 2			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the actual serial number part 2 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464		
r0462[0...2] Encoder serial number part 3 / Enc ser_no 3			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the actual serial number part 3 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464		
r0463[0...2] Encoder serial number part 4 / Enc ser_no 4			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the actual serial number part 4 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464		
r0464[0...2] Encoder serial number part 5 / Enc ser_no 5			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the actual serial number part 5 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463		

r0465[0...27] Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the serial number of encoder 1. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number		
Dependency:	Refer to: r0460, r0461, r0462, r0463, r0464		
Notice:	An ASCII table (excerpt) can be found, for example, in the Appendix of the List Manual.		
Note:	The individual characters of the identification number/serial number are available coded as ASCII characters.		
r0466[0...27] Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the serial number of encoder 2. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number		
Dependency:	Refer to: r0460, r0461, r0462, r0463, r0464		
Notice:	An ASCII table (excerpt) can be found, for example, in the Appendix of the List Manual.		
Note:	The individual characters of the identification number/serial number are available coded as ASCII characters.		

r0467[0...27] Encoder 3 identification number/serial number / Enc3 ID_no/Ser_no			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the 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:	Refer to: r0460, r0461, r0462, r0463, r0464		
Notice:	An ASCII table (excerpt) can be found, for example, in the Appendix of the List Manual.		
Note:	The individual characters of the identification number/serial number are available coded as ASCII characters.		

r0470[0...2] Redundant coarse value valid bits / Valid bits			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the valid bits of the redundant coarse position value.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p9323, p9523		

r0471[0...2] Redundant coarse value fine resolution bits / Fine bit			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of valid bits for the fine resolution of the redundant coarse position value.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p9324, p9524		

r0472[0...2]	Redundant coarse position value relevant bits / Relevant bits		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of relevant bits for the redundant coarse position value.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

r0474[0...2]	Redundant coarse position value configuration / Red pos config		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder configuration for the redundant coarse position value.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = 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	
Dependency:	Refer to: p9315, p9515				

r0475[0...2]	Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Note:	MSB: Most Significant Bit		

r0477[0...2]	CO: Measuring gear, position difference / Meas gear pos diff		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the position difference before the measuring gear between powering down and powering up.		

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

Dependency: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics. In contrast to p0482, 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: Signal source for encoder control word Gn_STW / Enc S_src Gn_STW

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

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

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

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

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Function 1 active	Yes	No	
	01	Function 2 active	Yes	No	
	02	Function 3 active	Yes	No	
	03	Function 4 active	Yes	No	
	04	Value 1	Displayed in r0483	Not present	
	05	Value 2	Displayed in r0483	Not present	
	06	Value 3	Displayed in r0483	Not present	
	07	Value 4	Displayed in r0483	Not present	
	08	Measuring probe 1 deflected	Yes	No	
	09	Measuring probe 2 deflected	Yes	No	
	11	Encoder fault acknowledge active	Yes	No	
	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: Re bit 14:
Displays the acknowledgement for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid.

Re bit 14, 15:

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

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

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

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

r0482[0...2] CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays 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 axis" 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).

r0483[0...2] CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.

Recommend.: Possible causes of the error codes:
 Error code 4097 and 4098: Defective Control Unit hardware.
 Error codes 4099 and 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: Reserved.
 4: Abort, reference mark search.
 5: Abort, retrieve reference value.
 6: Abort, flying measurement.
 7: Abort, retrieve measured value.
 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 Gn_XIST1 / Enc red pos+CRC

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check).
 Upper 16 bits:
 CRC over the redundant coarse encoder position.
 Lower 16 bits:
 Redundant coarse encoder position.
 On an SMx Sensor Module, the encoder coarse position count direction is opposite to r0482 (encoder actual value Gn_XIST1). The value contains 2 bit fine resolution.
 With a DRIVE-CLiQ encoder, the encoder coarse position count direction is the same as r0482. The encoder coarse position contains 9 valid bits and no bits for fine resolution.

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).
 Refer to: p0430

Note: This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".

r0485[0...2]	CO: Measuring gear, encoder raw value incremental / Enc raw val incr		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the raw value of the incremental encoder actual value before the measuring gear.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

r0486[0...2]	CO: Measuring gear, encoder raw value absolute / Enc raw val abs		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the raw value of the absolute encoder actual value before the measuring gear.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		

r0487[0...2]	Diagnostic encoder control word Gn_STW / Enc Gn_STW				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.				
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = 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]	Measuring probe 1 input terminal / Meas probe 1 inp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 8	Factory setting 0
Description:	Sets the input terminal to connect probe 1.		
Value:	0: No measuring probe 1: DI/DO 9 (X122.10) 2: DI/DO 10 (X122.12) 3: DI/DO 11 (X122.13) 4: DI/DO 13 (X132.10) 5: DI/DO 14 (X132.12) 6: DI/DO 15 (X132.13) 7: DI/DO 8 (X122.9) 8: DI/DO 12 (X132.9)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0489, p0490, 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).		
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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 8	Factory setting 0
Description:	Sets the input terminal to connect probe 2.		
Value:	0: No measuring probe 1: DI/DO 9 (X122.10) 2: DI/DO 10 (X122.12) 3: DI/DO 11 (X122.13) 4: DI/DO 13 (X132.10) 5: DI/DO 14 (X132.12) 6: DI/DO 15 (X132.13) 7: DI/DO 8 (X122.9) 8: DI/DO 12 (X132.9)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p0488, p0490, 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).		

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 Invert measuring probe or equivalent zero mark / Meas. probe invert			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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)	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	
	12	DI/DO 12 (X132.9)	Inverted	Not inverted	
	13	DI/DO 13 (X132.10)	Inverted	Not inverted	
	14	DI/DO 14 (X132.12)	Inverted	Not inverted	
	15	DI/DO 15 (X132.13)	Inverted	Not inverted	

Dependency: Refer to: 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).

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: Digital input, DO: Digital output

p0491 Motor encoder fault response ENCODER / Fault resp ENCODER			
SERVO_COMBI, SERVO_SINUMERIK 828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	4	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 shut-down behavior that can be selected.

Value:	Description
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 internal/DC brake

Dependency: The following parameters are relevant for encoderless operation.

Refer to: p0341, p0342, p1470, p1472, p1517, p1612, p1755

Refer to: F07575

Caution:



For a value = 1, 2, 3, the following applies:

- encoderless operation must have been started.

For a value = 1, 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, when setting r1407.13, 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. The DC brake must be commissioned ($p1232, p1233, p1234$).

p0492 Square-wave encoder, maximum speed difference per sampling cycle / n_dif max/ samp_cyc

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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: Refer to: 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 following applies for VECTOR:
 The parameter is only pre-assigned when selecting $p0340 = 1, 3$.
 The following applies for SERVO, VECTORMV:
 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 8	Factory setting 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)
2:	DI/DO 10 (X122.12)
3:	DI/DO 11 (X122.13)
4:	DI/DO 13 (X132.10)
5:	DI/DO 14 (X132.12)
6:	DI/DO 15 (X132.13)
7:	DI/DO 8 (X122.9)
8:	DI/DO 12 (X132.9)

Dependency: Refer to: p0490

- Notice:** For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).
- 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.

p0495[0...2] Equivalent zero mark, input terminal / Zero mark inp

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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)
- 2: DI/DO 10 (X122.12)
- 3: DI/DO 11 (X122.13)
- 4: DI/DO 13 (X132.10)
- 5: DI/DO 14 (X132.12)
- 6: DI/DO 15 (X132.13)
- 7: DI/DO 8 (X122.9)
- 8: DI/DO 12 (X132.9)

Index:

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

Dependency: Refer to: p0490

Notice: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 70	Factory setting 0
Description:	Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.		
Value:	<ul style="list-style-type: none"> 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 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 70: Resolver: r0498: Transformation ratio, r0499: phase 		
Index:	<ul style="list-style-type: none"> [0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3 		
Dependency:	Refer to: r0497, r0498, r0499		

Note:

- Re p0496 = 1: 360 ° <--> 2³²
- Re p0496 = 10 (resolver): 2900 mV <--> 26214 dec
- Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec
- Re p0496 = 11 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected
- Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected
- Re p0496 = 12: 180 ° fine position <--> 32768 dec
- Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec
- Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec
- Re p0496 = 14: 1 ° <--> 286 dec
- Re p0496 = 15: 100 % <--> 16384 dec
- Re p0496 = 16: (resolver): channel A: 2900 mV <--> 26214 dec, channel B: 2900 mV <--> 26214 dec
- Re p0496 = 16: (sin/cos 1 Vpp, EnDat) channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec
- Re p0496 = 17 (resolver): absolute value: 2900 mV <--> 13107 dec, number: 1 ... 8
- Re p0496 = 17 (sin/cos 1 Vpp, EnDat): absolute value 500 mV <--> 10650 dec, number: 1 ... 8
- Re p0496 = 18 (resolver): angle: signal period <--> 2¹⁶, absolute value: 2900 mV <--> 13107 dec
- Re p0496 = 18 (sin/cos 1 Vpp, EnDat): angle: signal period <--> 2¹⁶, absolute value: 500 mV <--> 10650 dec
- Re p0496 = 22: 180 ° <--> 32768 dec
- Re p0496 = 23, 24: r0497.31 (r0499.15) set for at least 1 current controller cycle when encoder zero mark detected
- Re p0496 = 24, 25: 500 mV <--> 21299 dec
- Re p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec
- Re p0496 = 31: Absolute position, incremental in 1/4 encoder pulses
- Re p0496 = 32: Zero mark position in 1/4 encoder pulses
- Re p0496 = 33: counter offset absolute value in 1/4 encoder pulses
- Re p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768
- Re p0496 = 42: 2500 Ohm <--> 2³²
- Re p0496 = 51: 1 rpm <--> 1000 dec
- Re p0496 = 52: ln 1/4 encoder pulses
- Re p0496 = 70: r: 100% <--> 32768 dec, phase: 180 ° <--> 18000 dec

r0497[0...2] CO: Encoder diagnostic signal double word / Enc diag DW

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace signal for encoder diagnostics (double word).
The signal to be output is selected in p0496.

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

Dependency: Refer to: p0496, r0498, r0499

r0498[0...2] CO: Encoder diagnostic signal low word / Enc diag low word

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace signal for encoder diagnostics (low component).
The signal to be output is selected in p0496.

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

Dependency: Refer to: p0496, r0497, r0499

r0499[0...2] CO: Encoder diagnostic signal high word / Enc diag high word

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace signal for encoder diagnostics (high component).
 The signal to be output is selected in p0496.

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

Dependency: Refer to: p0496, r0497, r0498

p0500 Technology application / Tec application

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 5), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	100	102	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: Refer to: 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)
 - 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)
 - 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 is not equal to 0, otherwise rated motor speed (p0311)
 - p2175 = factory setting
 - p2177 = factory setting

p0505 Selecting the system of units / Select unit sys

SERVO_SINUMERI K828	Can be changed: C2(5)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	1	4	1

Description: Adjustable parameter of the actual system of units.

Value:

- 1: System of units SI
- 2: System of units, referred/SI
- 3: US system of units
- 4: System of units, referred/US

Dependency: The parameter cannot be changed if the master control was fetched.

Caution: If a per unit representation is selected and if reference parameters (e.g. p2000) are subsequently changed, then the physical significance of some closed-loop control parameters will also be adapted where as a result, the closed-loop control behavior can change (refer to 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.

p0528 Controller gain, system of units / Ctrl_gain unit_sys

SERVO_SINUMERI K828	Can be changed: C2(5)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	1	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 type selection / Bearing type sel

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3)	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Unit selection: -
	P-Group: Motor	Units group: -	Expert list: 1
	Not for motor type: FEM	Scaling: -	Factory setting
	Min 0	Max 104	0

Description: The parameter is used to select a bearing type.
 0 = No selection
 1 = Manual entry
 101 = STANDARD
 102 = PERFORMANCE
 103 = HIGH PERFORMANCE
 104 = ADVANCED LIFETIME
 If the bearing type changes the bearing code number (p0531) is pre-assigned accordingly.

Dependency: Refer to: p0301, p0531, p1082

Caution: If a valid bearing type (p0530) is entered, the parameters in the bearing list cannot be changed (write protection). Write protection is canceled if bearing type 1 is entered.

Notice: 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: p0530 cannot be changed on a motor with DRIVE-CLiQ.

p0531[0...n] Bearing code number selection / Bear. code num sel

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: MDS, p0130	Unit selection: -
	P-Group: Motor	Units group: -	Expert list: 1
	Not for motor type: FEM	Scaling: -	Factory setting
	Min 0	Max 65535	0

Description: The parameter is used to display and enter the bearing code number. It is pre-assigned automatically (from the parameter lists which are available internally) when p0301 and p0530 are entered and cannot be changed (write protection). The information in p0530 should be observed when removing write protection.
 When changing the bearing code number (except in the case of changing the value to 0), all of the bearing parameters are pre-assigned from the parameter lists which are available internally.

Dependency: Refer to: p0301, p0530, p1082

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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: FEM	Calculated: - Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 0.0 [rpm]
Description:	Sets the maximum motor bearing speed.		
Dependency:	Refer to: p1082		
Caution:	This parameter is pre-assigned in the case of motors from the motor list (p0301) if a bearing type (p0530) or a bearing code (p0531) 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.		
Notice:	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). The maximum speed of the bearing is factored into the limit for the maximum speed p1082.		
p0570	Inhibit list values effective number / Inhib list no		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned8 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the number of parameters in the inhibit list p0571 that should be withdrawn from the automatic motor and closed-loop control parameter calculation (refer to p0340, p0578), starting from index 0.		
Note:	Defines the number of entries in p0571 that should be taken into account. This means that a value of 0 de-activates the complete list.		
p0571[0...49]	Inhibit list, motor/closed-loop control parameter calculation / Inhib list calc		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 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 Vdc = 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 inhibit list / Act inhib list

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 1	

Description: Enable ID as to whether 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 (index = DDS).

- Value:**
- 0: No
 - 1: Yes

Note: 0: The automatic calculation (p0340, p0578) also overwrites the parameters of list p0571.
 1: The automatic calculation (p0340, p0578) does not overwrite the parameters of list p0571.

p0573 Inhibit automatic reference value calculation / Inhibit calc

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 1	

Description: Inhibits 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.f. 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 (see p3900, p0340), the inhibit for the reference value calculation is automatically re-activated.

Note: 0: The automatic calculation (p0340, p3900) overwrites the reference parameters.
1: The automatic calculation (p0340, p3900) does not overwrite the reference parameters.

p0578[0...n]	Calculate technology-dependent parameters / Calc tec par		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(5), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 8	Factory setting 0

Description: Sets the input terminal for the measuring probe for speed actual value measurement.

Value: 0: No measuring probe
1: DI/DO 9 (X122.10)
2: DI/DO 10 (X122.12)
3: DI/DO 11 (X122.13)
4: DI/DO 13 (X132.10)
5: DI/DO 14 (X132.12)
6: DI/DO 15 (X132.13)
7: DI/DO 8 (X122.9)
8: DI/DO 12 (X132.9)

Dependency: Refer to: p0581, p0728

Notice: To select the values:

For CU310, 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).

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, p0495, p0680, p2517, or p2518.

p0581	Meas probe, edge / MT edge		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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: Refer to: p0580

p0582	Measuring probe, pulses per revolution / MT pulses per rev		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 12	Factory setting 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.040 [s]	Max 10.000 [s]	Factory setting 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: Refer to: r0586

r0586	CO: Measuring probe, speed actual value / MT n_act		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]

Description: Displays the speed actual value measured using the BERO.

Dependency: Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

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: Refer to: p0580

Note: For p0580 = 0 (no measuring probe), a value of zero is displayed here.

r0588	CO: Measuring probe, pulse counter / MT pulse counter		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of measuring pulses that have occurred (been received) up until now.		
Dependency:	Refer to: p0580		
Note:	After reaching 4294967295 ($2^{32} - 1$), the counter starts again at 0.		
r0589	Measuring probe, delay time / MT t_delay		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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 μ s. When a measuring pulse occurs (is received) the delay time is reset and is limited to the maximum measuring time in p0583.		
Dependency:	Refer to: p0580		
Note:	For p0580 = 0 (no measuring probe), a value of zero is displayed here.		
p0600[0...n]	Motor temperature sensor for monitoring / Mot temp_sensor		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	21	1
Description:	Sets the sensor to monitor the motor temperature.		
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 p608 21: Temperature sensor via a BICO interconnection p609		
Dependency:	Refer to: r0458, p0601, p0603		
Caution:	If, for a selected temperature sensor (p0600 > 0), the motor temperature sensor is not connected but another encoder, 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.		
			
Notice:	The parameter is calculated in the drive using p0340 and is inhibited for p0340 > 0.		

Note: Re p0600 = 0:
 With induction motors, the motor temperature is calculated using the motor temperature model (see also p0612, bit 1).
 Re p0600 = 1, 2, 3:
 Bimetallic switch (p0601 = 4) and PT100 temperature sensor (p0601 = 5) are not supported.
 Re p0600 = 10:
 The BICO interconnection should be executed via connector input CI: p0603.
 Re 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).
 Re p0600 = 20, 21:
 The BICO interconnection should be executed via connector input CI: p0608 or p0609.
 Associated parameters: p0601, p4600..4603, p4610..p4613

p0601	Temperature sensor, sensor type / Temp_sens type		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(3), U, T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1

Min	Max	Factory setting
0	4	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

Dependency: Refer to: r0035

Note: The measured value display depends on the selected sensor type.
 Re p0601 = 0 (no sensor):
 --> r0035 = -200 °C
 Re p0601 = 1 (PTC alarm & timer):
 Tripping resistance = 1650 Ohm (lower resistance --> r0035 = -50 °C, higher resistance --> r0035 = 250 °C).
 Re p0601 = 2 (KTY84):
 Displays the temperature in °C.
 Re p0601 = 4 (bimetallic NC contact alarm & timer):
 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.

p0601[0...n]	Motor temperature sensor type / Mot_temp_sens type		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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 10: Evaluation via several temperature channels SME12x 11: Evaluation via several temperature channels BICO		
Dependency:	The thermal motor model is only calculated for p0612.1 = 1. Refer to: 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 Re p0601 = 1 (PTC alarm & timer): 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. Re p0601 = 3 (KTY84 and PTC (only for motors with DRIVE-CLiQ)): For motors with DRIVE-CLiQ and 2 temperature sensors, the value is automatically set. Re p0601 = 4 (bimetallic NC contact alarm & timer (only for temperature evaluation via the Motor Module)): 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. Re p0601 = 5 (PT100): It is only possible to evaluate a PT100 for p0600 = 11 and r0192 bit 15 = 1. Re p0601 = 10 (evaluation through several temperature channels (SME12x)): 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). Re p0601 = 11 (evaluation via several temperature channels (BICO)): Not permitted for p0600 = 0, 10, 11. Associated parameters: p4610 ... p4613 (can be switched via MDS)		

p0603	CI: Motor temperature signal source / Mot temp S_src		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to evaluate the motor temperature via a BICO interconnection.		
Dependency:	Refer to: p0600		
Note:	Temperature sensor KTY: 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]	Motor temperature alarm threshold / Mot_temp al thr		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.0 [°C]	200.0 [°C]	120.0 [°C]
Description:	Sets the alarm threshold for monitoring the motor temperature.		
Dependency:	Refer to: p0606		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The hysteresis for canceling the alarm is 2 Kelvin. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

p0605[0...n]	Motor temperature fault threshold / Mot_temp flt thr		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.0 [°C]	200.0 [°C]	145.0 [°C]
Description:	Sets the fault threshold to monitor the motor temperature.		
Caution:	This parameter is automatically pre-set for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The hysteresis for canceling the fault is 2 Kelvin. When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		

p0606[0...n]	Motor temperature timer / Mot_temp timer		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 240.000 [s]
Description:	Sets the timer for the alarm threshold for the motor temperature monitoring function. This timer is started when the temperature alarm threshold (p0604) is exceeded. If the timer expires before the temperature in the meantime falls below the alarm threshold, the fault F07011 is output. If the temperature fault threshold (p0605) is prematurely exceeded before the timer has expired, then fault F07011 is immediately output. As long as the motor temperature has still not exceeded the fault threshold and the alarm thresholds have again been undershot, the fault can be acknowledged.		
Dependency:	Refer to: p0604, p0605 Refer to: F07011, A07910		
Note:	With p0606 = 0 s, the timer is de-activated and only the fault threshold is effective. KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded. PTC sensor, bimetallic NC contact: The timer minimum value has no special significance.		
p0607[0...n]	Temperature sensor fault timer / Sensor fault time		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 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 message is output.		
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]	CI: Motor temperature signal source 2 / MotTempSignal2		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min -	Max -	Factory setting 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:	Refer to: p0600		

Note: Temperature sensor KTY: Valid temperature range -48 °C ... 248 °C.
 PTC/bimetal temperature sensor:
 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 CO: r4105.

p0609[0...3] CI: Motor temperature signal source 3 / MotTempSignal3

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min	Max	Factory setting
	-	-	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: Refer to: p0600
Note: Temperature sensor KTY: Valid temperature range -48 °C ... 248 °C.
 PTC/bimetal temperature sensor:
 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 CO: r4105.

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [s]	20000 [s]	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 up until a temperature rise of 63 % of the continuously permissible winding temperature has been reached.
Dependency: This parameter is only used for synchronous motors (p0300 = 2xx).
 Refer to: r0034, p0612, p0615
 Refer to: F07011, A07012, A07910
Caution: This parameter is automatically pre-set from the motor database for motors from the motor list (p0301).
 When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.

Note: When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model (also 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] Thermal motor model configuration / Therm Mot_mod conf

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: REL, FEM	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0010 bin

Description: Sets the configuration for the thermal motor model.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate I2t motor model	Yes	No	
	01	Activate motor temperature model	Yes	No	

Dependency: Refer to: r0034, p0611, p0615

Note: Re bit 00:

This bit is only used for permanent-magnet synchronous motors (p0300 = 2xx). It is only possible to switch in thermal I2t monitoring with a time constant greater than zero (p0611 > 0).

Re bit 01:

This bit is used to activate/de-activate the thermal motor model for induction motors.

p0615[0...n] I2t motor model fault threshold / I2t mot_mod thresh

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: ASM, REL, FEM	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.0 [°C]	220.0 [°C]	180.0 [°C]

Description: Sets the fault threshold for monitoring using the thermal I2t motor model.

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

Refer to: r0034, p0611, p0612

Refer to: F07011, A07012

Caution: This parameter is automatically pre-set 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.

p0616[0...n] Motor overtemperature alarm threshold 1 / Mot temp alarm 1

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.0 [°C]	200.0 [°C]	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 Kelvin.

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -100.0 [K]	Max 100.0 [K]	Factory setting 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: Refer to: 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 / Mot T_ambient

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -40 [°C]	Max 80 [°C]	Factory setting 20 [°C]

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

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

p0626[0...n]	Motor overtemperature, stator core / Mot T_{over core}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 50 [K]
Description:	Defines the rated overtemperature of the stator core referred to the ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		
Note:	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
p0627[0...n]	Motor overtemperature, stator winding / Mot T_{over stator}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 80 [K]
Description:	Defines the rated overtemperature of the stator winding referred to the ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		
Note:	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
p0628[0...n]	Motor overtemperature rotor winding / Mot T_{over rotor}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 100 [K]
Description:	Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		
Note:	When quick commissioning is exited with p3900 > 0, then the parameter is reset if a catalog motor has not been selected (refer to p0300).		
r0630[0...n]	Motor temperature model ambient temperature / MotMod T_{amb}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the ambient temperature of the motor temperature model.		

r0631[0...n]	Motor temperature model, stator core temperature / MotTMod T_core		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the stator core temperature of the motor temperature model.		

r0632[0...n]	Motor temperature model, stator winding temperature / MotTMod T_copper		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the stator winding temperature of the motor temperature model.		

r0633[0...n]	Motor temperature model, rotor temperature / MotTMod T_rotor		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the rotor temperature of the motor temperature model.		

p0640[0...n]	Current limit / Current limit		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3), U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the current limit.		
Dependency:	Refer to: r0209, 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]
Description:	Sets the reduction for the current limit in encoderless operation. The value is referred to p0640.		
Dependency:	Refer to: r0209, 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_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the overvoltage protection for synchronous motors in the field-weakening range.		
Value:	0: No measure 1: Voltage Protection Module (VPM)		
Dependency:	Refer to: p0316, p1082, p1231, p9601, p9801 Refer to: 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: $p1082 \text{ [rpm]} \leq 11.695 * p0297/p0316 \text{ [Nm/A]}$

Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * p0297/0316 \text{ [N/A]}$

- 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]	Actual motor operating hours / Mot t_oper act		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [h]	Max 4294967295 [h]	Factory setting 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). Refer to: p0651 Refer to: A01590		
Note:	The operating hours counter in p0650 can only be reset to 0. In this case, p0651 is automatically set to 0. For $p0651 = 0$, the operating hours counter is disabled. The operating hours counter only runs with motor data set 0 and 1 (MDS).		

p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [h]	Max 150000 [h]	Factory setting 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:	Refer to: p0650 Refer to: A01590		
Note:	For $p0651 = 0$, the operating hours counter is disabled. The operating hours counter only runs with motor data set 0 and 1 (MDS).		

p0680[0...5] Central measuring probe, input terminal / Cen meas inp			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Min	0	Max	8
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[2]: Digital input, measuring probe 3 p0680[3]: Digital input, measuring probe 4 p0680[4]: Digital input, measuring probe 5 p0680[5]: Digital input, measuring probe 6		
Value:	0: No measuring probe 1: DI/DO 9 (X122.10) 2: DI/DO 10 (X122.12) 3: DI/DO 11 (X122.13) 4: DI/DO 13 (X132.10) 5: DI/DO 14 (X132.12) 6: DI/DO 15 (X132.13) 7: DI/DO 8 (X122.9) 8: DI/DO 12 (X132.9)		
Dependency:	Refer to: p0728		
Notice:	To select the values: For CU310, Cx32, NX10 and NX15, only DI/DO 8, 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	Prerequisite: The DI/DO must be set as input (p0728.x = 0). DI/DO: Bidirectional digital input/output 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, p0495, p0580, p2517, or p2518.		

p0681 BI: Central measuring probe, synchronizing signal signal source / Cen meas sync_sig			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Min	-	Max	-
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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T Data type: Unsigned32 / Integer16 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Min	-	Max	-
Description:	Sets the signal source for the control word of the function "central measuring probe evaluation".		

r0684 **Central measuring probe evaluation technique / Cen meas eval_tech**

CU_I_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
 CU_I_SINUMERIK_8 **Data type:** Integer16 **Dynamic index:** -
 28, CU_NX_828 **P-Group:** Encoder **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 0 1 0

Description: Sets the evaluation technique for the "central measuring probe evaluation" function.

Value: 0: Measurement with handshake
 1: Measurement without handshake

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.

r0685 **Central measuring probe, control word display / Cen meas STW disp**

CU_I_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
 CU_I_SINUMERIK_8 **Data type:** Unsigned16 **Dynamic index:** -
 28, CU_NX_828 **P-Group:** Commands **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

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

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	
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	

r0686[0...5] **CO: Central measuring probe, measuring time rising edge / CenMeas t_meas 0/1**

CU_I_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
 CU_I_SINUMERIK_8 **Data type:** Unsigned16 **Dynamic index:** -
 28, CU_NX_828 **P-Group:** Displays, signals **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

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

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

r0687[0...5] CO: Central measuring probe, measuring time falling edge / CenMeas t_meas 1/0

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

r0688 CO: Central measuring probe, status word display / Cen meas ZSW disp

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	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	

p0700[0...n] Macro Binector Input (BI) / Macro BI

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: C2(1), T
Data type: Unsigned32
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: CDS
Units group: -
Scaling: -

Access level: 1
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	999999	0

Description: Runs the corresponding macro files.
The binector inputs (BI) of the appropriate Command Data Set (CDS) are appropriately interconnected.
The selected macro file must be available on the memory card/device memory.
Example:
p0700 = 6 --> the macro file PM000006.ACX is run.

Dependency: Refer to: p0015, p1000, p1500, r8571

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

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

r0721 CU digital inputs, terminal actual value / CU DI actual value

CU_I_COMBI,
CU_I_SINUMERIK_8
28

Can be changed: -
Data type: Unsigned32
P-Group: Commands
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 2
Unit selection: -
Expert list: 1

Min	Max	Factory setting
-	-	-

Description: Displays the actual value at the digital inputs.
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.

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	
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)	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	
12	DI/DO 12 (X132.9)	High	Low	
13	DI/DO 13 (X132.10)	High	Low	
14	DI/DO 14 (X132.12)	High	Low	
15	DI/DO 15 (X132.13)	High	Low	
16	DI 16 (X122.5)	High	Low	
17	DI 17 (X122.6)	High	Low	
20	DI 20 (X132.5)	High	Low	
21	DI 21 (X132.6)	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 CX digital inputs, terminal actual value / CX DI actual value

CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual value at the digital inputs.
 This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.

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	

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_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	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)	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
12	DI/DO 12 (X132.9)	High	Low
13	DI/DO 13 (X132.10)	High	Low
14	DI/DO 14 (X132.12)	High	Low
15	DI/DO 15 (X132.13)	High	Low
16	DI 16 (X122.5)	High	Low
17	DI 17 (X122.6)	High	Low
20	DI 20 (X132.5)	High	Low
21	DI 21 (X132.6)	High	Low

Dependency: Refer to: r0723
Note: DI: Digital input
 DI/DO: Bidirectional digital input/output

r0722.0...17 CO/BO: CX digital inputs, status / CX DI status

CU_NX_828 **Can be changed:** - **Calculated:** - **Access level:** 1
Data type: Unsigned32 **Dynamic index:** -
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

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: Refer to: r0723
Note: DI: Digital input
 DI/DO: Bidirectional digital input/output

r0723.0...21 CO/BO: CU digital inputs, status inverted / CU DI status inv

CU_I_COMBI,
 CU_I_SINUMERIK_8
 28 **Can be changed:** - **Calculated:** - **Access level:** 1
Data type: Unsigned32 **Dynamic index:** -
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

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	
	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)	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
12	DI/DO 12 (X132.9)	High	Low
13	DI/DO 13 (X132.10)	High	Low
14	DI/DO 14 (X132.12)	High	Low
15	DI/DO 15 (X132.13)	High	Low
16	DI 16 (X122.5)	High	Low
17	DI 17 (X122.6)	High	Low
20	DI 20 (X132.5)	High	Low
21	DI 21 (X132.6)	High	Low

Dependency: Refer to: r0722

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	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: r0722

Note: DI: Digital input

DI/DO: Bidirectional digital input/output

p0728 CU, set input or output / CU DI or DO

CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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	
	09	DI/DO 9 (X122.10)	Output	Input	
	10	DI/DO 10 (X122.12)	Output	Input	
	11	DI/DO 11 (X122.13)	Output	Input	
	12	DI/DO 12 (X132.9)	Output	Input	
	13	DI/DO 13 (X132.10)	Output	Input	
	14	DI/DO 14 (X132.12)	Output	Input	
	15	DI/DO 15 (X132.13)	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	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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	
	09	DI/DO 9 (X122.10)	Output	Input	
	10	DI/DO 10 (X122.12)	Output	Input	
	11	DI/DO 11 (X122.13)	Output	Input	

Note: DI/DO: Bidirectional digital input/output

r0729 CU digital outputs access authority / CU DO acc_auth

CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	12	DI/DO 12 (X132.9)	High	Low	
	13	DI/DO 13 (X132.10)	High	Low	
	14	DI/DO 14 (X132.12)	High	Low	
	15	DI/DO 15 (X132.13)	High	Low	

Dependency: Refer to: p0728, p0738, p0739, p0740, p0741, p0742, p0743, p0744, p0745, r0747, p0748

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	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: p0728, p0738, p0739, p0740, p0741, p0742, p0743, p0744, p0745, r0747, p0748

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_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for terminal DI/DO 8 (X122.9).

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 BI: CX signal source for terminal DI/DO 8 / CX S_src DI/DO 8

CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for terminal DI/DO 8 (X122.9).

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 BI: CU, signal source for terminal DI/DO 9 / CU S_src DI/DO 9

CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for terminal DI/DO 9 (X122.10).
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 BI: CX signal source for terminal DI/DO 9 / CX S_src DI/DO 9

CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for terminal DI/DO 9 (X122.10).
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 BI: CU, signal source for terminal DI/DO 10 / CU S_src DI/DO 10

CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for terminal DI/DO 10 (X122.12).
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 BI: CX signal source for terminal DI/DO 10 / CX S_src DI/DO 10

CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for terminal DI/DO 10 (X122.12).
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	BI: CU, signal source for terminal DI/DO 11 / CU S_src DI/DO 11		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 11 (X122.13).		
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	BI: CX signal source for terminal DI/DO 11 / CX S_src DI/DO 11		
CU_NX_828	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 11 (X122.13).		
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	BI: CU, signal source for terminal DI/DO 12 / CU S_src DI/DO 12		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 12 (X132.9).		
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	BI: CU, signal source for terminal DI/DO 13 / CU S_src DI/DO 13		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: - Min - Max -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for terminal DI/DO 13 (X132.10).		
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 BI: CU, signal source for terminal DI/DO 14 / CU S_src DI/DO 14

CU_I_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 1
 CU_I_SINUMERIK_8 **Data type:** Unsigned32 / Binary **Dynamic index:** -
 28 **P-Group:** Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 - - 0

Description: Sets the signal source for terminal DI/DO 14 (X132.12).
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 BI: CU, signal source for terminal DI/DO 15 / CU S_src DI/DO 15

CU_I_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 1
 CU_I_SINUMERIK_8 **Data type:** Unsigned32 / Binary **Dynamic index:** -
 28 **P-Group:** Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 - - 0

Description: Sets the signal source for terminal DI/DO 15 (X132.13).
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, digital outputs status / CU DO status

CU_I_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 1
 CU_I_SINUMERIK_8 **Data type:** Unsigned32 **Dynamic index:** -
 28 **P-Group:** Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the status of digital outputs.

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	
	12	DI/DO 12 (X132.9)	High	Low	
	13	DI/DO 13 (X132.10)	High	Low	
	14	DI/DO 14 (X132.12)	High	Low	
	15	DI/DO 15 (X132.13)	High	Low	

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	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status of digital outputs.				
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	
Note:	Inversion using p0748 has been taken into account. DI/DO: Bidirectional digital input/output				
p0748	CU, invert digital outputs / CU DO invert				
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	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	
	12	DI/DO 12 (X132.9)	Inverted	Not inverted	
	13	DI/DO 13 (X132.10)	Inverted	Not inverted	
	14	DI/DO 14 (X132.12)	Inverted	Not inverted	
	15	DI/DO 15 (X132.13)	Inverted	Not inverted	
Notice:	If telegram 39x is set via p0922 in SINAMICS Integrated, the inversion of the output has no effect.				
Note:	DI/DO: Bidirectional digital input/output				
p0748	CX invert digital outputs / CX DO invert				
CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	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.				
Note:	DI/DO: Bidirectional digital input/output				

p0771[0...2]	CI: Test sockets signal source / TestSktsSigSrce		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min -	Max -	Factory setting 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. Refer to: r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786		

r0772[0...2]	Test sockets output signal / TestSktsSignalVal		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the actual value of the signal to be output.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Refer to: p0771, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786		

r0774[0...2]	Test sockets output voltage / TestSkts V_output		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual output voltage for the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = T2		
Dependency:	Refer to: p0771, r0772, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786		

p0776[0...2]	Test socket mode / Test skt mode		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 96	Max 99	Factory setting 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:	Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -100000.00 [%]	Max 100000.00 [%]	Factory setting 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.
Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [V]	Max 4.98 [V]	Factory setting 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.
Refer to: p0777, p0779, p0780, r0786

p0779[0...2] Test socket characteristic value x2 / Test skt char x2

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -100000.00 [%]	Max 427.9E9 [%]	Factory setting 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.
Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [V]	Max 4.98 [V]	Factory setting 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.
Refer to: p0777, p0778, p0779, r0786

p0783[0...2] Test sockets offset / Test skt offset

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -4.98 [V]	Max 4.98 [V]	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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:	Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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. Refer to: p0789, r0790		
p0789[0...2]	Test sockets physical address gain / TestSktPhyAddrGain		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-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. Refer to: p0788		

r0790[0...2]	Test sockets physical address signal value / TestSocketsPhyAddrVal		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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. Refer to: p0788		

p0795	CU digital inputs simulation mode / CU DI simulation				
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	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.	
	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)	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.	
	12	DI/DO 12 (X132.9)	Simulation	Terminal eval.	
	13	DI/DO 13 (X132.10)	Simulation	Terminal eval.	
	14	DI/DO 14 (X132.12)	Simulation	Terminal eval.	
	15	DI/DO 15 (X132.13)	Simulation	Terminal eval.	
	16	DI 16 (X122.5)	Simulation	Terminal eval.	
	17	DI 16 (X122.6)	Simulation	Terminal eval.	
	20	DI 16 (X132.5)	Simulation	Terminal eval.	
	21	DI 16 (X132.6)	Simulation	Terminal eval.	
Dependency:	The setpoint for the input signals is specified using p0796. Refer to: 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				

p0795 CX digital inputs, simulation mode / CX DI simulation

CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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.

Refer to: 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

p0796 CU digital inputs simulation mode setpoint / CU DI simul setp

CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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	
	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)	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
12	DI/DO 12 (X132.9)	High	Low
13	DI/DO 13 (X132.10)	High	Low
14	DI/DO 14 (X132.12)	High	Low
15	DI/DO 15 (X132.13)	High	Low
16	DI 16 (X122.5)	High	Low
17	DI 17 (X122.6)	High	Low
20	DI 20 (X132.5)	High	Low
21	DI 21 (X132.6)	High	Low

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

Note: DI: Digital input
DI/DO: Bidirectional digital input/output
This parameter is not saved when data is backed-up (p0971, p0977).

p0796 CX digital inputs, simulation mode, setpoint / CX DI simul setp

CU_NX_828 **Can be changed:** U, T **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** -
P-Group: Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
- - 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.
Refer to: p0795

Note: DI: Digital input
DI/DO: Bidirectional digital input/output
This parameter is not saved when data is backed-up (p0971, p0977).

p0799[0...2] CU inputs/outputs, sampling time / CU I/O t_sampl

CU_I_COMBI, **Can be changed:** C1(3) **Calculated:** - **Access level:** 3
CU_I_SINUMERIK_8 **Data type:** FloatingPoint32 **Dynamic index:** -
28 **P-Group:** Commands **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
0.00 [µs] 5000.00 [µs] 4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs.

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.
Refer to: p0009

Note: The modified sampling time is not effective until the drive unit is powered up again.

p0799[0...2]	CX inputs/outputs, sampling time / CX I/O t_sampl			
CU_NX_828	Can be changed: C1(3)	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0.00 [µs]	Max 5000.00 [µs]	Factory setting 4000.00 [µs]	
Description:	Sets the sampling time for the inputs and outputs.			
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. Refer to: p0009			
Note:	The modified sampling time is not effective until the drive unit is powered up again.			
p0806	BI: Inhibit master control / PcCtrl inhibit			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 0	
Description:	Sets the signal source to block the master control.			
Dependency:	Refer to: r0807			
Note:	The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).			
r0807.0	BO: Master control active / PcCtrl active			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned8	Dynamic index: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays what has the master control. The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning software).			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Master control active	Yes	No
Dependency:	Refer to: p0806			
Notice:	The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.			
Note:	Bit 0 = 0: BICO interconnection active Bit 0 = 1: Master control for PC/AOP The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).			

p0809[0...2] Copy Command Data Set CDS / Copy CDS			
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 15	Factory setting 0
Description:	Copies one Command Data Set (CDS) into another.		
Index:	[0] = Source Command Data Set [1] = Target Command Data Set [2] = Start copying procedure		
Note:	Procedure: 1. In Index 0, enter which command data set should be copied. 2. In Index 1, enter the command data set that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0809[2] is automatically set to 0 when copying is completed.		

p0810 BI: Command Data Set selection CDS bit 0 / CDS select., bit 0			
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).		
Dependency:	Refer to: r0050, r0836		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The Command Data Set selected using the binector inputs is displayed in r0836. The currently effective command data set is displayed in r0050. A Command Data Set can be copied using p0809.		

p0819[0...2] Copy Drive Data Set DDS / Copy DDS			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 31	Factory setting 0
Description:	Copies one Drive Data Set (DDS) into another.		
Index:	[0] = Source Drive Data Set [1] = Target Drive Data Set [2] = Start copying procedure		
Note:	Procedure: 1. In Index 0, enter which drive data set is to be copied. 2. In Index 1, enter the drive data set data that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0819[2] is automatically set to 0 when copying is completed.		

p0820[0...n]	BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).

Dependency: Refer to: r0051, r0837

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

p0821[0...n]	BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 1 (DDS, bit 1).

Dependency: Refer to: r0051, r0837

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

p0822[0...n]	BI: Drive Data Set selection DDS bit 2 / DDS select., bit 2		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 2 (DDS, bit 2).

Dependency: Refer to: r0051, r0837

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

p0823[0...n]	BI: Drive Data Set selection DDS bit 3 / DDS select., bit 3		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 3 (DDS, bit 3).

Dependency: Refer to: r0051, r0837

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

p0824[0...n]	BI: Drive Data Set selection DDS bit 4 / DDS select., bit 4		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to select the Drive Data Set, bit 4 (DDS, bit 4).
Dependency: Refer to: r0051, r0837
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0826[0...n]	Motor changeover, motor number / Mot_chng mot No.		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 15	Factory setting 0

Description: Sets the freely-assignable motor number for the motor changeover.
Dependency: Refer to: p0827
Caution: 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]	Motor changeover status word bit number / Mot_chng ZSW bitNo.		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 15	Factory setting 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: Refer to: 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]	BI: Motor changeover, feedback signal / Mot_chng fdbk sig		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the feedback signal 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: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: p0827

p0831[0...15] BI: Motor changeover, contactor feedback / Mot_chg cont fdbk

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the feedback signal of the 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: p0831

p0833 Data set changeover configuration / DS_chng config

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(15)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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: Re 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.
Re 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	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.

Re bit 00:
The signal is only influenced when a motor changeover is set via p0827 (unequal bit numbers).

Re bit 01:
The signal is only influenced when an encoder changeover is set via p0187, p0188, or p0189.

Re bit 02:
A data set changeover is delayed by the time required for the internal parameter calculation.

Re bit 04:
A data set changeover is only carried out when the armature short circuit is not activated.

Re bit 05:
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.

Re bit 06:
A data set changeover is only carried out when the friction characteristic record is not running.

Re bit 07 (VECTOR only):
A data set changeover is only carried out when rotating measurement is not running.

Re bit 08 (VECTOR only):
A data set changeover is only carried out when motor data identification is not running.

Re bit 10:
A motor changeover is set with p0833.1 = 1. It can only be carried out when the application performs pulse suppression.

Re 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 CO/BO: Command Data Set CDS selected / CDS selected

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8,
SERVO_SINUMERIK828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: -	Calculated: -	Access level: 2
Data type: Unsigned8	Dynamic index: -	
P-Group: Displays, signals	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
-	-	-

Description: Displays the command data set (CDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	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: Refer to: r0050, p0810
Note: Command data sets are selected via binector input p0810 and following.
The currently effective command data set is displayed in r0050.

r0837.0...4 CO/BO: Drive Data Set DDS selected / DDS selected

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the drive data set (DDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	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: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	500 [ms]	0 [ms]

Description: Sets the delay time for the contactor control for the motor changeover.

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/OFF1 / ON/OFF1

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
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Min	-	Max	-	Factory setting	0
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Description: Sets the signal source for control word 1 bit 0 (ON/OFF1).

Recommend.: 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.

Notice: For BI: p0840 = 0 signal, the motor can be moved, jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that 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:
Bit 0 = 0: OFF1 (braking with the ramp-function generator, then pulse suppression and switching on inhibited)
For drives with closed-loop torque control (p1300 = 22, 23), the following applies:
Bit 0 = 0: Immediate pulse suppression
For drives with closed-loop torque control (activated using p1501), the following applies:
Bit 0 = 0: No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227)
For drives with closed-loop speed/torque control, the following applies:
Bit 0 = 0/1: ON (pulses can be enabled)
For active infeeds (Active Line Module and Smart Line Module) the following applies:
Bit 0 = 0: OFF1 (reduce Vdc along the ramp, then pulse suppression and pre-charging contactor/line contactor open)
Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed, pulses can be enabled)
For passive infeeds (Basic Line Module) the following applies:
Bit 0 = 0: OFF1 (pre-charging contactor/line contactor open)
Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed)
r0863.1 of a drive can also be selected as signal source.

p0844[0...n] BI: 1. OFF2 / 1. OFF2

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
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Min	-	Max	-	Factory setting	1
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Description: Sets the signal source for the 1st OC/OFF2.
The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

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, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 For infeed units, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression for Active Infeed Modules and Smart Line Modules, pre-charging contactor/line contactor open and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 OC: Operating condition

p0845[0...n] BI: 2. OFF2 / 2. OFF2

AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
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Min	Max	Factory setting
-	-	1

Description: Sets the signal source for the 2nd OC/OFF2.
 The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

Note: For drives, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 For infeed units, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression for Active Infeed Modules and Smart Line Modules, pre-charging contactor/line contactor open and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 OC: Operating condition

p0848[0...n] BI: 1. OFF3 / 1. OFF3

SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
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Min	Max	Factory setting
-	-	1

Description: Sets the signal source for the 1st OC/OFF3.
 The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

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: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
 Bit 2 = 1: No OFF3 (enable is possible)
 OC: Operating condition

p0849[0...n] **BI: 2. OFF3 / 2. OFF3**

SERVO_COMBI, **Can be changed:** T **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned32 / Binary **Dynamic index:** CDS
K828 **P-Group:** Commands **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
- - 1

Description: Sets the signal source for the 2nd OC/OFF3.
 The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).

Note: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
 Bit 2 = 1: No OFF3 (enable is possible)
 OC: Operating condition


p0852[0...n] **BI: Operation enable / Operation enable**

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
28, SERVO_COMBI, **Data type:** Unsigned32 / Binary **Dynamic index:** CDS
SERVO_SINUMERI **P-Group:** Commands **Units group:** - **Unit selection:** -
K828, SIC_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
SIC_SINUMERIK_82
8

Min **Max** **Factory setting**
- - 1

Description: Sets the signal source for control word 1 bit 3 (enable operation)

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: Bit 3 = 0: Inhibit operation (cancel pulses)
 Bit 3 = 1: Enable operation (pulses can be enabled)

p0854[0...n] **BI: Master ctrl by PLC / Master ctrl by PLC**

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
28, **Data type:** Unsigned32 / Binary **Dynamic index:** CDS
BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
8, SERVO_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Min **Max** **Factory setting**
- - 1

Description: Sets the signal source for control word 1 bit 10 (master control by PLC).

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

Note: Bit 10 = 0: No master control by PLC
 Bit 10 = 1: Master control by PLC
 This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then BI: p0854 should be set to a 1 signal.
 If a control is available, control word 1 bit 10 = 1 (STW1.10, PZD1) must be set 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_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the command "unconditionally open holding brake".		
Dependency:	Refer to: p0858		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).		
p0856[0...n]	BI: Speed controller enable / n_ctrl enable		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the command "enable speed controller" (r0898.12). 0 signal: Set the I component and speed controller output to zero. 1 signal: Enable speed controller.		
Dependency:	Refer to: r0898		
Note:	If "enable speed controller" is withdrawn, then an existing brake will be closed. If "speed controller enable" is withdrawn, the pulses are not suppressed.		
p0857	Power unit monitoring time / PU t_monit		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	100.0 [ms]	60000.0 [ms]	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:	Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 100.0 [ms]	Max 60000.0 [ms]	Factory setting 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:	Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 9719.13
Description:	Sets the signal source for the command "unconditionally close holding brake".		
Dependency:	Refer to: p0855		
Note:	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake). For a 1 signal via BI: p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered.		

p0860	BI: Line cont. fdbk sig / Line contact feedb		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 863.1
Description:	Sets the signal source for the feedback signal from the line contactor.		
Recommend.:	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:	Refer to: p0861, r0863 Refer to: 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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
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Min	Max	Factory setting
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:	Refer to: p0860, r0863 Refer to: F07300
Note:	The monitoring function is disabled for the factory setting of p0860.

p0862 Power unit ON delay / PU t_on

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
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Min	Max	Factory setting
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...2 CO/BO: Drive coupling status word/control word / CoupleZSW/STW

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
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Min	Max	Factory setting
-	-	-

Description:	Displays the status and control words of the drive coupling.
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Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Closed-loop control operation	Yes	No	
	01	Energize contactor	Yes	No	
	02	Infeed line supply failure	Yes	No	

Dependency: Refer to: p0864

Note: Re bit 00:
 Bit 0 signals that the infeed is ready.
 When the operating signal is transferred via BO: 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: Internconnect BI: p0864 with BO: r0863.0 of the infeed
 Drive 2: Internconnect BI: p0864 with BO: r0863.0 of drive 1
 Drive 3: Internconnect BI: p0864 with BO: 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.
 Re bit 01:
 Bit 1 is used to control an external line contactor.
 Re bit 02:
 This bit only signals line supply failure for Active Infeed (A_INF) and Smart Infeed (S_INF).

p0864 BI: Infeed operation / INF operation

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the operating signal of the infeed (e.g. BO: r0863.0).
Dependency: Refer to: 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).

p0868 Power unit DC switch debounce time / PU DC sw t_deboun

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	65000 [ms]	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.

r0873	CO/BO: Infeed, total operation / INF total oper			
BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
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:	Refer to: r0863, p0874			
Note:	Mixed operation is not possible with the Active Line Module (ALM)!			
p0874	BI: Smart/ Basic Line Module operation / SLM/BLM operation			
BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Unsigned32 / Binary	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	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:	Refer to: r0863, r0873			
Note:	Mixed operation is not possible with the Active Line Module (ALM)!			
p0894	Parking pre-setting / Parking pre-set			
SERVO_COMBI, SERVO_SINUMERIK K828	Can be changed: U, T	Calculated: -	Access level: 4	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	0001 bin	
Description:	Pre-settings for the "Parking axis" and "Parking encoder" functions.			
Bit field:	Bit	Signal name	1 signal	0 signal FP
	00	Default with interconnection	Park	Do not park
Dependency:	Refer to: p0480, p0897			
Note:	Re bit00: If there are BICO interconnections for the "Parking axis" and "Parking encoder" functions, this pre-setting is taken into consideration during power-up.			

p0895[0...n]	BI: Activate/de-activate power unit components / PU_comp act/deact		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source to activate/de-activate a power unit component.		
Dependency:	BI: p0895 = 0 signal De-activating power unit components BI: p0895 = 1 signal Activating power unit components Refer to: p0125, r0126		
Caution:	It is not permissible to de-activate drive objects with safety functions enabled.		
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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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:	Refer to: p0897		

p0897	BI: Parking axis selection / Parking axis sel		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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. Refer to: 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...10	CO/BO: Control word sequence control infeed / STW seq_ctrl INF		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays control word 1 of 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 ctrl by PLC	Yes No
Note:	OC: Operating condition		

r0898.0...10	CO/BO: Control word sequence control infeed / STW seq_ctrl INF		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays control word 1 of the infeed.		
Bit field:	Bit	Signal name	1 signal 0 signal FP
	00	ON/OFF1	Yes No
	01	OC / OFF2	Yes No
	10	Master ctrl by PLC	Yes No
Note:	OC: Operating condition		

r0898.0...15	CO/BO: Control word drive object 1 / STW DO1		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays 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	CO/BO: Control word sequence control / STW seq_ctrl				
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the control word of the sequence control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	
	01	OC / OFF2	Yes	No	
	02	OC / OFF3	Yes	No	
	03	Operation enable	Yes	No	
	04	Ramp-function generator enable	Yes	No	
	05	Continue ramp-function generator	Yes	No	
	06	Speed setpoint enable	Yes	No	
	07	Command open brake	Yes	No	
	08	Jog 1	Yes	No	
	09	Jog 2	Yes	No	
	10	Master ctrl by PLC	Yes	No	
	12	Speed controller enable	Yes	No	
	14	Command close brake	Yes	No	
Note:	OC: Operating condition				

r0899.0...12	CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF				
AFE_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word of the infeed sequence control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready for sw on	Yes	No	
	01	Ready	Yes	No	
	02	Operation enabled	Yes	No	
	04	No OFF2 active	OFF2 inactive	OFF2 active	
	06	Sw on inhibit	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	
Note:	Re bit 12: The feedback signal of a line contactor (auxiliary contact) can be interconnected via BI: p0860.				

r0899.0...12	CO/BO: Status word sequence control infeed / ZSW seq_ctrl INF		
BIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the status word of the infeed sequence control.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready for sw on	Yes	No	
	01	Ready	Yes	No	
	02	Operation enabled	Yes	No	
	04	No OFF2 active	OFF2 inactive	OFF2 active	
	06	Sw on inhibit	Yes	No	
	09	Control request	Yes	No	
	11	Pre-charging compl	Yes	No	
	12	Line contactor closed	Yes	No	

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

r0899.0...15 CO/BO: Status word drive object 1 / ZSW DO1

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word from drive object 1 (Control 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...15 CO/BO: Status word sequence control / ZSW seq_ctrl

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready for sw 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	Holding brake open	Yes	No	
	13	Command close holding brake	Yes	No	
	14	Pulse enable from the brake control	Yes	No	
	15	Setpoint enable from the brake control	Yes	No	

Note: Re bits 00, 01, 02, 04, 05, 06, 09:
 For PROFIdrive, these signals are used for status word 1.
 Re bit 13:
 When the "Safe Brake Control" (SBC) is activated and selected, the brake is no longer controlled using this signal.
 Re bit 14, 15:
 These signals are only of significance when the "extended brake control" function module is activated (r0108.14 = 1).

p0918	PROFIBUS address / PB address		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 126	Factory setting 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	PROFIdrive telegram selection / PD Telegr_sel		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 999	Max 999	Factory setting 999

Description: Sets the send and receive telegram.
Value: 999: Free telegram configuration with BICO
Dependency: Refer to: 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.

p0922	PROFIdrive telegram selection / PD Telegr_sel		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 390	Max 999	Factory setting 391

Description: Sets the send and receive telegram.

Value: 390: SIEMENS telegram 390, PZD-2/2
 391: SIEMENS telegram 391, PZD-3/7
 999: Free telegram configuration with BICO

p0922	PROFIdrive telegram selection / PD Teleg_r_sel		
CU_NX_828	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 390	Max 999	Factory setting 390
Description:	Sets the send and receive telegram.		
Value:	390: SIEMENS telegram 390, PZD-2/2 999: Free telegram configuration with BICO		

p0922	PROFIdrive telegram selection / PD Teleg_r_sel		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 999	Factory setting 116
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-15/19 220: SIEMENS telegram 220, PZD-10/10 999: Free telegram configuration with BICO		

Dependency: Refer to: p2038
 Refer to: 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.

r0924[0...1]	ZSW bit pulses enabled / ZSW pulses enab		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Display of the position of the "Pulses enabled" status word bit in the PROFIdrive telegram

Index: [0] = Signal number
 [1] = Bit position

p0925 PROFIdrive clock synchronous sign-of-life tolerance / PD SoL_tol

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 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: Refer to: p2045, r2065
Refer to: F01912

Note: The sign-of-life monitoring is disabled for p0925 = 65535.

r0930 PROFIdrive operating mode / PD operating mode

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

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	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays fault buffer changes. This counter is incremented every time the fault buffer changes.

Recommend.: Used to check whether the fault buffer has been read out consistently.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109

r0945[0...63] Fault code / Fault code

All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the numbers of faults that have occurred.

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

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	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Lists the fault codes stored in the drive unit.
 The indices can only be accessed with a valid fault code.

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

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

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: This parameter is identical to r0945.

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

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

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

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

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

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
 The structure of the fault buffer and the assignment of the indices is shown in r0945.
 When the parameter is read via PROFIdrive, the TimeDifference data type applies.

r0949[0...63]	Fault value / Fault value		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays additional information about the fault that occurred (as integer number).		
Dependency:	Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945.		

p0952	Fault cases, counter / Fault cases qty		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	65535	0
Description:	Number of fault situations that have occurred since the last reset.		
Dependency:	The fault buffer is deleted (cleared) by setting p0952 to 0. Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		

r0964[0...6]	Device identification / Device ident.		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the device identification.		
Index:	[0] = Company (Siemens = 42) [1] = Device type [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = Number of drive objects [6] = Firmware patch/hot fix		
Note:	Example: r0964[0] = 42 --> SIEMENS r0964[1] = 5000 --> SINAMICS S120 CU320-2 r0964[1] = 5200 --> SINAMICS G150 CU320-2 r0964[1] = 5210 --> SINAMICS G130 CU320-2 r0964[1] = 5250 --> SINAMICS S150 CU320-2 r0964[2] = 102 --> first part of the firmware version V01.02 (second part, refer to index 6) r0964[3] = 2003 --> year 2003 r0964[4] = 1401 --> 14th of January r0964[5] = 4 --> 4 drive objects r0964[6] = 600 --> second part, firmware version (complete version: V01.02.06.00)		

r0965	PROFdrive profile number / PD profile number		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFdrive profile number and profile version. Constant value = 0329 hex. Byte 1: Profile number = 03 hex = PROFdrive profile Byte 2: Profile version = 29 hex = Version 4.1		
Note:	When the parameter is read via PROFdrive, the Octet String 2 data type applies.		
p0969	System runtime relative / t_System relative		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	4294967295 [ms]	0 [ms]
Description:	Displays the system runtime in ms since the last POWER ON.		
Note:	The value in p0969 can only be reset to 0. The value overflows after approx. 49 days. When the parameter is read via PROFdrive, the TimeDifference data type applies.		
p0970	Reset infeed parameter / INF par reset		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(30)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	100	0
Description:	The parameter is used to initiate a reset of the parameters 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 Reset drive parameters / Drive par reset

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: C2(30)	Calculated: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	
P-Group: Factory settings	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0	Max 100	Factory setting 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
100: Start a BICO interconnection reset

Dependency: Refer to: 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.
If a Safety Integrated function is parameterized (p9601), the safety parameters will not be reset if p0970 = 1. In this case, an error message (F1659) is output with fault value 2.

p0970 TM120 reset parameters / TM120 par reset

TM120

Can be changed: C2(30)	Calculated: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	
P-Group: Factory settings	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0	Max 100	Factory setting 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: Refer to: p0010

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

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM54F reset parameters / TM54F par reset

TM54F_MA

Can be changed: C2(30)	Calculated: -	Access level: 2
Data type: Unsigned16	Dynamic index: -	
P-Group: Factory settings	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0	Max 100	Factory setting 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
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.

p0971 Save drive object parameters / Drv_obj par save

All objects	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Setting to save the parameter of the particular drive object in the non-volatile memory.

Value: 0: Inactive
1: Save drive object

Dependency: Refer to: p0977, p1960, p3845, r3996

Caution: 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).

Notice: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	3	0

Description: Sets the required procedure to execute a hardware reset for the drive unit.

Value: 0: Inactive
1: Hardware-Reset immediate
2: Hardware reset preparation
3: Hardware reset after cyclic communication has failed

Danger: It must be absolutely ensured that the system is in a safe condition.



The memory card/device memory of the Control Unit must not be accessed.

Notice: For SIMOTION or SINUMERIK with integrated SINAMICS, the hardware reset acts on the complete system and depends on the state of the control.

Note: Re value = 1:
 Reset is immediately executed and communications interrupted.
 After communications have been established, check the reset operation (refer below).
 Re value = 2:
 Help to check the reset operation.
 Firstly, set p0972 = 2 and then read back. Secondly, set p0972 = 1 (it is possible that this request is possibly no longer acknowledged). The communication is then interrupted.
 After communications have been established, check the reset operation (refer below).
 Re value = 3:
 The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by a control for several drive units.
 If the cyclic communication is active for both PROFIdrive interfaces, then the reset is executed after completing both cycle communications.
 After communications have been established, check the reset operation (refer below).
 To check the reset operation:
 After the drive unit has been restarted and communications have been established, read p0972 and check the following:
 p0972 = 0? --> The reset was successfully executed.
 p0972 > 0? --> The reset was not executed.

r0975[0...10] Drive object identification / DO identification

All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the identification of the drive object.
Index: [0] = Company (Siemens = 42)
 [1] = Drive object type
 [2] = Firmware version
 [3] = Firmware date (year)
 [4] = Firmware date (day/month)
 [5] = PROFIdrive drive object, type class
 [6] = PROFIdrive drive object, sub-type Class 1
 [7] = Drive object number
 [8] = Reserved
 [9] = Reserved
 [10] = Firmware patch/hot fix

Note: Example:
 r0975[0] = 42 --> SIEMENS
 r0975[1] = 11 --> SERVO drive object type
 r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)
 r0975[3] = 2003 --> year 2003
 r0975[4] = 1401 --> 14th of January
 r0975[5] = 1 --> PROFIdrive drive object, type class
 r0975[6] = 9 --> PROFIdrive drive object sub-type class 1
 r0975[7] = 2 --> drive object number = 2
 r0975[8] = 0 (reserved)
 r0975[9] = 0 (reserved)
 r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976 Reset and load all parameters / Reset load all par			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(30) Data type: Unsigned16 P-Group: Factory settings Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 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 dnlod 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 of Siemens internal setting 20 21: Start download of Siemens internal setting 21 22: Start download of 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned16 P-Group: Factory settings Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1 Factory setting 0
Description:	Saves all parameters of the drive system to the non-volatile memory.		

- 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)
 - 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:** Refer to: p0976, p1960, p3845, r3996
- Caution:** 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).
- Notice:** 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.

p0978[0...24] List of drive objects / List of the DO			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned8 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting
	Min 0	Max 255	[0] 1 [1] 0 [2] 0 [3] 0 [4] 0 [5] 0 [6] 0 [7] 0 [8] 0 [9] 0 [10] 0 [11] 0 [12] 0 [13] 0 [14] 0 [15] 0 [16] 0 [17] 0 [18] 0 [19] 0 [20] 0 [21] 0 [22] 0 [23] 0 [24] 0

- Description:** This parameter is an image of p0101 in conformance with PROFIdrive. Parameters p0101 and p0978 contain the following information:
- 1) The same number of drive objects
 - 2) The same drive objects
- In this sense, they are consistent.
- Difference between p0101 and p0978:
- p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange.
- For p0978, in addition, the value 255 can be inserted a multiple number of times.
- p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.
- Dependency:** Refer to: p0101, p0971, p0977
- Note:** p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).

r0979[0...30] PROFIdrive encoder format / PD encoder format

SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

- Index:**
- [0] = Header
 - [1] = Type, encoder 1
 - [2] = Resolution enc 1
 - [3] = Shift factor G1_XIST1
 - [4] = Shift factor G1_XIST2
 - [5] = Distinguishable revolutions encoder 1
 - [6] = Reserved
 - [7] = Reserved
 - [8] = Reserved
 - [9] = Reserved
 - [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] = Reserved
 - [17] = Reserved
 - [18] = Reserved
 - [19] = Reserved
 - [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] = Reserved
 - [27] = Reserved
 - [28] = Reserved
 - [29] = Reserved
 - [30] = Reserved

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

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

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

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0981, r0989

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

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

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

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0989

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

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

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

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0981

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

r0990[0...99] List of modified parameters 1 / List chang. par 1

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
-	-	-	

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: Refer to: r0991, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.
 This list consists solely of the following parameters:
 r0990[0...99], r0991[0...99] ... r0999[0...99]
 The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0991[0...99] List of modified parameters 2 / List chang. par 2

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
-	-	-	

Description: Displays those parameters with a value other than the factory setting for this drive.
Dependency: Refer to: r0990, r0999
Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.
 This list consists solely of the following parameters:
 r0990[0...99], r0991[0...99] ... r0999[0...99]
 The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0999[0...99] List of modified parameters 10 / List chang. par 10

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
-	-	-	

Description: Displays those parameters with a value other than the factory setting for this drive.
Dependency: Refer to: r0990, r0991
Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.
 This list consists solely of the following parameters:
 r0990[0...99], r0991[0...99] ... r0999[0...99]
 The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

p1000[0...n] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
0	999999	0	

Description: Runs the corresponding macro files.
 The Connector Inputs (CI) for the speed setpoints of the appropriate Command Data Set (CDS) are appropriately inter-connected.
 The selected macro file must be available on the memory card/device memory.
 Example:
 p1000 = 6 --> the macro file PM000006.ACX is run.
Dependency: Refer to: p0015, p0700, p1500, r8572

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

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

p1082[0...n] Maximum speed / n_Max

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1), T	Calculated: CALC_MOD_ALL	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [rpm]	Max 210000.000 [rpm]	Factory setting 1500.000 [rpm]

Description: Sets the highest possible speed.

Dependency: Refer to: 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 limited to speeds for which the rated current of the power unit (S1 continuous operation r0207[3]) is not sufficient as field current: $p1082 < p0348 / (1 - r0207 / r0331)$, valid 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: Speed limit in positive direction of rotation / n_limit pos

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min 0.000 [rpm]	Max 210000.000 [rpm]	Factory setting 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: Speed limit positive effective / n_limit pos eff**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]

Description: Displays the effective positive speed limit.
Dependency: Refer to: p1082, p1083

p1086[0...n] **CO: Speed limit in negative direction of rotation / n_limit neg**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min -210000.000 [rpm]	Max 0.000 [rpm]	Factory setting -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 **CO: Speed limit negative effective / n_limit neg eff**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]

Description: Displays the effective negative speed limit.
Dependency: Refer to: p1082, p1086

p1121[0...n] **Ramp-function generator ramp-down time / RFG ramp-down time**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1), U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 0.000 [s]

Description: The ramp-function generator ramps-down the speed setpoint from the maximum speed (p1082) down to standstill (setpoint = 0) in this time. Further, the ramp-down time is always effective for OFF1.
Dependency: Refer to: p1082
Note: The following applies for SERVO:
 The ramp-function generator is only available when the function module "extended setpoint channel" is active (r0108.8 = 1).

p1135[0...n]	OFF3 ramp-down time / OFF3 t_RD		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1), U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 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.		
p1140[0...n]	BI: Ramp-function generator enable / RFG enable		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).		
Dependency:	Refer to: p1141, p1142		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 4 = 0: Inhibit ramp-function generator (the ramp-function generator output is set to zero) Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)		
p1141[0...n]	BI: Continue ramp-function generator / Continue RFG		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 5 (continue ramp-function generator/freeze ramp-function generator).		
Dependency:	Refer to: p1140, p1142		
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.		
Note:	Bit 5 = 0: Freeze ramp-function generator Bit 5 = 1: Continue ramp-function generator		
p1142[0...n]	BI: Speed setpoint enable / n_set enable		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 6 (enable setpoint/disable setpoint).		
Dependency:	Refer to: p1140, p1141		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: Bit 6 = 0: Inhibit setpoint (the ramp-function generator input is set to zero)
 Bit 6 = 1: Enable setpoint

p1155[0...n] CI: Speed controller speed setpoint 1 / n_ctrl n_set 1

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min -	Max -	Factory setting 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.
 Refer to: 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] CI: Speed controller speed setpoint 2 / n_ctrl n_set 2

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for speed setpoint 2 of the speed controller.
Dependency: Refer to: 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 CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]

Description: Displays the speed setpoint after the addition of the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).
Dependency: Refer to: p1155, p1160
Note: The value is only correctly displayed at r0899.2 = 1 (operation enabled).

r1170	CO: Speed controller, setpoint sum / n_ctrl setp sum			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505	
	Not for motor type: -	Scaling: p2000	Expert list: 1	
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]	
Description:	Displays the speed setpoint after selecting the ramp-function generator and adding the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).			
Dependency:	Refer to: p1155, p1160			
p1189[0...n]	Speed setpoint configuration / n_ctrl config			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: Unsigned16	Dynamic index: DDS, p0180		
	P-Group: Setpoints	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 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
	01	Interpol. op-loop ctrl /speed controller active	Yes	No
Note:	Re bit 01: 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).			
p1190	CI: DSC position deviation XERR / DSC XERR			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Unsigned32 / Integer32	Dynamic index: -		
	P-Group: Setpoints	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 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. Refer to: p1191, p1192			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
Note:	DSC: Dynamic Servo Control			

p1191	CI: DSC position controller gain KPC / DSC KPC		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the position controller gain KPC for DSC.		
Dependency:	Clock cycle synchronous operation must be activated for DSC. Refer to: 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]	DSC enc selection / DSC enc selection		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 3	Factory setting 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000	Max 1000000.000	Factory setting 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 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:	Refer to: p1192		
Note:	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		

p1206[0...9]	Set the fault number without automatic restart / Fault_No w/o AR		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Selects the faults for which automatic restart should not be effective.		
Dependency:	The setting is only effective for p1210 = 6, 16. Refer to: p1210		
p1207	BI: AR connection following drive object / AR connection DO		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 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:	Refer to: r0209, p0210, r1214		
p1208[0...1]	BI: AR modification infeed / AR modification		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 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:	Refer to: r0863, r2139		


p1210 Automatic restart, mode / AR mode

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0	Max 6	Factory setting 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.
Refer to: p0840, p0857
Refer to: F30003

Danger:  If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the Control Unit boots if the DC link voltage is 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.

Caution: 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).

Re p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgment, then these are also automatically acknowledged again. A minimum time of p1212 + 1 s must expire between a successful fault acknowledgement 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 acknowledgement and a new fault must be at least 1 s.

For p1210 = 1, fault F07320 is not generated if the acknowledgement attempt was not successful, for example, due to frequently occurring faults.

Re 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.

Re p1210 = 6:


An automatic restart is carried out if any fault has occurred.

p1210 Automatic restart, mode / AR mode

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0	Max 16	Factory setting 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 acknowledgement is required for an automatic restart.
Refer to: p0840, p0857
Refer to: F30003
- Danger:**  If the automatic restart is activated ($p1210 > 1$) if there is an ON command (refer to p0840), the drive is powered up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the Control Unit boots if the DC link voltage is 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.
- Caution:** 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).
Re $p1210 = 1$:
Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgment, then these are also automatically acknowledged again. For $p1210 = 1$, fault F07320 is not generated if the acknowledgment attempt was unsuccessful, for example, because the monitoring time p1213 index 0 was exceeded.
Re $p1210 = 4$:
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.
Re $p1210 = 6$:
An automatic restart is carried out if any fault has occurred or there is a 1 signal at binector input p1208[0].
Re $p1210 = 14$:
As for $p1210 = 4$. However, faults that are present must be manually acknowledged.
Re $p1210 = 16$:
As for $p1210 = 6$. However, faults that are present must be manually acknowledged.

p1211		Automatic restart, start attempts / AR start attempts	
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 10	Factory setting 3

- Description:** Sets the start attempts of the automatic restart function for $p1210 = 4, 6$.
- Dependency:** The setting of this parameter is always effective for $p1210 = 6$. For $p1210 = 4$, the parameter only has an influence if an additional line phase failure (F6200) occurs at the start attempt.
Refer to: p1210, r1214
Refer to: F07320
- Caution:** A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
- 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 blackout the start counter always starts with the counter value that applied before the blackout, and decrements this startup attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to blackout, e.g. when the CU remains active on blackout longer than the time $p1212 / 2$, the fault counter will already have been decremented by 1. In this case, the fault 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 acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt (i.e. a fault/error has no longer occurred up to the end of the 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, acknowledgement is immediate and when the line supply returns, the system is powered up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

p1211	Automatic restart, start attempts / AR start attempts		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 3
	Min 0	Max 10	

Description: Sets the start attempts of the automatic restart function for $p1210 = 4, 6$.

Dependency: Refer to: p1210, r1214
Refer to: F07320

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

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 blackout the start counter always starts with the counter value that applied before the blackout, and decrements this startup attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to blackout, e.g. when the CU remains active on blackout longer than the time $p1212 / 2$, the fault counter will already have been decremented by 1. In this case, the fault 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 acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt, i.e. a fault/error has no longer occurred up to the end of the magnetizing phase, the start counter is again reset to the parameter value after 1 s. If a fault re-occurs - the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

p1212	Automatic restart, delay time start attempts / AR t_wait start		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 1.0 [s]
	Min 0.1 [s]	Max 1000.0 [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 acknowledged, no restart. Refer to: p1210, r1214
Caution:	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.

p1212	Automatic restart, delay time start attempts / AR t_wait start		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.1 [s]	Max 1000.0 [s]	Factory setting 1.0 [s]

Description:	Sets the delay time up to restart.
Dependency:	This parameter setting is active for p1210 = 4, 6. For p1210 = 1, the following applies: Faults are only automatically acknowledged in half of the delay time, no restart. Refer to: p1210, r1214
Caution:	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.

p1213[0...1]	Automatic restart, monitoring time / AR t_monitoring		
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [s]	Max 10000.0 [s]	Factory setting 0.0 [s]

Description:	Sets the monitoring time of the automatic restart (AR).
Index:	[0] = For restart [1] = To reset the fault counter
Dependency:	Refer to: p1210, r1214
Caution:	A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).
Notice:	After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.
Note:	Index 0: The monitoring time starts when the faults are detected. If the automatic acknowledgements 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). Index 1: The fault counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213 index 1 has expired. The delay time is not effective for fault acknowledgement 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 fault counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged. The fault counter is immediately updated if the starting value p1211 or the mode p1210 is changed.

p1213[0...1] Automatic restart, monitoring time / AR t_monitoring

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: U, T	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Functions	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0.0 [s]	Max 10000.0 [s]	Factory setting 0.0 [s]

Description:

Sets the monitoring time of the automatic restart (AR).

Index:

[0] = For restart
[1] = To reset the fault counter

Dependency:

Refer to: p1210, r1214

Caution:

A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Notice:

After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

Note:

Index 0:
The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. If, after the monitoring time has expired, the drive has still not successfully started again (flying restart and magnetizing of the motor must have been completed: r0056.4 = 1), then fault F07320 is output. The monitoring is de-activated with p1213 = 0. If p1213 is set lower than the sum of p1212, the magnetizing time p0346 and the additional delay time due to the flying restart, then fault F07320 is generated at each restart. If, for p1210 = 1, the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart. The monitoring time must be extended if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present). In the case of p1210 = 14, 16, the faults which are present must be acknowledged manually within the time in p1213 index 0. Otherwise, fault F07320 is generated after the set time.

Index 1:
The fault counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213 index 1 has expired. The delay time is not effective for fault acknowledgement 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 fault counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged. The fault counter is immediately updated if the starting value p1211 or the mode p1210 is changed.

r1214.0...15 CO/BO: Automatic restart, status / AR status

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: -	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: -	
P-Group: Functions	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min -	Max -	Factory setting -

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 acknowledgement 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:

Re bit 00:
State to display the single initialization after POWER ON.

Re bit 01:
State in which the automatic restart function waits for faults (initial state).

Re bit 02:
General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re 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.

Re bit 04:
State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:
State in which the drive is automatically powered up (only for p1210 = 4, 6).

Re 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.

Re bit 07:
State which is assumed after a fault occurs within the automatic restart function.

Re bits 12 ... 15:
Actual state of the start counter (binary coded).

r1214.0...15 CO/BO: Automatic restart, status / AR status

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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 acknowledgement 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:

Re bit 00:
State to display the single initialization after POWER ON.

Re bit 01:
State in which the automatic restart function waits for faults (initial state).

Re bit 02:
General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re 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.

Re bit 04:
State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:
State in which the drive is automatically powered up (only for p1210 = 4, 6).

Re 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.

Re 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.

Re bit 10:
When the automatic restart function is active, r1214 bit 7 is displayed, otherwise the effective fault r2139 bit 3.

Re bits 12 ... 15:
Actual state of the start counter (binary coded).

p1215	Motor holding brake configuration / Brake config		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	Sets the holding brake configuration.		
Value:	0: No motor holding brake being used 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:	Refer to: 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 holding brake integrated in the motor is used, then it is not permissible that p1215 is set to 3. If an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

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		Motor holding brake, opening time / Brake t_{open}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0 [ms]	Max 10000 [ms]	Factory setting 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.			
Recommend.:	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:	Refer to: p1215, p1217			
p1217		Motor holding brake closing time / Brake t_{close}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0 [ms]	Max 10000 [ms]	Factory setting 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.			
Recommend.:	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:	Refer to: p1215, p1216			
Notice:	If the selected closing time is too short with respect to the actual closing time of the brake, then the load can sag. If the closing time is selected to be too long with respect to the actual closing time of the brake, the control works against the brake and therefore reduces its lifetime.			

p1226[0...n]	Threshold for zero speed detection / n_standst n_thresh		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Unit selection: p0505
	P-Group: Functions	Units group: 3_1	Expert list: 1
	Not for motor type: -	Scaling: -	Factory setting
	Min 0.00 [rpm]	Max 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:	Refer to: p1215, p1216, p1217, p1227		
Notice:	For reasons relating to the compatibility to earlier software versions, a parameter value of 0 in indices 1 to 31 is overwritten with the parameter value in index 0 when the Control Unit boots.		
Note:	Standstill is detected if the actual speed drops below the speed threshold in p1226 or if the monitoring time (p1227) - started when speed setpoint <= speed threshold (p1226) - 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 / n_standst t_monit		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Unit selection: -
	P-Group: Functions	Units group: -	Expert list: 1
	Not for motor type: -	Scaling: -	Factory setting
	Min 0.000 [s]	Max 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:	Refer to: 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 (zero speed) is detected if, during the complete monitoring time (p1227), the speed setpoint falls below the speed threshold (p1226). For p1227 = 300.000 s, the following applies: The 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	Pulse suppression delay time / Pulse suppr t_del		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 299.000 [s]	Factory setting 0.000 [s]
Description:	Sets the delay time for pulse suppression. After OFF1 or OFF3 and zero speed detection, the system waits for this time to expire and the pulses are then suppressed.		
Dependency:	Refer to: p1226, p1227		
Notice:	If the motor holding brake is activated, the pulse suppression is only conducted if this delay time (p1228) and then the closing time for the brake (p1217) have elapsed.		
Note:	Standstill (zero speed) is detected if, during the complete delay time (p1228), the speed actual value falls below the speed threshold (p1226).		
p1230[0...n]	BI: Armature short-circuit / DC brake activation / ASC act		
SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to activate the armature short-circuit or DC brake.		
Dependency:	Refer to: p1231, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239, p1345, p1346		
Note:	1 signal: Armature short-circuit/DC brake is de-activated. 0 signal: Armature short-circuit/DC brake is de-activated.		
p1231[0...n]	Armature short-circuit / DC brake configuration / ASC config		
SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 1
	Min 0	Max 14	Factory setting 0
Description:	Setting to activate the various types for armature short-circuit / DC brake.		
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 brake 14: DC brake under starting speed		
Dependency:	Refer to: p0300, p1230, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239, p1345, p1346		

Danger:



Re p1231 = 1, 2:

- only short-circuit-proof motors may be used, or suitable resistors must be used to short-circuit the motor

Re p1231 = 3:

- 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).

Re p1231 = 4 and synchronous motor:

- 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:

Re 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.

Re 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 to be active on block-size 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.

Re p1231 = 4:

The function is activated as soon as the activation criterion is fulfilled.

- the function can be initiated 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 brake is initiated.

Activation criterion (one of the following criteria is fulfilled):

- 1 signal via binector input p1230 (DC brake 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).

Re p1231 = 14:

This DC brake can only be set on induction motors.

The DC brake is triggered if a 1 signal is pending at binector input p1230 during operation and the current speed is below the starting speed p1234. Then, following upstream de-magnetization (see p0347), the braking current p1232 is injected for the duration of time set in p1233. This is followed by automatic switch-off. During operation the command for DC braking can be withdrawn at any time.

DC braking by means of fault response continues to be possible.

Re p1231 = 3, 4, 14:

The value can only be changed to values not equal to 3 or 4 or 14 if p0491 is not equal to 4 and p2101 is not equal to 6 (armature short-circuit/DC brake not set).

In the case of SERVO, the DC brake does not function in V/f operation (p1317).

Note:

ASC: Armature short circuit

IVP: Internal Voltage Protection

UPS: Uninterruptible Power Supply

CSM: Control Supply Module

DC brake

p1232[0...n]	DC braking, braking current / DCBRK I_brake		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the braking current for DC braking.		
Dependency:	Refer to: p1230, p1231, p1233, p1234, r1239, p1345, p1346		

Note: A change to the braking current becomes effective the next time that the DC brake is powered up.
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).

p1233[0...n]	DC braking time / DCBRK time		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.0 [s]	Max 3600.0 [s]	Factory setting 1.0 [s]
Description:	Sets the DC braking time (as fault response).		
Dependency:	Refer to: p1230, p1231, p1232, p1234, r1239		
Note:	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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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:	Refer to: p1230, p1231, p1232, p1233, r1239		
Caution:	If an encoder fault occurs during closed-loop operation with an encoder, controlled deceleration of the drive down to the start speed p1234 can no longer take place. In this case, the DC brake 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 the DC brake to become de-activated again.		

p1235[0...n]	BI: External armature short-circuit, contactor feedback signal / ASC ext feedback		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the contactor feedback signal for external armature short-circuit.		
Dependency:	Refer to: 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_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 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:	Refer to: p1230, p1231, p1235, p1237, r1239 Refer to: A07904, F07905		
p1237[0...n]	External armature short-circuit, delay time when opening / ASC ext t_wait		
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 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:	Refer to: 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: ASM	Scaling: -	Expert list: 1
	Min 0	Max 6	Factory setting -
Description:	Displays the state for the external armature short-circuit.		
Value:	0: Powered down 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:	Refer to: p1230, p1231, p1235, p1236, p1237, r1239 Refer to: A07904, 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).

Re state "switched out" (r1238 = 0):

- the external armature short-circuit can be selected with p1231 = 1.

Re 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.

Re 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.

Re 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...11 CO/BO: Armature short-circuit / DC brake status word / ASC/DCBRK ZSW

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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 brake active	Yes	No	
	10	DC brake ready	Yes	No	
	11	Armature short circuit/DC brake selected	Yes	No	

Dependency: Refer to: p1230, p1231, p1232, p1233, p1234, p1235, p1236, p1237

Note: External armature short-circuit (bits 0 ... 3):

Re 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.

Re 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.

Re bit 02:
The external armature short-circuit configuration is ready and is activated as soon as the activation criterion is fulfilled.

Re 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):

Re 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.

Re bit 05:
The Motor Module signals that the motor is short-circuited in the Motor Module through the power semiconductors.

Re 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).

p1240[0...n]	Vdc controller or Vdc monitoring configuration / Vdc_ctrl config		
SERVO_SINUMERIK828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0	Max 9	Factory setting 0
Description:	Sets the configuration of the controller or monitoring for the DC link voltage (Vdc).		

Value:

- 0: Inhib Vdc ctrl
- 1: Vdc_max controller enable
- 2: Vdc_min controller (kinetic buffering) enable
- 3: Vdc_min controller and Vdc_max controller enable
- 4: Activates Vdc_max monitoring
- 5: Activates Vdc_min monitoring
- 6: Activates Vdc_min monitoring and Vdc_max monitoring
- 7: Vdc_max controller without accelerating enable
- 8: Vdc_min controller without braking enable
- 9: Vdc_min and Vdc_max controller w/o braking/accelerating enable

Dependency: Refer to: 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]	DC link voltage threshold upper / Vdc upper thresh		
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 165 [V]	Max 1200 [V]	Factory setting 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:	Refer to: p1240, p1248, p1250		
Note:	For p1244 < 1.07 * "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]	DC link voltage threshold lower / Vdc lower thresh		
SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 100 [V]	Max 1000 [V]	Factory setting 450 [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:	Refer to: 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]	Vdc controller proportional gain / Vdc_ctrl Kp		
SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 19_1 Scaling: -	Access level: 3 Unit selection: p0505 Expert list: 1
	Min 0.00 [A/V]	Max 10.00 [A/V]	Factory setting 1.00 [A/V]
Description:	Sets the proportional gain for the DC-link voltage controller (Vdc_min controller, Vdc_max controller).		
Dependency:	Refer to: p1240, p1244, p1248		
p1278	Brake control, diagnostics evaluation / Brake diagnostics		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 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).		

p1300[0...n] Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode

SERVO_COMBI, **Can be changed:** C2(1), T **Calculated:** - **Access level:** 2
SERVO_SINUMERI **Data type:** Integer16 **Dynamic index:** DDS, p0180
K828 **P-Group:** V/f open-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
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). Refer to: r0108, p0108, p0300, p0311, p0400, p1501

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] V/f control activation / Vf act

SERVO_COMBI, **Can be changed:** T **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Integer16 **Dynamic index:** DDS, p0180
K828 **P-Group:** - **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 1 0

Description: Activates the V/f control with linear characteristic.
0: Operation as set in p1300.
1: Activates the V/f control.

Value: 0: Off (p1300 eff)
1: On

Dependency: Refer to: p1318, p1319, p1326, p1327

p1318[0...n] V/f control ramp-up/ramp-down time / Uf t_rmp-up_rmp-dn

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
K828 **P-Group:** V/f open-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.000 [s] 999999.000 [s] 10.000 [s]

Description: Sets the ramp-up and ramp-down time for the V/f control.
The ramp-function generator requires this time to reach the maximum speed (p1082) from zero.

Dependency: Refer to: 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]	V/f control voltage at zero frequency / Uf V at f=0 Hz		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [Vrms]	Max 50.0 [Vrms]	Factory setting 0.0 [Vrms]
Description:	The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. This parameter specifies the voltage for a frequency of 0 Hz.		
Dependency:	Activates the V/f control using p1317. Refer to: p1317, p1326, p1327		
Note:	Linear interpolation is carried out between the points 0 Hz/p1319 and p1326/p1327.		
p1326[0...n]	V/f control programmable characteristic frequency 4 / Vf char f4		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [Hz]	Max 10000.00 [Hz]	Factory setting 0.00 [Hz]
Description:	In the servo control mode the following applies: The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. For vector control, the following applies: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the frequency of the fourth point along the characteristic.		
Dependency:	In the servo control mode the following applies: Activates the V/f control using p1317. For vector control, the following applies: Selects the freely programmable characteristic using p1300 = 3. The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1317, p1319, p1327		
Note:	In the servo control mode the following applies: Linear interpolation is carried out between the points 0 Hz/p1319 and p1326/p1327. For vector control, the following applies: Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327. For output frequencies above p1326, the characteristic is extrapolated with the gradient between the characteristic points p1324/p1325 and p1326/p1327. The voltage boost when accelerating (p1311) is also applied to the freely programmable V/f characteristic.		

p1327[0...n]	V/f control programmable characteristic voltage 4 / Vf char U4		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [Vrms]	Max 10000.0 [Vrms]	Factory setting 0.0 [Vrms]

Description: In the servo control mode the following applies:
 The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327.
 For vector control, the following applies:
 The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.
 This parameter specifies the voltage of the fourth point along the characteristic.

Dependency: In the servo control mode the following applies:
 Activates the V/f control using p1317.
 For vector control, the following applies:
 Selects the freely programmable characteristic using p1300 = 3.
 Refer to: p1317, p1319, p1326

Note: In the servo control mode the following applies:
 Linear interpolation is carried out between the points 0 Hz/p1319 and p1326/p1327.
 For vector control, the following applies:
 Linear interpolation is carried out between the points 0 Hz/p1310, p1320/p1321 ... p1326/p1327.
 The voltage boost when accelerating (p1311) is also applied to the freely programmable V/f characteristic.

p1338[0...n]	V/f mode resonance damping gain / Vf Res_damp gain		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00	Max 100.00	Factory setting 1.00

Description: Sets the gain for resonance damping for V/f control.
 In V/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: Refer to: 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]	V/f mode resonance damping filter time constant / Vf Res_damp T		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.00 [ms]	Max 1000.00 [ms]	Factory setting 20.00 [ms]

Description: Sets the filter time constant for resonance damping for V/f control.

Dependency: Refer to: p1317, p1338, p1349

Note: The filter time constant must be greater than the oscillation period of the oscillation to be dampened.

p1345[0...n]	DC brake proportional gain / DCBRK Kp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: V/f open-loop control Not for motor type: - Min 0.000	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: - Max 100000.000	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.000
Description:	Sets the proportional gain for the DC brake (p1230, p1231).		
Dependency:	Refer to: p1346		
Note:	Current controller adaptation is not effective with the DC brake.		
p1346[0...n]	DC brake integral time / DCBRK Tn		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: V/f open-loop control Not for motor type: - Min 0.000 [ms]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: - Max 50.000 [ms]	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.030 [ms]
Description:	Sets the integral time for the DC brake (p1230, p1231).		
Dependency:	Refer to: p1345		
Note:	For p1346 = 0, the following applies: The integral time of the DC brake is de-activated.		
p1349[0...n]	V/f mode resonance damping maximum frequency / Vf res_damp F_max		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: V/f open-loop control Not for motor type: - Min 0.00 [Hz]	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: - Scaling: - Max 3000.00 [Hz]	Access level: 3 Unit selection: - Expert list: 1 Factory setting 3000.00 [Hz]
Description:	Sets the maximum output frequency for resonance damping for V/f control. Resonance damping is inactive above this output frequency.		
Dependency:	Refer to: 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]	Speed control configuration / n_ctrl config		
SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: - Max -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 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	
	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 pre-control	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	Actual speed value	
	16	I component for limiting	Enable	Hold	

Note: Re 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.

Re 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).

Re 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).

Re 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.

p1402[0...n]	Closed-loop current control and motor model configuration / I_ctrl config		
SERVO_SINUMERIK828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 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_ist > p1404	Yes	No	
	02	Current controller adaptation active	Yes	No	
	04	Torque-speed pre-control with encoder	Yes	No	

Note: Re 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 displayed in r0487.14.

Re bit 02:
The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.

p1404[0...n] Encoderless operation changeover speed / Encoderl op n_chg

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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.

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: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$

- For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

r1406.8...12 CO/BO: Control word speed controller / STW n_ctrl

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays 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	

r1407.0...13 CO/BO: Status word speed controller / ZSW n_ctrl

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the status word of the speed controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	V/f control active	Yes	No	
	01	Encoderless operation active	Yes	No	
	02	Torque control active	Yes	No	
	04	Speed setpoint from DSC	Yes	No	
	05	Speed controller I component frozen	Yes	No	
	06	Speed controller I component set	Yes	No	
	07	Torque limit reached	Yes	No	
	08	Upper torque limit active	Yes	No	
	09	Lower torque limit active	Yes	No	
	11	Speed setpoint limited	Yes	No	
	13	Encoderless operation due to a fault	Yes	No	

Note: Re bit 04:
 The following conditions must be fulfilled to set to 1:
 - CI: p1190 and CI: p1191 must be interconnected with a signal source that is not equal to zero.
 - it is not permissible that OFF1, OFF3 or STOP2 are 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the current controller status word.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CI-loop curr ctrl	Active	Not active	
	04	Limit Vd	Active	Not active	
	05	Limit Vq	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.

p1413[0...n] Speed actual value filter activation / n_act_filt act

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting for activating/de-activating 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] Speed setpoint filter activation / n_set_filt act

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting for activating/de-activating the speed setpoint filter.

Recommend.: 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]	Speed setpoint filter 1 type / n_set_filt 1 typ			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: DDS, p0180		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: REL	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	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

p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: REL	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0.00 [ms]	5000.00 [ms]	0.00 [ms]	

Description: Sets the time constant for the speed setpoint filter 1 (PT1).

Dependency: Refer to: p1414, p1415

Note: For SERVO (p0107) the following applies:
 This parameter is only effective if the speed filter is set as a PT1 low pass.

p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: REL	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0.5 [Hz]	16000.0 [Hz]	2000.0 [Hz]	

Description: Sets the denominator natural frequency for speed setpoint filter 1 (PT2, general filter).

Dependency: Refer to: 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] Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for speed setpoint filter 1 (PT2, general filter).
Dependency: Refer to: 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] Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the numerator natural frequency for speed setpoint filter 1 (general filter).
Dependency: Refer to: 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] Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700

Description: Sets the numerator damping for speed setpoint filter 1 (general filter).
Dependency: Refer to: p1414, p1415
Note: This parameter is only effective if the speed filter is set as a general filter.

p1421[0...n] Speed setpoint filter 2 type / n_set_filt 2 typ

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 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]	Speed setpoint filter 2 time constant / n_set_filt 2 T		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]
Description:	Sets the time constant for the speed setpoint filter 2 (PT1).		
Dependency:	Refer to: p1414, p1421		
Note:	This parameter is only effective if the speed filter is set as a PT1 low pass.		
p1423[0...n]	Speed setpoint filter 2 denominator natural frequency / n_set_filt 2 fn_d		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for speed setpoint filter 2 (PT2, general filter).		
Dependency:	Refer to: 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]	Speed setpoint filter 2 denominator damping / n_set_filt 2 D_d		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.700
Description:	Sets the denominator damping for speed setpoint filter 2 (PT2, general filter).		
Dependency:	Refer to: 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]	Speed setpoint filter 2 numerator natural frequency / n_set_filt 2 fn_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for speed setpoint filter 2 (general filter).		
Dependency:	Refer to: 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] Speed setpoint filter 2 numerator damping / n_set_filt 2 D_n

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min 0.000	Max 10.000	Factory setting 0.700

Description: Sets the numerator damping for speed setpoint filter 2 (general filter).
Dependency: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min 0.0	Max 2.0	Factory setting 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).
 Refer to: p1429, p1511

p1429[0...n] Speed pre-control balancing time constant / n_prectr bal T

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 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.
 Refer to: p1428, p1511

p1430[0...n] CI: Speed pre-control / n_prectrl

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: p2000	Expert list: 1
Min -	Max -	Factory setting 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_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [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]	Speed controller reference model natural frequency / n_ctrl RefMod fn		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.0 [Hz]	Max 8000.0 [Hz]	Factory setting 0.0 [Hz]
Description:	Sets the natural frequency of a PT2 element for the reference model of the speed controller.		
Recommend.:	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. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. For sensorless vector control (p1300 = 20) the reference model is disabled in open-loop speed controlled operation (refer to p1755). Refer to: p1434, p1435		
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000	Max 5.000	Factory setting 1.000
Description:	Sets the damping of a PT2 element for the reference model of the speed controller.		
Recommend.:	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. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. Refer to: p1433, p1435		

p1435[0...n]	Speed controller reference model dead time / n_ctrRefMod t_dead		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00	Max 2.00	Factory setting 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]).		
Recommend.:	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. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. Refer to: p0115, p1433, p1434		

r1436	CO: Speed controller reference model speed setpoint output / RefMod n_set outp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
Description:	Displays the speed setpoint at the output of the reference model.		
Dependency:	For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1.		

r1438	CO: Speed controller, speed setpoint / n_ctrl n_set		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
Description:	Displays the speed setpoint after setpoint limiting for the P component of the speed controller. For V/f operation, the value that is displayed is of no relevance.		
Dependency:	Refer to: r1439		
Note:	In the standard state (the reference model is de-activated), r1438 = r1439.		

r1439	Speed setpoint, I component / n_set I_comp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
Description:	Displays the speed setpoint for the I component of the speed controller (output of the reference model after the setpoint limiting).		

Dependency: Refer to: r1438
Note: In the standard state (the reference model is de-activated), r1438 = r1439.

p1441[0...n] Actual speed smoothing time / n_ist T_smooth

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 50.00 [ms]	Factory setting 0.00 [ms]

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

Dependency: Refer to: 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 Speed controller, speed setpoint steady-state (static) / n_ctrl n_set stat

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [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: Refer to: p1155, p1160, p1430

r1445 CO: Actual speed smoothed / n_act smooth

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]

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

p1446[0...n] Speed actual value filter type / n_act_filt type

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 1	Max 2	Factory setting 2

Description: Sets the type for the general speed actual value filter.

Value: 1: Low pass: PT2
2: General 2nd-order filter
Dependency: PT2 low pass: p1447, p1448
General filter: p1447 ... p1450

p1447[0...n] Speed actual value filter denominator natural frequency / n_act_filt fn_d

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the denominator natural frequency for the speed actual value filter (PT2, general filter).
Dependency: Refer to: p1413, p1446
Note: The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1448[0...n] Speed actual value filter denominator damping / n_act_filt D_d

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700

Description: Sets the denominator damping for the speed actual value filter (PT2, general filter).
Dependency: Refer to: p1413, p1446

p1449[0...n] Speed actual value filter numerator natural frequency / n_act_filt fn_n

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]

Description: Sets the numerator natural frequency for the speed actual value filter (general filter).
Dependency: Refer to: p1413, p1446
Note: The filter is only effective if the natural frequency is less than half of the sampling frequency.

p1450[0...n] Speed actual value filter numerator damping / n_act_filt D_n

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700

Description: Sets the numerator damping for the speed actual value filter (general filter).
Dependency: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 100 [ms]	Factory setting 0 [ms]
Description:	Sets the smoothing time for the calculated speed actual value in sensorless operation.		
Dependency:	Refer to: p1441		
r1454	CO: Speed controller system deviation I component / n_ctrl sys dev Tn		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
Description:	Displays 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_ctrl Adpt_sig Kp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the source for the adaptation signal to additionally adapt the P gain of the speed controller.		
Dependency:	Refer to: p1456, p1457, p1458, p1459		
p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 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:	Refer to: p1455, p1457, p1458, p1459		

p1457[0...n] Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 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: Refer to: p1455, p1456, p1458, p1459

p1458[0...n] Adaptation factor, lower / Adapt_factor lower

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]

Description: Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller.

Dependency: Refer to: p1455, p1456, p1457, p1459

p1459[0...n] Adaptation factor, upper / Adapt_factor upper

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]

Description: Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.

Dependency: Refer to: p1455, p1456, p1457, p1458

p1460[0...n] Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 17_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000 [Nms/rad]	Max 999999.000 [Nms/rad]	Factory setting 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: Refer to: 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]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 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:	Refer to: 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]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 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:	Refer to: p1463, p1464, p1465		
p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 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:	Refer to: p1462, p1464, p1465		
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 3_1 Scaling: -	Access level: 3 Unit selection: p0505 Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 0.00 [rpm]
Description:	Sets the lower adaptation speed of the speed controller. No adaptation is effective below this speed.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1465		

p1465[0...n] Speed controller adaptation speed, upper / n_ctrl n upper

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 210000.00 [rpm]

Description: Sets the upper adaptation speed of the speed controller. No adaptation is effective above this speed. For P gain, p1460 * p1461 is effective. For the integral time, p1462 * p1463 is effective.

Dependency: Refer to: p1460, p1461, p1462, p1463, p1464

p1466[0...n] CI: Speed controller P-gain scaling / n_ctrl Kp scal

SERVO_SINUMERI K828

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: PERCENT	Expert list: 1
Min -	Max -	Factory setting 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.

r1468 Speed controller P-gain effective / n_ctrl Kp eff

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: -	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Closed-loop control	Units group: 17_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min - [Nms/rad]	Max - [Nms/rad]	Factory setting - [Nms/rad]

Description: Displays the effective P gain of the speed controller.

r1469 Speed controller integral time effective / n_ctrl Tn eff

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: -	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min - [ms]	Max - [ms]	Factory setting - [ms]

Description: Displays the effective integral time of the speed controller.

p1470[0...n] Speed controller encoderless operation P-gain / n_ctrl SLVC Kp

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Closed-loop control	Units group: 17_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min 0.000 [Nms/rad]	Max 999999.000 [Nms/rad]	Factory setting 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]	Speed controller encoderless operation integral time / n_ctrl SLVC Tn		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min 0.0 [ms]	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: - Max 100000.0 [ms]	Access level: 2 Unit selection: - Expert list: 1 Factory setting 20.0 [ms]
Description:	Set the integral time for encoderless operation for the speed controller.		
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to hold the integrator for the speed controller.		
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to set the integrator setting value (p1478).		
Dependency:	Refer to: 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]	CI: Speed controller integrator setting value / n_ctr integ_setVal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL Min -	Calculated: - Dynamic index: CDS Units group: - Scaling: p2003 Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 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:	Refer to: 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: Speed controller PI torque output / n_ctrl PI-M_output		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the PI speed controller.		

r1481	CO: Speed controller P torque output / n_ctrl P-M_output		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the P speed controller.		

r1482	CO: Speed controller I torque output / n_ctrl I-M_output		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the I speed controller.		

r1493	CO: Moment of inertia, total / M_inertia total		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 25_1	Unit selection: p0100
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min - [kgm ²]	Max - [kgm ²]	Factory setting - [kgm ²]
Description:	Displays the parameterized total moment of inertia ((p0341 * p0342) + p1498) without evaluation by the scaling via p1497.		
Dependency:	Refer to: 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]	Speed controller integrator feedback time constant / n_ctr integ_fdbk T		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the time constant of the PT1 filter for integrator feedback. The integrator of the speed/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 * p0115[1]) --> the PT1 filter is not active - the pure integrator is effective. p1494 >= 0.25 (2 * 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).		
p1497[0...n]	CI: Moment of inertia, scaling / M_mom inert scal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for scaling the moment of inertia.		
p1498[0...n]	Load moment of inertia / Load mom of inert		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 25_1	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [kgm ²]	Max 100000.00000 [kgm ²]	Factory setting 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]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: CDS	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0	Max 999999	Factory setting 0
Description:	<p>Runs the corresponding macro files.</p> <p>The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.</p> <p>The selected macro file must be available on the memory card/device memory.</p> <p>Example: p1500 = 6 --> the macro file PM000006.ACX is run.</p>		
Dependency:	Refer to: p0015, p0700, p1000, r8573		
Notice:	No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!		
Note:	<p>The macros in the specified directory are displayed in r8573. r8573 is not in the expert list of the commissioning software.</p> <p>Macros available as standard are described in the technical documentation of the particular product.</p> <p>CI: Connector Input</p>		

p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for toggling between speed and torque control.		
Dependency:	The input connectors to enter the torque are provided using p1511, p1512 and p1513. Refer to: p1300		
Caution:	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).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	0 signal: Closed-loop speed control 1 signal: Closed-loop torque control		

r1509	CO: Torque setpoint before torque limiting / M_set before M_lim		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	<p>Displays the total torque setpoint before the torque limiting (total of the controller output, supplementary torque and if required, the pre-control torque, encoderless operation).</p> <p>In the closed-loop speed controlled mode, r1509 = p1480 + r1515 + pre-controlled torque, encoderless operation.</p> <p>r1509 and r1515 are identical for the closed-loop torque control.</p>		

p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for supplementary torque 1.		
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for scaling the supplementary torque 1.		
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for supplementary torque 2.		
r1515	Supplementary torque total / M_suppl total		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 100.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the smoothing time constant of the accelerating torque.		
Note:	For servo drives, the parameter is only effective in encoderless operation. For vector drives, the acceleration pre-control is inhibited if the smoothing is set to the maximum value.		

r1518[0...1] CO: Accelerating torque / M_accel

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: - **Calculated:** - **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** -

P-Group: Closed-loop control **Units group:** 7_1 **Unit selection:** p0505

Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

Min **Max** **Factory setting**
 - [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: Refer to: p0341, p0342, p1300, p1402, r1493, p1497, p1498

p1520[0...n] CO: Torque limit upper/motoring / M_max upper/mot

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T **Calculated:** CALC_MOD_LIM_REF **Access level:** 2

Data type: FloatingPoint32 **Dynamic index:** DDS, p0180

P-Group: Closed-loop control **Units group:** 7_1 **Unit selection:** p0505

Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

Min **Max** **Factory setting**
 0.00 [Nm] 10000000.00 [Nm] 0.00 [Nm]

Description: Sets the fixed upper torque limit or the torque limit when motoring.

Dependency: p1400 bit 4 = 0: Upper / lower
 p1400 bit 4 = 1: Motoring / regenerative
 Refer to: 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.

Note: For VECTOR the following applies (p0107):
 The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).



p1521[0...n] CO: Torque limit lower/regenerative / M_max lower/regen

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T **Calculated:** CALC_MOD_LIM_REF **Access level:** 2

Data type: FloatingPoint32 **Dynamic index:** DDS, p0180

P-Group: Closed-loop control **Units group:** 7_1 **Unit selection:** p0505

Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

Min **Max** **Factory setting**
 -1000000.00 [Nm] 0.00 [Nm] 0.00 [Nm]

Description: Sets the fixed lower torque limit or the torque limit when regenerating.

Dependency: p1400 bit 4 = 0: Upper / lower
 p1400 bit 4 = 1: Motoring / regenerative
 Refer to: 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.



Note: For VECTOR the following applies (p0107):
The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).

p1522[0...n]	CI: Torque limit upper/motoring / M_max upper/mot		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min	Max	Factory setting
	-	-	2902[5]

Description: Sets the signal source for the upper or torque/force limit when motoring.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative
Refer to: 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]	CI: Torque limit lower/regenerative / M_max lower/regen		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min	Max	Factory setting
	-	-	2902[12]

Description: Sets the signal source for the lower or torque/force limit when regenerating.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative
Refer to: 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: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-2000.0 [%]	2000.0 [%]	100.0 [%]

Description: Sets the scaling for the upper torque limit or the torque limit when motoring.

Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative

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: Torque limit lower/regenerative scaling / M_max low/gen scal**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
K828 **P-Group:** Closed-loop control **Units group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** PERCENT **Expert list:** 1

Min **Max** **Factory setting**
-2000.0 [%] 2000.0 [%] 100.0 [%]

Description: Sets the scaling for the lower torque limit or the torque limit when regenerating.
Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative
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 **CO: Torque limit upper/motoring without offset / M_max up w/o offs**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Closed-loop control **Units group:** 7_1 **Unit selection:** p0505
 Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

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

Description: Displays the upper torque limit of all torque limits without offset.
Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative
Refer to: p1520, p1521, p1522, p1523, p1528, p1529

r1527 **CO: Torque limit lower/regenerative without offset / M_max low w/o offs**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Closed-loop control **Units group:** 7_1 **Unit selection:** p0505
 Not for motor type: REL **Scaling:** p2003 **Expert list:** 1

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

Description: Displays the lower torque limit of all torque limits without offset.
Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative
Refer to: p1520, p1521, p1522, p1523, p1528, p1529

p1528[0...n] **CI: Torque limit upper/motoring scaling / M_max up/mot scal**

SERVO_COMBI, **Can be changed:** T **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned32 / FloatingPoint32 **Dynamic index:** CDS
K828 **P-Group:** Closed-loop control **Units group:** - **Unit selection:** -
 Not for motor type: REL **Scaling:** PERCENT **Expert list:** 1

Min **Max** **Factory setting**
- - 1524[0]

Description: Sets the signal source for the scaling of the upper or motoring torque limit in p1522.
Dependency: p1400 bit 4 = 0: Upper / lower
p1400 bit 4 = 1: Motoring / regenerative

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: Torque limit lower/regenerative scaling / M_max low/gen scal**

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: T

Calculated: -

Access level: 3

Data type: Unsigned32 / FloatingPoint32

Dynamic index: CDS

P-Group: Closed-loop control

Units group: -

Unit selection: -

Not for motor type: REL

Scaling: PERCENT

Expert list: 1

Min

Max

Factory setting

-

-

1525[0]

Description:

Sets the signal source for the scaling of the lower torque limit or the regenerative torque limit in p1523.

Dependency:

p1400 bit 4 = 0: Upper / lower

p1400 bit 4 = 1: Motoring / regenerative

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]**Power limit motoring / P_max mot**

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: U, T

Calculated:

Access level: 2

CALC_MOD_LIM_REF

Data type: FloatingPoint32

Dynamic index: DDS, p0180

P-Group: Closed-loop control

Units group: 14_5

Unit selection: p0505

Not for motor type: REL

Scaling: -

Expert list: 1

Min

Max

Factory setting

0.00 [kW]

100000.00 [kW]

0.00 [kW]

Description:

Sets the power limit when motoring.

Dependency:

Refer to: p0500, p1531

Note:

For VECTOR the following applies (p0107):

The power limit is limited to 300% of the rated motor power.

p1531[0...n]**Power limit regenerative / P_max gen**

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: U, T

Calculated:

Access level: 2

CALC_MOD_LIM_REF

Data type: FloatingPoint32

Dynamic index: DDS, p0180

P-Group: Closed-loop control

Units group: 14_5

Unit selection: p0505

Not for motor type: REL

Scaling: -

Expert list: 1

Min

Max

Factory setting

-100000.00 [kW]

-0.01 [kW]

-0.01 [kW]

Description:

Sets the regenerative power limit.

Dependency:

Refer to: p0500, p1530

p1532[0...n]	CO: Torque limit offset / M_max offset		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min -100000.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the torque offset for the torque limit.		
Dependency:	Refer to: 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	Current limit torque-generating total / Iq_max total		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum torque/force generating current as a result if all current limits.		

r1534	CO: Torque limit upper total / M_max upper total		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the upper torque limit of all torque limits.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532		

r1535	CO: Torque limit lower total / M_max lower total		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the lower torque limit of all torque limits.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532		

r1538	CO: Upper effective torque limit / M_max upper eff		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the currently effective upper torque limit.		

Note: The effective upper torque limit is reduced with respect to the selected upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.
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	CO: Lower effective torque limit / M_max lower eff		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]

Description: Displays the currently effective lower torque limit.

Note: The effective lower torque limit is reduced with respect to the selected lower torque limit p1521, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased.
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]	CI: Travel to fixed stop torque reduction / TfS M_red		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the torque/force reduction when traversing to a fixed stop. This value is converted into a factor and is interconnected to the scaling of the torque/force limits.

Dependency: Refer to: p1528, p1529, r1543, p1544, p1545

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

r1543	CO: Travel to fixed stop torque scaling / TfS M_scal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the internally converted factor to interconnect to the scaling of the torque/force limits.

Dependency: Refer to: p1528, p1529, p1542, p1544, p1545

p1544	Travel to fixed stop evaluation torque reduction / TfS M_red eval		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [%]	Max 65535 [%]	Factory setting 100 [%]

Description: Sets the evaluation for the torque/force reduction when traversing to a fixed stop.

Dependency: Refer to: 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]	BI: Activates travel to a fixed stop / TfS activation		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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: Refer to: p1542, r1543, p1544

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

p1546	Speed threshold motoring/regenerating / n_thresh mot/regen		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.00 [rpm]	210000.00 [rpm]	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	CO: Stall power actual value / P_stall		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: 14_5	Unit selection: p0505
	Not for motor type: -	Scaling: r2004	Expert list: 1
	Min	Max	Factory setting
	- [kW]	- [kW]	- [kW]

Description: Displays the instantaneous stall power.

Dependency: Refer to: p0326

Note: The stall power is influenced by p0326, p0353, p0354 and p0356.

p1550[0...n]	BI: Transfer actual torque as torque offset / Accept act torque		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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]	BI: Torque limit variable/fixed signal source / M_lim var/fixS_src		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source to change over the torque limits between variable and fixed torque limit. 1 signal from BI: p1551: The variable torque limit applies (fixed torque limit + scaling). 0 signal from BI: p1551: The fixed torque limit applies. Example: In order that for a Quick Stop (OFF3) the fixed torque limit is effective, BI: p1551 must be interconnected to r0899.5.		
p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up w/o offs		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-	-	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.		
p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low w/o offs		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-	-	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.		
p1569[0...n]	CI: Supplementary torque 3 / M_suppl 3		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min	Max	Factory setting
	-	-	3841[0]
Description:	Sets the signal source for supplementary torque 3.		
Dependency:	Refer to: 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).		

p1578[0...n] Flux reduction flux decrease smoothing time / Flux red dec t_{sm}

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 20 [ms]	Max 5000 [ms]	Factory setting 200 [ms]

Description: Sets the smoothing time for the flux setpoint when decreasing the flux due to flux reduction (p1581 < 100 %).

Dependency: Refer to: p1579, p1581

p1579[0...n] Flux reduction flux build-up smoothing time / Flux red up t_{sm}

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 5000 [ms]	Factory setting 4 [ms]

Description: Sets the smoothing time for the flux setpoint for the flux build-up due to flux reduction (p1581 < 100 %).

Dependency: Refer to: 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] Flux reduction factor / Flux red factor

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM	Scaling: -	Expert list: 1
	Min 20 [%]	Max 100 [%]	Factory setting 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.

Recommend.: 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: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 0 [ms]
Description:	Sets the smoothing time for the flux actual value.		
p1590[0...n]	Flux controller P gain / Flux controller Kp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0.0 [A/Vs]	Max 999999.0 [A/Vs]	Factory setting 10.0 [A/Vs]
Description:	Sets the proportional gain of 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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 30 [ms]
Description:	Sets the integral time of 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.		
p1612[0...n]	Current setpoint, open-loop control, encoderless / I_setCtrEncoderI		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 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_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
 SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
 K828 **P-Group:** Closed-loop control **Units group:** 6_2 **Unit selection:** p0505
Not for motor type: REL **Scaling:** p2002 **Expert list:** 1
Min **Max** **Factory setting**
 - [Arms] - [Arms] - [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_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
 SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
 K828 **P-Group:** Closed-loop control **Units group:** 7_1 **Unit selection:** p0505
Not for motor type: REL **Scaling:** p2003 **Expert list:** 1
Min **Max** **Factory setting**
 - [Nm] - [Nm] - [Nm]
Description: Displays the torque setpoint of the function generator.

p1656[0...n] **Activates current setpoint filter / I_setp_filt act**
 SERVO_COMBI, **Can be changed:** U, T **Calculated:** CALC_MOD_CON **Access level:** 3
 SERVO_SINUMERI **Data type:** Unsigned16 **Dynamic index:** DDS, p0180
 K828 **P-Group:** Closed-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - 0001 bin
Description: Setting for activating/de-activating the current setpoint filter.
Bit field:

Bit	Signal name	1 signal	0 signal	FP
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.

p1657[0...n] **Current setpoint filter 1 type / I_set_filt 1 Typ**
 SERVO_COMBI, **Can be changed:** U, T **Calculated:** CALC_MOD_CON **Access level:** 3
 SERVO_SINUMERI **Data type:** Integer16 **Dynamic index:** DDS, p0180
 K828 **P-Group:** Closed-loop control **Units group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 1 2 1
Description: Sets the current setpoint filter 1 as low pass (PT2) or as extended general 2nd-order filter.
Value:
 1: Low pass: PT2
 2: General 2nd-order filter
Dependency: Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.
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:
 $f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$

p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 1 (PT2, general filter).		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		
p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for current setpoint filter 1.		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		
p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_z		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 1 (general filter).		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		
p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_z		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for current setpoint filter 1.		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		
p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 Typ		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the current setpoint filter 2 as low pass (PT2) or as extended general 2nd-order filter.		

Value: 1: Low pass: PT2
2: General 2nd-order filter

Dependency: Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.

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:
 $f_{3dB \text{ bandwidth}} = 2 * D_{\text{denominator}} * f_{\text{bandstop frequency}}$

p1663[0...n] Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_n

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 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] Current setpoint filter 2 denominator damping / I_set_filt 2 D_n

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.001	Max 10.000	Factory setting 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] Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_z

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 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] Current setpoint filter 2 numerator damping / I_set_filt 2 D_z

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000	Max 10.000	Factory setting 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]	Current setpoint filter 3 type / I_set_filt 3 Typ		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 2	Factory setting 1

Description: Sets the current setpoint filter 3 as low pass (PT2) or as extended general 2nd-order filter.

Value:
1: Low pass: PT2
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_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 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_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.001	Max 10.000	Factory setting 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_z		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 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_z		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000	Max 10.000	Factory setting 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 Typ		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the current setpoint filter 4 as low pass (PT2) or as extended general 2nd-order filter.		
Value:	1: Low pass: PT2 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_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 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_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.001	Max 10.000	Factory setting 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_n		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 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_z		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000	Max 10.000	Factory setting 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.		
p1699	Filter data acceptance / Filt data accept		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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:	Refer to: p1414, p1415, p1416, p1417, p1418, p1419, p1420, p1421, p1422, p1423, p1424, p1425, p1426, p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666, p1667, p1668, p1669, p1670, p1671, p1672, p1673, p1674, p1675, p1676		
p1701[0...n]	Current controller reference model dead time / I_ctrRefMod t_dead		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0	Max 1.0	Factory setting 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]	Current controller P gain / I_ctrl Kp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units 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]	Factory setting 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:	Refer to: p0391, p0392, p0393		
Note:	For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.		

p1717[0...n]	Current controller integral-action time / I_ctrl Tn		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 2.00 [ms]
Description:	Sets the integral-action time of the current controller.		
Dependency:	Refer to: p1715		

r1732	CO: Direct-axis voltage setpoint / Direct V set		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the direct-axis voltage setpoint Ud.		

r1733	CO: Quadrature-axis voltage setpoint / Quad V set		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the quadrature-axis component of voltage setpoint Uq.		

p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 210000.00 [rpm]
Description:	Sets the speed to change over the motor model for operation with encoder.		
Dependency:	Refer to: p1756		

Note: Induction motor (ASM):
The motor model is influenced for speeds/velocities greater than p1752.
Synchronous motor (SRM):
A monitoring (F07412) is activated for speeds/velocities 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_chgSnsorI

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 210000.00 [rpm]

Description: Sets the speed to change over the motor model to encoderless operation.

Dependency: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.0 [%]	Max 90.0 [%]	Factory setting 5.0 [%]

Description: Sets the hysteresis for the changeover speed/velocity of the motor model.

Dependency: Refer to: p1752, p1755

Note: The value is entered relative to p1404, p1752 or p1755.

r1778 Motor model flux angle difference / MotMod ang. diff.

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: p2005	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]

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_SINUMERIK828
Can be changed: U, T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** DDS, p0180
P-Group: Closed-loop control **Units group:** - **Unit selection:** -
Not for motor type: REL **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
- - 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	Select ASM Rr adaptation (only with encoder)	Yes	No	
	07	Select T(valve) with Rs adaptation	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
The kT adaptation is only active at a speed greater than the changeover speed with encoder (p1752). Near the current limit when strongly saturating motors are operated.

p1810 Modulator configuration / Modulator config

AFE_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828
Can be changed: U, T **Calculated:** - **Access level:** 4
Data type: Unsigned16 **Dynamic index:** -
P-Group: Modulation **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
- - 1000 0000 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	
	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 * 1000/p0115[0]
Bit 15 can only be changed subject to the following prerequisites:
- Pulse inhibit

Note: Re bit 02 = 0:
A gating unit that does not permit wobulation is used.
Re bit 02 = 1:
A gating unit that permits wobulation is used.
For a pulse frequency wobulation amplitude equal to zero ($p1811 = 0$), the maximum possible pulse frequency in $p1800 = 2 * 1/\text{current controller clock cycle } (p0115[0])$.
For a wobulation amplitude greater than zero ($p1811 > 0$), the maximum possible pulse frequency in $p1800 = 1/\text{current controller clock cycle } (p0115[0])$.
Re bit 04 = 0:
The pulse frequency wobulation amplitude ($p1811$) is enabled. Only applies if bit 02 = 1.
Re bit 04 = 1:
The pulse frequency wobulation amplitude ($p1811$) is disabled. Only applies if bit 02 = 1.
Re bit 15 = 0:
To de-activate flat-top control mode, $p3400.1$ also needs to be set to 0.
Re bit 15 = 1:
Flat-top control mode is active regardless of the setting for $p3400.1$.

p1811		Pulse frequency wobulation amplitude / Puls wobb ampli	
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: - Min 0 [%]	Calculated: - Dynamic index: - Units group: - Scaling: - Max 20 [%]	Access level: 4 Unit selection: - Expert list: 1 Factory setting 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 change the parameter if wobulation is activated with bit 2 in parameter P1810.

p1815		Phase for PWM generation subgroup / Ph for PWM subgr	
AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned16 P-Group: Modulation Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 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: Refer to: p1818, p1819

Note: A change only becomes effective after booting.

If any of the following secondary conditions are not fulfilled, then "offset clocking" is de-activated for all power units in the subgroup. This means that all power units of the subgroup are not clocked with 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		
AFE_SINUMERIK_8 28, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -1	Max 16	Factory setting -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 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: Refer to: r0116, p1819

p1818	Phase for PWM generation configuration / Ph for PWM config		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 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: Refer to: 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		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -1	Max 16	Factory setting 0

Description: Display for "offset clocking". Depending on the particular case, the value is interpreted differently:

- Case:
 The PWM clock cycle (1/p1800[D]) is greater than the current controller clock cycle (p115[0]) and is an integer and even multiple of it (e.g. p0115[0] = 125 µs, p1800[D] = 4 kHz, 2 kHz, 1 kHz).
 The value displayed refers to the phase shift in the current-controlled cycles to be applied by the power unit.
- Case:
 The current controller clock cycle (p0115[0]) is greater than or equal to the PWM clock cycle (1/p1800[D]) and is an integer multiple (e.g. p0115[0] = 125 µs, p1800[D] = 8 kHz, 16 kHz).
 The displayed value 1 means that the power unit is to apply a phase shift of 180 ° (from the PWM cycle).
- Case:
 If neither case 1 nor case 2 applies to at least one power unit, then only 0 can be entered for all of the power units.

Dependency: Refer to: r0108, p0108, p0115, p1818
Note: For reasons of compatibility, the parameter is an adjustable parameter. However, it functions solely as a read parameter. This means that factory setting -1 no longer has any significance and is only available for reasons of compatibility.

p1819 Phase for PWM generation / Ph for PWM

SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1	Max 16	Factory setting -1

Description: Display for "offset clocking". Depending on the particular case, the value is interpreted differently:

- Case:
The PWM clock cycle (1/p1800[D]) is greater than the current controller clock cycle (p115[0]) and is an integer and even multiple of it (e.g. p0115[0] = 125 µs, p1800[D] = 4 kHz, 2 kHz, 1 kHz).
The value displayed refers to the phase shift in the current-controlled cycles to be applied by the power unit.
- Case:
The current controller clock cycle (p0115[0]) is greater than or equal to the PWM clock cycle (1/p1800[D]) and is an integer multiple (e.g. p0115[0] = 125 µs, p1800[D] = 8 kHz, 16 kHz).
The displayed value 1 means that the power unit is to apply a phase shift of 180 ° (from the PWM cycle).
- Case:
If neither case 1 nor case 2 applies to at least one power unit, then only 0 can be entered for all of the power units.

Dependency: Refer to: r0108, p0108, p0115, p1818
Note: For reasons of compatibility, the parameter is an adjustable parameter. However, it functions solely as a read parameter. This means that factory setting -1 no longer has any significance and is only available for reasons of compatibility.

p1821[0...n] Dir of rot / Dir of rot

SERVO_SINUMERI K828	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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: Clockwise
1: Counter-clockwise

Dependency: Refer to: F07434

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]).
For VECTOR, the following applies:
p1820 can be used to reverse the direction of the motor without reversing the encoder actual value.

p1827 Infeed compensation valve lockout time operating mode / INFcomp t_lockMode

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: Modulation Not for motor type: PEM, REL	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 1	

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.

p1909[0...n] Motor data identification control word / MotID STW

SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned16 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0010 0111 0000 0000 bin
	Min -	Max -	

Description: Sets the configuration of the motor data identification.

Recommend.: 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: Refer to: 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
Re 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 Motor data identification routine, stationary (standstill) / MotID standstill

SERVO_SINUMERI K828	Can be changed: T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
	Min -3	Max 1	

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
Recommend.:	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.
Dependency:	Refer to: p1909, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951 Refer to: 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.
	
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:	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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the identified stator resistance.		
Dependency:	Refer to: p1909, p1910, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1913	Rotor time constant identified / T_rotor ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM	Scaling: -	Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the identified rotor time constant.		
Dependency:	Refer to: p1909, p1910, r1912, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1915	Stator inductance identified / L_stator ident		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified stator inductance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1925	Threshold voltage identified / V_threshold ident		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the identified threshold voltage of the power unit.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1927	Rotor resistance identified / R_rotor ident		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the identified rotor resistance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1932[0...19]	d inductance identified / Ld ident		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified (differential) d-inductance.		
Dependency:	Refer to: 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the identification current of the d inductance.		
Dependency:	Refer to: 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]

Description: Displays the identified (differential) q-inductance.

Dependency: Refer to: 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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:

- [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

Dependency: Refer to: p1909, p1910, r1934, p1959, p1960

Note:

- 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]).

r1936	Magnetizing inductance identified / L_H ident		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified magnetizing inductance(gamma equivalent circuit diagram).		
Dependency:	Refer to: 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: 28_1	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Nm/A]	Max - [Nm/A]	Factory setting - [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:	Refer to: 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the identified voltage constant.		
Dependency:	Refer to: r1937, r1939, p1959, p1960, r1969		
Note:	This value corresponds to the voltage constant (p0317).		

r1939 Reluctance torque constant identified / kT_reluct ident

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified reluctance torque constant.		
Dependency:	Refer to: r1937, r1938, p1959, p1960, r1969		
Note:	This value corresponds to the reluctance torque constant (p0328).		

r1947 Optimum load angle identified / phi_load ident

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the identified magnetizing current.		
Dependency:	Refer to: r1936, p1959, p1960		
Note:	This value corresponds to the magnetizing current (p0320 / r0331).		

r1950[0...19] Voltage emulation error voltage values / V_error V_values

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	Refer to: r1951		

r1951[0...19]	Voltage emulation error current values / V_error I_error		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	Refer to: r1950		

p1958[0...n]	Rotating measurement ramp-up/ramp-down time / Rot meas t_r up/dn		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1.00 [s]	Max 999999.00 [s]	Factory setting -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.		
Recommend.:	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:	Refer to: p1959, p1960		

p1959[0...n]	Rotating measurement configuration / Rot meas config		
SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned16	Dynamic index: MDS, p0130	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0000 1110 1110 0111 bin
Description:	Sets the configuration of the rotating measurement.		
Recommend.:	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
	00	Reserved	Yes	No	
	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: Refer to: 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

Re 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.

Re 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.

Re 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		Rotating measurement selection / Rot meas sel	
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-3	1	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

Recommend.: 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.

Dependency: Refer to: r1934, r1935, r1936, r1937, r1938, r1939, r1947, r1948, p1958, p1959, r1962, r1963, r1969
Refer to: 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).

r1962[0...9]

Saturation characteristic magnetizing current identified / Sat_char I_mag

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: -	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Motor identification	Units group: -	Unit selection: -
Not for motor type: PEM, REL	Scaling: -	Expert list: 1
Min - [%]	Max - [%]	Factory setting - [%]

Description:

Displays the magnetizing currents of the identified saturation characteristic.

The values are referred to r0331.

Dependency:

Refer to: p1959, p1960, r1963

Note:

The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.

r1963[0...9]

Saturation characteristic stator flux identified / Sat_char flux

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: -	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Motor identification	Units group: -	Unit selection: -
Not for motor type: PEM, REL	Scaling: -	Expert list: 1
Min - [%]	Max - [%]	Factory setting - [%]

Description:

Displays the stator flux of the identified saturation characteristic.

The values are referred to the stator flux at the magnetizing current (r0331).

Dependency:

Refer to: p1959, p1960, r1962

Note:

The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.

r1969

Moment of inertia identified / M_inertia ident

SERVO_SINUMERI
K828

Can be changed: -	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Motor identification	Units group: 25_1	Unit selection: p0100
Not for motor type: REL	Scaling: -	Expert list: 1
Min - [kgm ²]	Max - [kgm ²]	Factory setting - [kgm ²]

Description:

Displays the identified moment of inertia.

Dependency:

IEC drives (p0100 = 0): unit kg m²

NEMA drives (p0100 = 1): unit lb ft²

Refer to: p0341, p0342, p1498, p1959, p1960

r1973[0...1] Encoder, pulse number identified / Pulse No. ident			
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	<p>Index 0: Rotating motors: Displays the identified encoder pulse number (per revolution). Linear motors: Encoder pulse number per meter. Grid division = 1/p1973 [meter].</p> <p>Index 1: Rotating motors: No significance. Linear motors: Identified grid division in nm.</p>		
Index:	<p>[0] = Rotating motor encoder pulse number [1] = Linear motor, grid division in nm</p>		
Notice:	<p>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.</p>		
Note:	<p>A negative signal indicates an incorrect polarity of the encoder signal.</p>		
p1980[0...n] Pole position identification technique / PolID technique			
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	99	99
Description:	<p>Sets the pole position identification technique.</p>		
Value:	<p>0: Saturation-based 1st + 2nd harmonics 1: Saturation-based 1st harmonics 4: Saturation-based, 2-stage 10: Motion-based 99: No technique selected</p>		
Dependency:	<p>Refer to: p0325, p0329, p1981, p1982, p1983, r1984, r1985, r1987</p>		
Notice:	<p>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):</p> <ul style="list-style-type: none"> - p1980 = 10 (motion-based) - motor encoder with track A/B sq-wave (p0404.3 = 1) - p0430.20 = 0 (flank time measurement) <p>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.</p>		
Note:	<p>When commissioning a catalog motor, the technique is automatically selected depending on the motor type being used.</p> <p>The following applies for 1FN3 motors: A technique with 2nd harmonic may not be used (do not use p1980 = 0, 4). For 1FN7 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.</p>		

p1981[0...n] Pole position identification maximum distance / PolID distance max

SERVO_SINUMERI K828 **Can be changed:** U, T **Calculated:** CALC_MOD_ALL **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** MDS, p0130
P-Group: Motor identification **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 [°] 180 [°] 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: Refer to: p0325, p0329, p1980, p1982, p1983, r1984, r1985, r1987, p1990
Refer to: F07995

Notice: Value = 180 °: Monitoring is de-activated.

p1982[0...n] Pole position identification selection / PolID selection

SERVO_SINUMERI K828 **Can be changed:** T **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** MDS, p0130
P-Group: Motor identification **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 2 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

Recommend.: Re 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.
Re p1982 = 2:
This is used for synchronous motor with motor encoder with absolute data to check this data.

Dependency: Refer to: p0325, p0329, p1980, p1981, p1983, r1984, r1985, r1987, p1990

p1983 Pole position identification, test / PolID test

SERVO_SINUMERI K828 **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Motor identification **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 1 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: Refer to: p0325, p0329, p1980, p1981, p1982, r1984, r1985, r1987, p1990

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	Pole position identification, angular difference / PolID ang diff		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the angular difference between the actual electrical commutation angle and the angle determined by the pole position identification.		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1985, r1987, p1990		
Note:	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	Pole position identification, saturation characteristic / PolID sat_char		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the saturation characteristic of the pole position identification routine. 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).		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1987, p1990		
r1987	Pole position identification trigger characteristic / PolID trig_char		
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
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:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985		
Note:	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_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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 transfer

Dependency: Refer to: p0325, p0329, p0431, p1980, p1981, p1982, p1983, r1984, r1985, r1987

Refer to: A07971

Caution: 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 V (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.

Notice: For p1990 = 1 and with the pulses not enabled, the function is only executed the next time that the pulses are enabled.

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] Motor changeover, angular commutation correction / Ang_com corr

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -180 [°]	Max 180 [°]	Factory setting 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	Pole position identification diagnostics / PolID diag				
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays diagnostics information for the pole position identification routine.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Critical encoder fault occurred	Yes	No	
	02	Enc 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	
p1993[0...n]	Pole position identification current, motion-based / PolID I mot_bas				
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_EQU	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: MDS, p0130			
	P-Group: Motor identification	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	0.00 [Arms]	20000.00 [Arms]	0.00 [Arms]		
Description:	Sets the current when executing the motion-based pole position identification.				
Dependency:	Refer to: p1980, p1982, p1994				
p1994[0...n]	Pole position identification rise time motion-based / PolID T mot_bas				
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: MDS, p0130			
	P-Group: Motor identification	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	0 [ms]	2500 [ms]	100 [ms]		
Description:	Sets the rise time of the current when executing the motion-based pole position identification.				
Dependency:	Refer to: p1980, p1982, p1993				
p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas				
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: MDS, p0130			
	P-Group: Motor identification	Units group: 17_1	Unit selection: p0505		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	0.000 [Nms/rad]	999999.000 [Nms/rad]	0.300 [Nms/rad]		
Description:	Sets the gain when executing the motion-based pole position identification.				

p1996[0...n] Pole position identification, integral time motion-based / PolID Tn mot_bas

SERVO_SINUMERIK828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [ms]	Max 500.0 [ms]	Factory setting 2.0 [ms]

Description: Sets the integral time when executing the motion-based pole position identification.
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).

p1997[0...n] Pole position identification, smoothing time motion-based / PolID t_sm mot_bas

SERVO_SINUMERIK828	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [ms]	Max 50.0 [ms]	Factory setting 0.0 [ms]

Description: Sets the smoothing time when executing the motion-based pole position identification.

p2000 Reference frequency / Ref freq

AFE_SINUMERIK_828, BIC_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.10 [Hz]	Max 1000.00 [Hz]	Factory setting 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
 The following applies: Reference frequency (in Hz)

p2000 Reference speed reference frequency / Ref_n Ref_f

SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 6.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
 The following applies: Reference frequency (in Hz) = reference speed (in rpm) / 60) * pole pair number

Dependency: Refer to: 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).

p2001		Reference voltage / Reference voltage	
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10 [Vrms]	Max 100000 [Vrms]	Factory setting 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
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		Reference current / Reference current	
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.10 [Arms]	Max 100000.00 [Arms]	Factory setting 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		

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 %

p305[0] = 100 A

Rated motor current 100 A for MDS0 in DDS0 --> 100 % corresponds to 100 % of the rated motor current

p305[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.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

For infeed units, the rated line current, which is obtained from the rated power and parameterized rated line supply voltage (p2002 = r0206 / p0210 / 1.73) is pre-assigned as the reference quantity.

Example:

The actual value of a phase current (r0069[0]) is connected to a test socket (e.g. p0771[0]). The actual current value is cyclically converted into a percentage of the reference current (p2002) and output according to the parameterized scaling.

p2003	Reference torque / Reference torque		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: 7_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.01 [Nm]	Max 20000000.00 [Nm]	Factory setting 1.00 [Nm]

Description: Sets the reference quantity for torques.
All torques specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

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:

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 / Reference power		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: 14_10	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]

Description: Displays the reference quantity for power ratings.
All power ratings specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: This value is calculated as follows:
 Infeed: Calculated from voltage times current.
 Closed-loop control: Calculated from torque times speed.
 Refer to: p2000, p2001, p2002, p2003

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.
 The reference power is calculated as follows:
 - $2 * \text{Pi} * \text{reference speed} / 60 * \text{reference torque (motor)}$
 - $\text{reference voltage} * \text{reference current} * \text{root}(3)$ (infeed)

p2005 Reference angle / Reference angle

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 90.00 [°]	Max 180.00 [°]	Factory setting 90.00 [°]

Description: Sets the reference quantity for angle.
 All angles specified as relative value are referred to this reference quantity.
 The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

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.

p2007 Reference acceleration / Ref accel

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.01 [rev/s ²]	Max 500000.00 [rev/s ²]	Factory setting 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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

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
 --> $p2007 = p2000 [\text{rpm}] / (60 [\text{s/min}] * 1 [\text{s}])$

r2019[0...7] Comm int error statistics / Comm err

CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the receive errors at the commissioning interface (RS232).

p2037	PROFIdrive STW1.10 = 0 mode / PD STW1.10=0 mode		
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 2	Factory setting 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: Setpoints are not frozen		
Recommend.:	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	PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: T Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1	Max 1	Factory setting 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:	Refer to: 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_COMBI, CU_I_SINUMERIK_828	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 3	Factory setting 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 / C INT t_monit		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 65535000 [ms]	Factory setting 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, an appropriate message is output.		
Dependency:	Refer to: F01910		
Note:	0: The monitoring is de-activated.		

r2043.0...2	BO: PROFIdrive PZD state / PD PZD state				
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned8	Dynamic index: -			
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the PROFIdrive PZD state.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Setpoint failure	Yes	No	
	01	Clock cycle synchronous operation active	Yes	No	
	02	Fieldbus running	Yes	No	
Dependency:	Refer to: p2044				
Note:	When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.				

p2044	PROFIdrive fault delay / PD fault delay		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [s]	Max 100 [s]	Factory setting 0 [s]
Description:	Sets the delay time to initiate fault F01910 after a setpoint failure. The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).		
Dependency:	Refer to: r2043 Refer to: F01910		

p2045	CI: PROFIdrive clock-cyc. synchr. master sign-of-life, signal source / PD mast-SoL S_src		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERIK K828	Can be changed: T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Connector input for the sign-of-life of the clock synchronous PROFIBUS/PROFINET master. 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 PROFIBUS/PROFINET master.		
Dependency:	Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1.00 [ms]	Max 16.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the sampling time for the cyclic interface 1 (IF1).		
Note:	For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).		
r2050[0...4]	CO: IF1 PROFIdrive PZD receive word / IF1 PZD rcv word		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: 4000H	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
Notice:	Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer16 or FloatingPoint32 data types.		
Note:	IF1: Interface 1		

r2050[0...19] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

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: Refer to: r2060

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer16 or FloatingPoint32 data types.

Note: IF1: Interface 1

p2051[0...7] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	Max	Factory setting
	-	-	0

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

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

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

Note: IF1: Interface 1

p2051[0...14]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		
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		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	IF1: Interface 1		

p2051[0...27]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
SERVO_COMBI, SERVO_SINUMERIK K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		

- 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: Refer to: p2061

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

Note: IF1: Interface 1

p2051[0...4] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

TM120	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	Max	Factory setting
	-	-	0

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

- 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...7] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

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

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...14] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

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

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

- 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: Refer to: p2051, p2061

Note: IF1: Interface 1

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

TM120	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD (actual values) with word format sent to the PROFIBUS master.

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_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 255	Factory setting -
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_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the configuration data received via COMM BOARD.		

r2059[0...7]	COMM INT identification data / C INT ident_dat		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output to interconnect PZD (setpoints) with double word format received from the PROFIBUS master.		

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: Refer to: r2050

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer32 or FloatingPoint32 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Selects the PZD (actual values) with double word format to be sent to the PROFIBUS master.

- 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: Refer to: p2051

Notice: A BICO interconnection for a single PZD can only take place either on r2051 or r2061.
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

r2063[0...26] IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW

SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
-	-	-	

Description: Displays the PZD (actual values) with double word format sent to the PROFIBUS/PROFINET master.

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]	PROFIdrive diagnostics clock synchronous mode / PD diag clock sync		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the last parameter received from the fieldbus master 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 master to the slave.		
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	PROFIdrive master sign-of-life, diagnostics / PD mast-SoL diag		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays how often the sign-of-life from the clock synchronous fieldbus master failed. An appropriate fault is output when the tolerance, specified in p0925, is exceeded.		
Dependency:	Refer to: F01912		

r2074[0...4]	IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr rcv		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
Note:	IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 65535: Not assigned		

r2074[0...19] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19 [19] = PZD 20		
Note:	IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 65535: Not assigned		

r2075[0...4] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PZD byte offset in the PROFIdrive receive telegram (master 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		

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master 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

r2076[0...7] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master 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

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

r2076[0...14] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master 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

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

r2076[0...27] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

SERVO_COMBI, SERVO_SINUMERIK K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16
- [16] = PZD 17
- [17] = PZD 18
- [18] = PZD 19
- [19] = PZD 20
- [20] = PZD 21
- [21] = PZD 22
- [22] = PZD 23
- [23] = PZD 24
- [24] = PZD 25
- [25] = PZD 26
- [26] = PZD 27
- [27] = PZD 28

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

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master 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

r2077[0...15] PROFIBUS diagnostics peer-to-peer data transfer addresses / PB diag peer addr			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the addresses of the slaves (peers) where peer-to-peer data transfer has been configured via PROFIBUS.		

p2079 PROFIdrive PZD telegram selection extended / PD PZD telegr ext			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	370	999	999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. 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.		
Value:	370: SIEMENS telegram 370, PZD-1/1 371: SIEMENS telegram 371, PZD-5/8 999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		

p2079 PROFIdrive PZD telegram selection extended / PD PZD telegr ext			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	390	999	999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. 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.		
Value:	390: SIEMENS telegram 390, PZD-2/2 391: SIEMENS telegram 391, PZD-3/7 392: SIEMENS telegram 392, PZD-3/15 999: Free telegram configuration with BICO		

p2079 PROFdrive PZD telegram selection extended / PD PZD telegr ext			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 999	Factory setting 999
Description:	<p>Sets the send and receive telegram.</p> <p>Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.</p> <p>For p0922 < 999 the following applies:</p> <p>p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.</p> <p>For p0922 = 999 the following applies:</p> <p>p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.</p> <p>For p0922 = 999 and p2079 < 999 the following applies:</p> <p>The interconnections contained in the telegram are inhibited. However, the telegram can be extended.</p>		
Value:	<p>1: Standard telegram 1, PZD-2/2</p> <p>2: Standard telegram 2, PZD-4/4</p> <p>3: Standard telegram 3, PZD-5/9</p> <p>4: Standard telegram 4, PZD-6/14</p> <p>5: Standard telegram 5, PZD-9/9</p> <p>6: Standard telegram 6, PZD-10/14</p> <p>102: SIEMENS telegram 102, PZD-6/10</p> <p>103: SIEMENS telegram 103, PZD-7/15</p> <p>105: SIEMENS telegram 105, PZD-10/10</p> <p>106: SIEMENS telegram 106, PZD-11/15</p> <p>116: SIEMENS telegram 116, PZD-11/19</p> <p>118: SIEMENS telegram 118, PZD-11/19</p> <p>125: SIEMENS telegram 125, PZD-14/10</p> <p>126: SIEMENS telegram 126, PZD-15/15</p> <p>136: SIEMENS telegram 136, PZD-15/19</p> <p>220: SIEMENS telegram 220, PZD-10/10</p> <p>999: Free telegram configuration with BICO</p>		
Dependency:	Refer to: p0922		

p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	<p>Selects bits to be sent to the fieldbus master.</p> <p>The individual bits are combined to form status word 1.</p>		

Index:

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

Dependency: Refer to: p2088, r2089

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

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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
-	-	0

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

Index:

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

Dependency: Refer to: p2088, r2089

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

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

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

AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 / Binary **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120

Min	Max	Factory setting
-	-	0

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

Index:

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

Dependency: Refer to: p2088, r2089

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

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

AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 / Binary **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120

Min	Max	Factory setting
-	-	0

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

Index:

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

Dependency: Refer to: p2088, r2089

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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
-	-	0

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

Index:

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

Dependency: Refer to: p2088, r2089

p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120

Min - **Max** - **Factory setting** 0000 bin

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index:
 [0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4
 [4] = Free status word 5

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	
	01	Bit 1	Inverted	Not inverted	
	02	Bit 2	Inverted	Not inverted	
	03	Bit 3	Inverted	Not inverted	
	04	Bit 4	Inverted	Not inverted	
	05	Bit 5	Inverted	Not inverted	
	06	Bit 6	Inverted	Not inverted	
	07	Bit 7	Inverted	Not inverted	
	08	Bit 8	Inverted	Not inverted	
	09	Bit 9	Inverted	Not inverted	
	10	Bit 10	Inverted	Not inverted	
	11	Bit 11	Inverted	Not inverted	
	12	Bit 12	Inverted	Not inverted	
	13	Bit 13	Inverted	Not inverted	
	14	Bit 14	Inverted	Not inverted	
	15	Bit 15	Inverted	Not inverted	

Dependency: Refer to: p2080, p2081, p2082, p2083, r2089

r2089[0...4] CO: Send binector-connector converter status word / Bin/con ZSW send

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120

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

Description: Connector output to interconnect the status words to a PZD send word.

Index:
 [0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4
 [4] = Free status word 5

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

Dependency: Refer to: p2051, p2080, p2081, p2082, p2083

Note: r2089 together with p2080 to p2084 forms five binector-connector converters.

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

AFE_SINUMERIK_8
 28,
 BIC_SINUMERIK_82
 8, CU_I_COMBI,
 CU_I_SINUMERIK_8
 28, CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

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

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

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120

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

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIBUS master.

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

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
 SERVO_SINUMERI **Data type:** Unsigned16 **Dynamic index:** -
 K828 **P-Group:** Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIBUS master.

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIBUS master.

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

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Binector output for bit-serial onward interconnection of a PZD word received from the fieldbus master.
The PZD is selected via p2099[0].

p2098[0...1] Inverter connector-binector converter binector output / Con/bin outp inv

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82, CU_I_COMBI, CU_I_SINUMERIK_828, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_828, TM120

Can be changed: U, T
Data type: Unsigned16
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min - **Max** - **Factory setting** 0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter. Using p2098[0], the signals of CI: p2099[0] are influenced. Using p2098[1], the signals of CI: p2099[1] are influenced.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	
	01	Bit 1	Inverted	Not inverted	
	02	Bit 2	Inverted	Not inverted	
	03	Bit 3	Inverted	Not inverted	
	04	Bit 4	Inverted	Not inverted	
	05	Bit 5	Inverted	Not inverted	
	06	Bit 6	Inverted	Not inverted	
	07	Bit 7	Inverted	Not inverted	
	08	Bit 8	Inverted	Not inverted	
	09	Bit 9	Inverted	Not inverted	
	10	Bit 10	Inverted	Not inverted	
	11	Bit 11	Inverted	Not inverted	
	12	Bit 12	Inverted	Not inverted	
	13	Bit 13	Inverted	Not inverted	
	14	Bit 14	Inverted	Not inverted	
	15	Bit 15	Inverted	Not inverted	

Dependency: Refer to: r2094, r2095, p2099

p2099[0...1] CI: Connector-binector converter signal source / Con/bin S_src

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82, CU_I_COMBI, CU_I_SINUMERIK_828, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_828, TM120

Can be changed: U, T
Data type: Unsigned32 / Integer16
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min - **Max** - **Factory setting** 0

Description: Sets the signal source for the connector-binector converter. A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r2094, r2095

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted. p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters:
 Connector input p2099[0] to binector output in r2094.0...15
 Connector input p2099[1] to binector output in r2095.0...15

p2100[0...19] Setting the fault number for fault response / F_no F response

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SIC_COMBI, SIC_SINUMERIK_82, TM120, TM54F_MA, TM54F_SL

Can be changed: U, T
Data type: Unsigned16
P-Group: Messages
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	65535	0

Description: Selects the faults for which the fault response should be changed
Dependency: The fault is selected and the required response is set under the same index.
 Refer to: p2101
Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:
 - if there is no existing fault number.
 - the message type is not "fault" (F).
 - when a fault is present.

p2100[0...19]	Setting the fault number for fault response / F_no F response		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting [0] 7841 [1] 0 [2] 0 [3] 0 [4] 0 [5] 0 [6] 0 [7] 0 [8] 0 [9] 0 [10] 0 [11] 0 [12] 0 [13] 0 [14] 0 [15] 0 [16] 0 [17] 0 [18] 0 [19] 0
	Min 0	Max 65535	

Description: Selects the faults for which the fault response should be changed

Dependency: The fault is selected and the required response is set under the same index.
Refer to: p2101

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:
- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

p2101[0...19]	Setting the fault response / Fault response		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 2	
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.		

p2101[0...19] Setting the fault response / Fault response

CU_I_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
 CU_I_SINUMERIK_8 **Data type:** Integer16 **Dynamic index:** -
 28, CU_LINK, **P-Group:** Messages **Units group:** - **Unit selection:** -
 CU_NX_828, HUB, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 TM120, TM54F_MA, **Min** **Max** **Factory setting**
 TM54F_SL 0 0 0

Description: Sets the fault response for the selected fault.
Value: 0: NONE
Dependency: The fault is selected and the required response is set under the same index.

p2101[0...19] Setting the fault response / Fault response

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
 SERVO_SINUMERIK828 **Data type:** Integer16 **Dynamic index:** -
 P-Group: Messages **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 0 7 [0] 3
 [1] 4
 [2] 4
 [3] 4
 [4] 4
 [5] 4
 [6] 4
 [7] 4
 [8] 4
 [9] 4
 [10] 4
 [11] 4
 [12] 4
 [13] 4
 [14] 4
 [15] 4
 [16] 4
 [17] 4
 [18] 4
 [19] 4

Description: Sets the fault response for the selected fault.
Value: 0: NONE
 1: OFF1
 2: OFF2
 3: OFF3
 4: STOP1 (being developed)
 5: STOP2
 6: IASC/DCBRAKE
 7: ENCODER (p0491)
Dependency: The fault is selected and the required response is set under the same index.
 Refer to: p2100
Notice: It is not possible to re-parameterize the response to a specific fault for faults that are already present (queued).

Note: The fault response can only be changed for faults with the appropriate identification (see the List Manual, chapter "Faults and alarms").

Example:

F12345 and fault response = OFF3 (OFF1, OFF2, NONE)

--> The default fault response OFF3 can be changed to OFF1, OFF2 or NONE.

Re value = 1 (OFF1):

Braking along the ramp-function generator down ramp followed by a pulse inhibit.

Re value = 2 (OFF2):

Internal/external pulse inhibit.

Re value = 3 (OFF3):

Braking along the OFF3 down ramp followed by a pulse inhibit.

Re value = 5 (STOP2):

n_set = 0

Re value = 6 (armature short-circuit, internal/DC brake):

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 brake is initiated.

Re value = 7 (ENCODER (p0491)):

The fault response set in p0491 is executed if applicable.

Note:

IASC: Internal armature short circuit

DCBRAKE: Direct current brake

p2102

BI: Acknowledge all faults / Ackn all faults

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	2090.7

Description: Sets the signal source to acknowledge all faults at all drive objects of the drive system.

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2103[0...n]

BI: 1. Acknowledge faults / 1. Acknowledge

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the first signal source to acknowledge faults.

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

Note: A fault acknowledgement is triggered with a 0/1 signal.

p2103	BI: 1. Acknowledge faults / 1. Acknowledge		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the first signal source to acknowledge faults.
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: A fault acknowledgement is triggered with a 0/1 signal.

p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the second signal source to acknowledge faults.
Note: A fault acknowledgement is triggered with a 0/1 signal.

p2104	BI: 2. Acknowledge faults / 2. Acknowledge		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the second signal source to acknowledge faults.
Note: A fault acknowledgement is triggered with a 0/1 signal.

p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the third signal source to acknowledge faults.
Note: A fault acknowledgement is triggered with a 0/1 signal.

p2105	BI: 3. Acknowledge faults / 3. Acknowledge		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the third signal source to acknowledge faults.
Note: A fault acknowledgement is triggered with a 0/1 signal.

p2106[0...n]	BI: External fault 1 / External fault 1		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for external fault 1.
Dependency: Refer to: 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	BI: External fault 1 / External fault 1		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for external fault 1.
Dependency: Refer to: 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[0...n]	BI: External fault 2 / External fault 2		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for external fault 2.
Dependency: Refer to: 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	BI: External fault 2 / External fault 2		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external fault 2.		
Dependency:	Refer to: 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[0...n]	BI: External fault 3 / External fault 3		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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:	Refer to: p3110, p3111, p3112 Refer to: 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	BI: External fault 3 / External fault 3		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p3110, p3111, p3112 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for external fault 3.
External fault 3 is initiated by the following AND logic operation:

- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: Refer to: p3110, p3111, p3112
Refer to: 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]	Fault time removed in milliseconds / t_fit resolved ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

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

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

r2110[0...63]	Alarm number / Alarm number		
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: This parameter is identical to r2122.

p2111	Alarm counter / Alarm counter		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	65535	0

Description: Number of alarms that have occurred after the last reset.

Dependency: When p2111 is set to 0, the following is initiated:
 - all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63].
 - the alarm buffer [0...7] is deleted.
 Refer to: r2110, r2122, r2123, r2124, r2125

Note: The parameter is reset to 0 at POWER ON.

p2112[0...n] BI: External alarm 1 / External alarm 1

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1

Description: Sets the signal source for external alarm 1.
Dependency: Refer to: A07850
Note: An external alarm is triggered with a 1/0 signal.

p2112 BI: External alarm 1 / External alarm 1

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1

Description: Sets the signal source for external alarm 1.
Dependency: Refer to: A07850
Note: An external alarm is triggered with a 1/0 signal.

r2114[0...1] System runtime / System runtime

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the total system runtime for the drive unit.
 The time comprises r2114[0] (milliseconds) and r2114[1] (days).
 After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented.

Index: [0] = Milliseconds
 [1] = Days

Dependency: Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146
Note: The time in r2114 is used to display the fault and alarm times.
 When the electronic power supply is switched out, the counter value is saved.
 After the drive unit is powered up, the counter continues to run with the value that was saved the last time that the drive unit was powered down.

p2116[0...n]	BI: External alarm 2 / External alarm 2		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for external alarm 2.
Dependency: Refer to: A07851
Note: An external alarm is triggered with a 1/0 signal.

p2116	BI: External alarm 2 / External alarm 2		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for external alarm 2.
Dependency: Refer to: A07851
Note: An external alarm is triggered with a 1/0 signal.

p2117[0...n]	BI: External alarm 3 / External alarm 3		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for external alarm 3.
Dependency: Refer to: A07852
Note: An external alarm is triggered with a 1/0 signal.

p2117	BI: External alarm 3 / External alarm 3		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1

Min	Max	Factory setting
-	-	1

Description: Sets the signal source for external alarm 3.
Dependency: Refer to: A07852
Note: An external alarm is triggered with a 1/0 signal.

p2118[0...19] Sets the message number for message type. / Msg_no Msg_type

All objects **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 65535 0

Description: Selects faults or alarms for which the message type should be changed.
Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
Refer to: p2119
Notice: It is not possible to re-parameterize the message type in the following cases:
- if there is no existing message number.
- if a message is present.

p2119[0...19] Setting the message type / Message type

All objects **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
1 3 1

Description: Sets the message type for the selected fault or alarm.
Value: 1: Fault (F)
 2: Alarm (A)
 3: No message (N)
Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
Refer to: p2118
Notice: It is not possible to re-parameterize the message type for the existing faults or alarms.
Note: The message type can only be changed for messages with the appropriate identification.
Example:
F12345(A) --> Fault F12345 can be changed to alarm A12345.
In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

r2120 CO: Sum of fault and alarm buffer changes / Sum buffer changed

All objects **Can be changed:** - **Calculated:** - **Access level:** 4
Data type: Unsigned16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the sum of all of the fault and alarm buffer changes in the drive unit.
Dependency: Refer to: r0944, r2121

r2121	CO: Counter, alarm buffer changes / Alrm buff changed		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: This counter is incremented every time the alarm buffer changes.

Dependency: Refer to: r2110, r2122, r2123, r2124, r2125

r2122[0...63]	Alarm code / Alarm code		
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of alarms that have occurred.

Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123

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

Alarm buffer structure (general principle):

r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)

...

r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)

When the alarm buffer is full, the alarms that have gone are entered into the alarm history:

r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)

...

r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2123[0...63]	Alarm time received in milliseconds / t_alarm rcv ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

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

Dependency: Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123

Notice: The time comprises r2145 (days) and r2123 (milliseconds).

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

The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2124[0...63]	Alarm value / Alarm value		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays additional information about the active alarm (as integer number).

Dependency: Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
 The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2125[0...63] Alarm time removed in milliseconds / t_alarm res ms

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the system runtime in milliseconds when the alarm was cleared.
Dependency: Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123
Notice: The time comprises r2146 (days) and r2125 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
 The structure of the alarm buffer and the assignment of the indices is shown in r2122.

p2126[0...19] Setting fault number for acknowledge mode / Fault_no ackn_mode

All objects **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 0 65535 0

Description: Selects the faults for which the acknowledge mode is to be changed
Dependency: Selects the faults and sets the required acknowledge mode realized under the same index
 Refer to: p2127
Notice: It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:
 - if there is no existing fault number.
 - the message type is not "fault" (F).
 - when a fault is present.

p2127[0...19] Sets acknowledgement mode / Acknowledge mode

All objects **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 1 3 1

Description: Sets the acknowledge mode for selected fault.
Value: 1: Acknowledgment only using POWER ON
 2: Ack IMMEDIATELY after the fault cause has been removed
 3: Acknowledgement only for PULSE INHIBIT
Dependency: Selects the faults and sets the required acknowledge mode realized under the same index
 Refer to: p2126
Notice: It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:
 - if there is no existing fault number.
 - the message type is not "fault" (F).
 - when a fault is present.

Note: The acknowledge mode can only be changed for faults with the appropriate identification.
 Example:
 F12345 and acknowledge mode = IMMEDIATE (POWER ON)
 --> The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

p2128[0...15] Selecting fault/alarm code for trigger / Message trigger

All objects **Can be changed:** U, T **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 0 65535 0

Description: Selects faults or alarms which can be used as trigger.
Dependency: Refer to: r2129

r2129.0...15 CO/BO: Trigger word for faults and alarms / Trigger word

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Trigger signal for the selected faults and alarms

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 one of the faults or alarms selected in p2128[n] occurs, then the particular bit of this binector output is set.
 Refer to: p2128

Note: CO: r2129 = 0 --> None of the selected messages has occurred.
 CO: r2129 > 0 --> At least one of the selected messages has occurred.

r2130[0...63] Fault time received in days / t_fault rcv days

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

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

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2130 (days) and r0948 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2131	CO: Actual fault code / Actual fault code		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the code of the oldest active fault.		
Note:	0: No fault present.		

r2132	CO: Actual alarm code / Actual alarm code		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the code of the last alarm that occurred.		
Note:	0: No alarm present.		

r2133[0...63]	Fault value for float values / Fault val float		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays additional information about the fault that occurred for float values.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136, r3115		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		

r2134[0...63]	Alarm value for float values / Alarm value float		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays additional information about the active alarm for float values.		
Dependency:	Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146, r3121, r3123		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		

r2135.0...15	CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2		
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays 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	
	10	Fault transformer overtemperature	Yes	No	
	11	Alarm transformer overtemperature	Yes	No	
	12	Fault motor overtemperature	Yes	No	
	13	Fault power unit thermal overload	Yes	No	
	14	Alarm motor overtemperature	Yes	No	
	15	Alarm power unit thermal overload	Yes	No	

r2136[0...63]	Fault time removed in days / t_flt resolv. days		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the system runtime in days when the fault was removed.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133, r3115, r3120, r3122

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

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

r2138.7...15	CO/BO: Control word faults/alarms / STW fault/alarm		
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the control word of the faults and alarms.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	07	Acknowledge fault	Yes	No	
	10	External alarm 1 (A07850) effective	Yes	No	
	11	External alarm 2 (A07851) effective	Yes	No	
	12	External alarm 3 (A07852) effective	Yes	No	
	13	External fault 1 (F07860) effective	Yes	No	
	14	External fault 2 (F07861) effective	Yes	No	
	15	External fault 3 (F07862) effective	Yes	No	

Dependency: Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2139.0...12 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

All objects **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dynamic index:** -
P-Group: Displays, signals **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Displays the first status word 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	
	05	Safety message present	Yes	No	
	06	Internal message 1 present	Yes	No	
	07	Alarm present	Yes	No	
	08	Internal message 2 present	Yes	No	
	11	Alarm class bit 0	High	Low	
	12	Alarm class bit 1	High	Low	

Note: Re bit 03, 05, 07:
 These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present"/"alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).
 Re bit 06, 08:
 These status bits are used for internal diagnostic purposes only.
 Re bit 11, 12:
 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_COMBI, **Can be changed:** U, T **Calculated:** **Access level:** 3
 SERVO_SINUMERI **CALC_MOD_LIM_REF**
 K828 **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
P-Group: Messages **Units group:** 3_1 **Unit selection:** p0505
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 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: Refer to: p2155, r2197

p2141[0...n] Speed threshold 1 / n_thresh val 1

SERVO_COMBI, **Can be changed:** U, T **Calculated:** **Access level:** 3
 SERVO_SINUMERI **CALC_MOD_LIM_REF**
 K828 **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
P-Group: Messages **Units group:** 3_1 **Unit selection:** p0505
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 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: Refer to: p2142, r2199

p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 300.00 [rpm]	Factory setting 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:	Refer to: p2141, r2199		
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable (0 = enable) of the motor stall monitoring.		
Dependency:	Refer to: p2163, p2164, p2166, r2197, r2198 Refer to: F07900		
Note:	If the enable signal is connected to 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 rcv days		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the system runtime in days when the alarm occurred.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146, r3121, r3123		
Notice:	The time comprises r2145 (days) and r2123 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
r2146[0...63]	Alarm time removed in days / t_alarm res days		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the system runtime in days when the alarm was cleared.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145, r3121, r3123		
Notice:	The time comprises r2146 (days) and r2125 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		

p2147 Delete fault buffer of all drive objects / Del fault buffer

CU_I_COMBI, CU_I_SINUMERIK_828, CU_NX_828

Can be changed: U, T **Calculated:** - **Access level:** 4

Data type: Integer16 **Dynamic index:** -

P-Group: Displays, signals **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**

0 1 0

Description: Setting to delete the fault buffer of all existing drive objects.

Value: 0: Inactive
1: Start to delete the fault buffer of all drive objects

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

Note: p2147 is automatically set to 0 after execution.

p2148[0...n] BI: Ramp-function generator active / HLG active

SERVO_COMBI, SERVO_SINUMERIK828

Can be changed: U, T **Calculated:** CALC_MOD_LIM_REF **Access level:** 3

Data type: Unsigned32 / Binary **Dynamic index:** CDS

P-Group: Messages **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**

- - 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 is only made when the function module "setpoint channel" is activated (r0108.8 = 1).

p2149[0...n] Monitoring configuration / Monit config

SERVO_COMBI, SERVO_SINUMERIK828

Can be changed: U, T **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dynamic index:** DDS, p0180

P-Group: Messages **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**

- - 0000 bin

Description: Configuration word for signals and monitoring functions.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Enable alarm A07903	Yes	No	
01	Load monitoring only in the 1st quadrant	Yes	No	
03	n_act > p2155 own hysteresis	Yes	No	
15	Automatic parameterization carried out (p0340 = 1, p3900 > 0)	Yes	No	

Dependency: Refer to: r2197
Refer to: A07903

Note:

Re bit 00:
Alarm A07903 is output when the bit is set with $r2197.7 = 0$ ($n_set \neq n_act$).

Re 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).

Re bit 03:
When the bit is set, r2197 bit 1 and bit 2 are determined via separate hystereses.

Re 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] Hysteresis speed 3 / n_hysteresis 3

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 300.00 [rpm]	Factory setting 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: Refer to: p2161, r2197, r2199

p2151[0...n] Cl: Speed setpoint for messages/signals / n_set for msg

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min -	Max -	Factory setting 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: Refer to: r2197, r2198, r2199

p2153[0...n] Speed actual value filter time constant / n_act_filt T

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 1000000 [ms]	Factory setting 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: Refer to: r2169

p2154[0...n]	CI: Speed setpoint 2 / n_set 2		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: CDS Units group: - Scaling: p2000 Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for speed setpoint 2. The sum of CI: p2151 and CI: p2154 is used for the following messages/signals: "Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7) "Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4) "Ramp-up/ramp-down completed" (BO: r2199.5)		
Dependency:	Refer to: p2151, r2197, r2199		
p2155[0...n]	Speed threshold 2 / n_thresh val 2		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: - Min 0.00 [rpm]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1 Scaling: - Max 210000.00 [rpm]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting 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:	Refer to: p2140, r2197		
p2156[0...n]	On delay, comparison value reached / t_on cmpr val rchd		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: - Min 0.0 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Scaling: - Max 10000.0 [ms]	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0.0 [ms]
Description:	Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).		
Dependency:	Refer to: p2141, p2142, r2199		
p2161[0...n]	Speed threshold 3 / n_thresh val 3		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: - Min 0.00 [rpm]	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1 Scaling: - Max 210000.00 [rpm]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting 5.00 [rpm]
Description:	Sets the speed threshold value for the signal " n_act < speed threshold value 3" (BO: r2199.0).		
Dependency:	Refer to: p2150, r2199		

p2162[0...n]	Hysteresis speed $n_{act} > n_{max}$ / Hyst $n_{act} > n_{max}$		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 60000.00 [rpm]	Factory setting 0.00 [rpm]
Description:	Sets the hysteresis speed (bandwidth) for the signal " $n_{act} > n_{max}$ " (BO: r2197.6).		
Dependency:	Refer to: 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.		
p2163[0...n]	Speed threshold 4 / n_{thresh} val 4		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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:	Refer to: p2164, p2166, r2197		
p2164[0...n]	Hysteresis speed 4 / $n_{hysteresis}$ 4		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 200.00 [rpm]	Factory setting 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:	Refer to: p2163, p2166, r2197		

p2166[0...n] **Off delay n_act = n_set / t_del_off n_i=n_so**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 2
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
K828 **P-Group:** Messages **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.0 [ms] 10000.0 [ms] 200.0 [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: Refer to: p2163, p2164, r2197

p2167[0...n] **Switch-on delay n_act = n_set / t_on n_act=n_set**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 2
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
K828 **P-Group:** Messages **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.0 [ms] 10000.0 [ms] 200.0 [ms]

Description: Sets the switch-on delay for the "speed setpoint - actual value deviation in tolerance t_on" signal/message (BO: r2199.4).

r2169 **CO: Actual speed smoothed signals / n_act smth message**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 2
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Messages **Units group:** 3_1 **Unit selection:** p0505
 Not for motor type: - **Scaling:** p2000 **Expert list:** 1

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

Description: Displays the smoothed actual speed for messages/signals.

Dependency: Refer to: p2153

p2174[0...n] **Torque threshold value 1 / M_thresh val 1**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 2
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
K828 **P-Group:** Messages **Units group:** 7_1 **Unit selection:** p0505
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.00 [Nm] 20000000.00 [Nm] 5.13 [Nm]

Description: Sets the torque threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).

Dependency: Refer to: p2195, r2198

p2175[0...n] **Motor locked speed threshold / Mot lock n_thresh**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** **Access level:** 3
SERVO_SINUMERI CALC_MOD_LIM_REF
K828 **Data type:** FloatingPoint32 **Dynamic index:** DDS, p0180
 P-Group: Messages **Units group:** 3_1 **Unit selection:** p0505
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.00 [rpm] 210000.00 [rpm] 120.00 [rpm]

Description: Sets the speed threshold for the message "Motor locked" (BO: r2198.6).

Dependency: Refer to: p0500, p2177, r2198

p2177[0...n]	Motor locked delay time / Mot lock t_{del}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 65.000 [s]	Factory setting 1.000 [s]

Description: Sets the delay time for the message "Motor locked" (BO: r2198.6).
If "Motor locked" is identified within this time, then ZSW2.6 is set and an appropriate fault is output.

Dependency: Refer to: p0500, p2175, r2198

p2194[0...n]	Torque threshold value 2 / M_{thresh} val 2		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 90.00 [%]

Description: Sets the torque/force threshold value for the signal "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: Refer to: r0033, p2195, r2199

p2195[0...n]	Torque utilization switch-off delay / M_{util} t_{off}		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 800.0 [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: Refer to: p2174, p2194

p2196[0...n]	Torque utilization scaling / M_{util} scal		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 3), U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]

Description: Sets the scaling factor for torque utilization (r0033).

r2197.1...7					
CO/BO: Status word monitoring 1 / ZSW monitor 1					
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the first status word for monitoring functions.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	n_act <= speed threshold value 2	Yes	No	
	02	n_act > speed threshold value 2	Yes	No	
	03	n_act >= 0	Yes	No	
	06	n_act > n_max	Yes	No	
	07	Speed setp - act val deviation in tolerance t_off	Yes	No	
Note:	Re bit 01, 02: The threshold value is set in p2155 and the hysteresis in p2140. Re bit 03: The hysteresis is set in p2150. Re bit 06: The hysteresis is set in p2162. Re bit 07: The threshold value is set in p2163 and the hysteresis is set in p2164.				

r2198.4...12					
CO/BO: Status word monitoring 2 / ZSW monitor 2					
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the second status word for monitoring functions.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	n_set < p2161	Yes	No	
	05	n_set > 0	Yes	No	
	06	Motor locked	Yes	No	
	10	M_set < torque threshold value 1	Yes	No	
	11	Load monitoring signals an alarm	Yes	No	
	12	Load monitoring signals a fault condition	Yes	No	
Note:	Re bit 07: For servo drives, bit 07 is not used and is always inactive. Re bit 10: The torque threshold value 1 is set in p2174. Re bit 12: If the fault condition is removed, bit 12 is reset to 0. This is also the case even if the alarm message is still present.				

r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3

SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the third status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	n_act < speed threshold value 3	Yes	No	
	01	f or n comparison value reached or exceeded	Yes	No	
	04	Speed setp - act val deviation in tolerance t_on	Yes	No	
	05	Ramp-up/ramp-down completed	Yes	No	
	06	Current below the zero current threshold	Yes	No	
	11	Torque utilization < torque threshold value 2	Yes	No	

Note: Re bit 00:
The speed threshold value 3 is set in p2161.
Re 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 will never be reset.
Re bit 11:
The torque threshold value 2 is set in p2194.

r2700 CO: Reference frequency / f_ref

AFE_SINUMERIK_828, BIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Display and connector output of the current reference quantity for the frequency (p2000).
All frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
This parameter has the unit Hz.

Dependency: Refer to: p2000

Note: This 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.

r2700 CO: Reference speed/reference frequency / n_ref/f_ref

SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
The following applies: Reference frequency (in Hz) = reference speed (in rpm) / 60
This parameter has the unit rpm.

Dependency: Refer to: p2000
Note: This 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.

r2700 CO: Reference frequency, current / f_ref act

SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Display and connector output of the current reference quantity for the frequency (p2000).
 All frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
 This parameter has the unit Hz.

Dependency: Refer to: p2000
Note: This 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.

r2701 CO: Reference voltage / Reference voltage

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
 This parameter has the unit Vrms.

Dependency: Refer to: p2001
Note: This 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.

r2702 CO: Reference current / Reference current

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.
 This parameter has the unit Arms.

Dependency: Refer to: p2002

Note: This 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.

r2703 CO: Reference torque / Reference torque

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Connector output of the reference quantity p2003 for torque (r0108.12 = 0) or force (r0108.12 = 1). All torques specified as relative values (r0108.12 = 0) or forces (r0108.12 = 1) are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The unit of this parameter is the same as the unit selected for p2003.

Dependency: p0505, r0108.12
Refer to: p2003

Note: This 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.

r2704 CO: Reference power / Reference power

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Connector output of the reference quantity for powers p2004. All power ratings specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The unit of this parameter is the same as the unit selected for p2004.

Dependency: This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls.
Refer to: r2004


Note: This 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.

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	
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output of the reference quantity for angles p2005. All angles specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. This parameter has the unit degree.		
Dependency:	Refer to: p2005		
Note:	This 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.		

r2706		CO: Reference temperature / Reference temp	
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK828, SIC_COMBI, SIC_SINUMERIK_828, TM120	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output of the reference quantity for temperatures. All temperatures specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. This parameter has the unit degree Celsius.		
Note:	This 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.		

r2707		CO: Reference acceleration / Ref accel	
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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 in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The unit of this parameter is the same as the unit selected for p2007.		
Dependency:	r0108.12, p0505 Refer to: p2007		
Note:	This 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.		

p2720[0...n]	Load gear configuration / Load gear config				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 4)	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: DDS, p0180			
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting 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]	Load gear, rotary absolute gearbox, revolutions, virtual / Abs rot rev				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 4)	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: DDS, p0180			
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min 0	Max 4194303	Factory setting 0		
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gear.				
Dependency:	This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gear (p2720.0 = 1).				
Note:	The resolution that is set must be able to be represented using r2723.				
	For rotary axes/modulo axes, the following applies:				
	This parameter is pre-set with p0421 and can be changed.				
	For linear axes, the following applies:				
	This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.				
p2722[0...n]	Load gear, position tracking tolerance window / Pos track tol				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(1, 4)	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180			
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min 0.00	Max 4294967300.00	Factory setting 0.00		
Description:	Sets a tolerance window for position tracking.				
	After the system is powered up, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:				
	Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.				
	Difference outside the tolerance window --> An appropriate message is output.				
	Rotation, e.g. through a complete encoder range is not detected.				
Caution:					
					

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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the absolute value after the load gear.
Notice: The encoder position actual value must be requested using the encoder control word Gn_STW.13.
Note: The increments are displayed in the format the same as r0483.

r2724[0...n]	CO: Load gear position difference / Load gear pos diff		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: DDS, p0180	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the position difference before the load gear between powering down and powering up.
Note: The increments are displayed in the same format as for r0483/r2723.
 If the measuring gear of the motor encoder is not activated, the position difference should be read in encoder increments.
 If the measuring gear of the motor encoder is activated, the position difference is converted using the measuring gear factor.

p2810[0...1]	BI: AND logic operation inputs / AND inputs		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal sources for the inputs of the AND logic operation.
Dependency: Refer to: r2811
Note: [0]: AND logic operation, input 1 --> the result is displayed in r2811.0.
 [1]: AND logic operation, input 2 --> the result is displayed in r2811.0.

r2811.0	CO/BO: AND logic operation result / AND result			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the result of the AND logic operation			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	AND logic operation result	Yes	No
Dependency:	Refer to: p2810			
p2816[0...1]	BI: OR logic operation inputs / OR inputs			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Unsigned32 / Binary	Dynamic index: -		
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal sources for the inputs of the OR logic operation.			
Dependency:	Refer to: r2817			
Note:	[0]: OR logic operation, input 1 --> the result is displayed in r2817.0. [1]: OR logic operation, input 2 --> the result is displayed in r2817.0.			
r2817.0	CO/BO: OR logic operation result / OR result			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the result of the OR logic operation.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	OR logic operation result	Yes	No
Dependency:	Refer to: p2816			
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180		
	P-Group: Free function blocks	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: PERCENT	Expert list: 1	
	Min	Max	Factory setting	
	-10000.00 [%]	10000.00 [%]	0.00 [%]	
Description:	Sets a fixed percentage.			
Dependency:	Refer to: p2901, p2930			
Notice:	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.			
Note:	The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)			

p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Free function blocks	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min -10000.00 [%]	Max 10000.00 [%]	Factory setting 0.00 [%]
Description:	Sets a fixed percentage.		
Dependency:	Refer to: p2900, p2930		
Notice:	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
Note:	The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)		

r2902[0...14]	CO: Fixed values [%] / Fixed values [%]		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Free function blocks	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Signal sources for frequently used percentage values.		
Index:	[0] = Fixed value +0 % [1] = Fixed value +5 % [2] = Fixed value +10 % [3] = Fixed value +20 % [4] = Fixed value +50 % [5] = Fixed value +100 % [6] = Fixed value +150 % [7] = Fixed value +200 % [8] = Fixed value -5 % [9] = Fixed value -10 % [10] = Fixed value -20 % [11] = Fixed value -50 % [12] = Fixed value -100 % [13] = Fixed value -150 % [14] = Fixed value -200 %		
Dependency:	Refer to: p2900, p2901, p2930		
Note:	The signal sources can, for example, be used to interconnect scalings.		

p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Free function blocks	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min -100000.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets a fixed value for torque.		
Dependency:	Refer to: p2900, p2901		
Notice:	A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.		
Note:	The value can, for example, be used to interconnect a supplementary torque.		

p3016	Motld torque constant identified / kT ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 28_1 Scaling: -	Access level: 3 Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm/A]	Max 100.00 [Nm/A]	Factory setting 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:	Refer to: p0316, r0334, r1937, p1960		
p3017	Motld voltage constant identified / kE ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0 [Vrms]	Max 10000.0 [Vrms]	Factory setting 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:	Refer to: p0317, r1938, p1960		
p3020	Motld magnetizing current identified / I_mag ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 5000.000 [Arms]	Factory setting 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:	Refer to: p0320, r0331, p1910, r1948, p1960		
p3027	Motld optimum load angle identified / phi_load opt ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0 [°]	Max 135.0 [°]	Factory setting 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:	Refer to: p0327, r1947, p1960		

p3028 Motld reluctance torque constant identified / kT_reluct ident

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T **Calculated:** CALC_MOD_ALL **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** -

P-Group: Motor identification **Units group:** - **Unit selection:** -

Not for motor type: ASM, REL, FEM **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 -1000.00 [mH] 1000.00 [mH] 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: Refer to: p0328, r1939, p1960

p3030 Motld angular commutation offset identified / Ang_com offset

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T **Calculated:** CALC_MOD_ALL **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** -

P-Group: Motor identification **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 -180.00 [°] 180.00 [°] 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: Refer to: p0431, p1910, p1960, r1984

p3031 Motld encoder inversion actual value identified / EnclnvActVal ident

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T **Calculated:** CALC_MOD_ALL **Access level:** 3

Data type: Unsigned16 **Dynamic index:** -

P-Group: Motor identification **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 - - 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	FP
00	Invert speed actual value	Yes	No	
01	Invert position actual value	Yes	No	

Dependency: Refer to: p0410, p1910, p1960

p3041 Motld moment of inertia identified / M_inertia ident

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T **Calculated:** CALC_MOD_ALL **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** -

P-Group: Motor identification **Units group:** 25_1 **Unit selection:** p0100

Not for motor type: REL **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 0.000000 [kgm²] 100000.000000 [kgm²] 0.000000 [kgm²]

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: Refer to: p0341, p1960, r1969

p3042	MotId load moment of inertia identified / Load mom ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 25_1 Scaling: -	Access level: 3 Unit selection: p0100 Expert list: 1
	Min 0.00000 [kgm ²]	Max 100000.00000 [kgm ²]	Factory setting 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:	Refer to: p0342, p1498, p1960, r1969		
Note:	For p1910/p1960 = -3, p0342 is set to 1 (ratio between the total and motor).		
p3049[0...n]	MotId Speed at start of field weakening identified / ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00000 [rpm]	Max 210000.00000 [rpm]	Factory setting 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:	Refer to: p0348, p1910, p1960		
p3050[0...n]	MotorId stator resistance identified / R_stator ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 16_1 Scaling: -	Access level: 3 Unit selection: p0349 Expert list: 1
	Min 0.00000 [Ohm]	Max 2000.00000 [Ohm]	Factory setting 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:	Refer to: p0350, p1910, r1912		
p3054[0...n]	MotId rotor resistance identified / R_rotor ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 16_1 Scaling: -	Access level: 3 Unit selection: p0349 Expert list: 1
	Min 0.00000 [Ohm]	Max 300.00000 [Ohm]	Factory setting 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:	Refer to: p0354, p0625, p1910, r1927, p1960		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

p3056[0...n] Motld stator leakage inductance identified / L_stator leak

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	
P-Group: Motor identification	Units group: 15_1	Unit selection: p0349
Not for motor type: -	Scaling: -	Expert list: 1
Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 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: Refer to: p0356, p1910, r1932

p3058[0...n] Motld rotor leakage inductance identified / L_rotor leak

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	
P-Group: Motor identification	Units group: 15_1	Unit selection: p0349
Not for motor type: PEM, REL	Scaling: -	Expert list: 1
Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 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: Refer to: p0358, p1910, r1932

p3060[0...n] Motld magnetizing inductance identified / Motld Lh ident

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: MDS, p0130	
P-Group: Motor identification	Units group: 15_1	Unit selection: p0349
Not for motor type: PEM, REL	Scaling: -	Expert list: 1
Min 0.00000 [mH]	Max 10000.00000 [mH]	Factory setting 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: Refer to: p0360, p1910, r1936, p1960

p3080 Motld flux controller P gain identified / Flux ctrl Kp ident

SERVO_COMBI, SERVO_SINUMERI K828

Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Motor identification	Units group: -	Unit selection: -
Not for motor type: PEM, REL	Scaling: -	Expert list: 1
Min 0.0 [A/Vs]	Max 999999.0 [A/Vs]	Factory setting 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: Refer to: p1590, p1910

p3081	MotId flux controller integral time identified / Flux ctrl Tn ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 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:	Refer to: p1592, p1910		
p3082	MotId current controller P gain identified / I_ctrl Kp ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 18_1 Scaling: -	Access level: 3 Unit selection: p0505 Expert list: 1
	Min 0.000 [V/A]	Max 100000.000 [V/A]	Factory setting 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:	Refer to: p1715, p1910		
p3083	MotId current controller integral time identified / I_ctrl Tn ident		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 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:	Refer to: p1717, p1910		
p3088	MotId Motor model changeover speed operation with encoder ident. / MotMod n_chgSnsorI		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00000 [rpm]	Max 210000.00000 [rpm]	Factory setting 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:	Refer to: p1752, p1910		

p3100	RTC time stamp mode / RTC t_stamp mode		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the mode for the time stamp p3100 = 0: Time stamp, operating hours p3100 = 1: Time stamp, UTC format		
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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
Description:	Setting the UTC time. This means that the drive system is synchronized to the time specified by the time master. To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted. p3101[0]: Milliseconds p3101[1]: Days		

r3102[0...1]	RTC read UTC time / RTC read UTC		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the current UTC time in the drive system. p3102[0]: Milliseconds p3102[1]: Days		

p3103	RTC synchronization source / RTC sync_source		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the synchronization source/technique.		
Value:	0: PROFIBUS 1: PROFINET 2: PPI 3: PROFINET PTP		

p3104	BI: RTC real time synchronization PING / RTC PING		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the PING event to set the UTC time.

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

r3108[0...1]	RTC last synchronization deviation / RTC sync_dev		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	1000 [ms]	100 [ms]

Description: Sets the tolerance window for time synchronization.

When this tolerance window is exceeded, an appropriate alarm is output.

Dependency: Refer to: A01099

p3110	External fault 3, power-up delay / Ext fault 3 t_on		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	1000 [ms]	0 [ms]

Description: Sets the delay time for external fault 3.

Dependency: Refer to: p2108, p3111, p3112

Refer to: F07862

p3111[0...n]	BI: External fault 3, enable / Ext fault 3 enab		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 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:	Refer to: p2108, p3110, p3112 Refer to: F07862		

p3111	BI: External fault 3, enable / Ext fault 3 enab		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3112 Refer to: F07862		

p3111[0...n]	BI: External fault 3, enable / Ext fault 3 enab		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3112 Refer to: F07862		

p3112[0...n]	BI: External fault 3 enable negated / Ext flt 3 enab neg		
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SERVO_COMBI, SERVO_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3111 Refer to: F07862		
p3112	BI: External fault 3 enable negated / Ext flt 3 enab neg		
CU_I_COMBI, CU_I_SINUMERIK_828, CU_LINK, CU_NX_828, HUB, TM120, TM54F_MA, TM54F_SL	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable signal of external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: p2108, p3110, p3111 Refer to: F07862		
r3113.0...15	CO/BO: NAMUR message bit bar / NAMUR bit bar		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the status of NAMUR signal bit bar. The faults or alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fault drive converter data electronics / software error	Yes	No	
	01	Line supply 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 internal communications	Yes	No	
	11	Infeed fault	Yes	No	
	15	Other faults	Yes	No	

r3114.9...11 CO/BO: Messages status word global / Msg ZSW global

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the global status word for messages.
The appropriate bit is set if at least one message is present at the drive objects.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	09	Alarm present	Yes	No	
	10	Fault present	Yes	No	
	11	Safety message present	Yes	No	

Note: The status bits are displayed with delay.

r3115[0...63] Fault drive object initiating / F DO initiating

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the drive object number of the initiating drive object for this fault as integer number.
Value = 63:

The fault was initiated by the drive object itself.

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

p3116	BI: Acknowledgement automatically suppressed / Ackn suppress		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the automatic acknowledgement on the device drive object. BI: p3116 = 1 signal Faults present are not automatically acknowledged on the device drive object. Local device faults are not forwarded. 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.		
Dependency:	Refer to: p2102, p2103, p2104, p2105, p3981		
Note:	When selecting a standard telegram, the BICO interconnection for control signal STW1.10 (master control by PLC) is automatically established.		
p3117	Change safety message type / Ch. SI mess type		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned32 P-Group: Messages Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Scaling: - Max 1	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
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 number fault / Comp_num flt		
All objects	Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the component number of the fault which has occurred.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3122		
Note:	Value = 0: Assignment to a component not possible. The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945.		

r3121[0...63] Component number alarm / Comp_num alarm

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the component number of the alarm which has occurred.
Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3123
Note: Value = 0: Assignment to a component not possible.
The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r3122[0...63] Diagnostic attribute fault / Diag_attr fault

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the diagnostic attribute of the fault which has occurred.

Bit field: **Bit** **Signal name** **1 signal** **0 signal** **FP**
00 Hardware replacement recommended Yes No

Dependency: Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r3123[0...63] Diagnostic attribute alarm / Diag_attr alarm

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the diagnostic attribute of the alarm which has occurred.

Bit field: **Bit** **Signal name** **1 signal** **0 signal** **FP**
00 Hardware replacement recommended Yes No

Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146
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.

r3131 CO: Current fault value / Current flt value

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Integer32 **Dynamic index:** -
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the fault value of the oldest active fault.

p3135 Suppress active fault / Supp act flt

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: U, T
Data type: Unsigned32
P-Group: Messages
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 4
Unit selection: -
Expert list: 1

Min - **Max** - **Factory setting** 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: Refer to: p0491, r2139

Note: Depending on the suppression of a fault reaction in this parameter, r2139.1 "Acknowledgement required" is set when at least one fault occurs.

Re bit 08:

The suppression is only effective if p0491 = 1.

p3235 Phase failure signal motor monitoring time / Ph_fail t_monit

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: U, T
Data type: FloatingPoint32
P-Group: Messages
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 4
Unit selection: -
Expert list: 1

Min 0 [ms] **Max** 2000 [ms] **Factory setting** 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. The function can be switched out with p3235 = 0. For vector drives:

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

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: U, T
Data type: Unsigned8
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

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

p3291 **CI: Variable signaling function signal source / Var sig S_src**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned32 / Integer16 **Dynamic index:** -
K828 **P-Group:** - **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
- - 0


Description: Sets the signal source for the variable signaling function.
Dependency: Refer to: p3292, p3293
Note: Re p3291 = 1:
 In this case, the signal source is defined using p3292 and p3293.

p3292 **Variable signaling function signal source address / Var sig S_src addr**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 4
SERVO_SINUMERI **Data type:** Unsigned32 **Dynamic index:** -
K828 **P-Group:** - **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0000 hex FFFF FFFF hex 0000 hex

Description: Sets the address of the signal source for the variable signaling function.
Dependency: Refer to: p3291
Caution: If an incorrect address and data type are set, then this can cause the software to crash.



Note: This parameter should only be set for p3291 = 1.


p3293 **Variable signaling function signal source data type / Var sig S_src type**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 4
SERVO_SINUMERI **Data type:** Integer16 **Dynamic index:** -
K828 **P-Group:** - **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
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: Refer to: p3291
Caution: If an incorrect address and data type are set, then this can cause the software to crash.



Note: This parameter should only be set for p3291 = 1.

r3294	BO: Variable signaling function output signal / Var sig outp_sig		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the output signal for the variable signaling function.

Dependency: Refer to: p3290, p3291, p3295, p3296, p3297, p3298

p3295	Variable signaling function threshold value / Var sig thresh_val		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-340.28235E36	340.28235E36	0.000

Description: Sets the threshold value for the variable signaling function.

p3296	Variable signaling function hysteresis / Var sig hyst		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.000	340.28235E36	0.000

Description: Sets the hysteresis for the variable signaling function.

p3297	Variable signaling function pickup delay / Var sig t_pickup		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the pickup delay for the variable signaling function.

Notice: Values that do not comply with the following condition are treated just like value 0:

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	Variable signaling function dropout delay / Var sig t_dropout		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the dropout delay for the variable signaling function.

Notice: Values that do not comply with the following condition are treated just like value 0:
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 **Variable signaling function, sampling time / Var sig t_sample**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 3
 SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
 K828 **P-Group:** - **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 1.000 [ms] 4.000 [ms] 4.000 [ms]

Description: Sets the sampling time for the variable signaling function.

Notice: 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**

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 2
 28, SIC_COMBI, **Data type:** Unsigned16 **Dynamic index:** -
 SIC_SINUMERIK_82 **P-Group:** Closed-loop control **Units group:** - **Unit selection:** -
 8 **Not for motor type:** - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
 - - 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: Refer to: p0210

Note: Re 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 current 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 infeed is always operated in the Smart Mode. 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.

Re 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.

Re 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.

Re 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		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	12	-
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: Precharg. 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		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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: Precharg. running 6: Operation		

r3405.0...7	CO/BO: Infeed status word / Inf ZSW		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays 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:

Re bit 00:
Smart Mode is activated with p3400.0.

Re bit 01:
The DC link voltage closed-loop control is activated with parameters p3400.3 and p3513.

Re 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.

Re bit 03:
The present current limit is displayed in r0067.

Re 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.

Re bit 05:
The motor mode inhibit is activated with p3532.

Re bit 06:
The generator mode inhibit is activated with p3533.

Re bit 07:
The alarm threshold is dependent on r0296 and the setting in p0279.

r3405.7 CO/BO: Infeed status word / Inf ZSW

BIC_SINUMERIK_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays 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

SIC_COMBI	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	1	1

Description: Sets the mode to detect the line voltage.

Value:

0: Manual line voltage setting
1: Automatic line voltage setting

Dependency: Refer to: p0210, p0281, p0282, p0283
Refer to: F06100, A06105, A06301

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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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: Refer to: p0211, p0284, p0285
Refer to: 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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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: Refer to: r3411, r3412, r3414, p3415, p3416, p3417, p3421, p3422, p3424, p3555, p3560, p3614
Refer to: 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.

Note: 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 new parameters in a non-volatile fashion in order to permanently select the new controller setting.

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[.] = 100 %. Further, before the measurements are carried out, a brief identification run is executed to coarsely set the controller.

p3410 is automatically set to 0 after an identification run has been completed.

r3411[0...1] Infeed identified inductance / INF L ident

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [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: Refer to: 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 value of the line reactor, r3411 - r3414 applies.

r3412[0...1] Infeed DC link capacitance identified / INF C_DClink ident

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min - [mF]	Max - [mF]	Factory setting - [mF]

Description: Displays the identified total DC link capacitance.

Index: [0] = Run 1
[1] = Run 2

Dependency: Refer to: 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] Infeed, line supply inductance identified / INF t_line ident

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [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: Refer to: 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 value of the line reactor, r3411 - r3414 applies.

p3415[0...1] Infeed excitation current L identification / INF I_exc L_Ident

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.00 [%]	Max 75.00 [%]	Factory setting 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: Refer to: 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 booksized 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 booksized 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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.10 [%]	Max 20.00 [%]	Factory setting 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: Refer to: p3410, r3412, p3422

p3417 Infeed excitation frequency C identification / INF f_exc C_ID

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10.00 [Hz]	Max 200.00 [Hz]	Factory setting 50.00 [Hz]

Description: Sets the level of the excitation frequency for identification of the total DC link capacitance.

Dependency: Refer to: p3410, r3412, p3422

p3421 Infeed inductance / INF L

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.001 [mH]	Max 2000.000 [mH]	Factory setting 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: Refer to: 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 Infeed DC link capacitance / INF C_DCL

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.20 [mF]	Max 2000.00 [mF]	Factory setting 2.00 [mF]

Description: Sets the DC link capacitance for the closed-loop voltage control.

This value is pre-set with p0227.

Dependency: Refer to: p0227, 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		Infeed, line supply inductance / INF L_line		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0.001 [mH]	Max 1000.000 [mH]	Factory setting 0.001 [mH]	
Description:	Sets the line supply inductance. This parameter is pre-set with p0225.			
Dependency:	Refer to: 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]		Infeed control loop parameter scaling / INF par scal		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 1.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]	
Description:	Sets the scaling factors for controller parameters p3421, p3422 and p3424.			
Index:	[0] = Scaling, inductance [1] = Scaling, capacitance			
Dependency:	Refer to: 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 uk 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			
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4		
	Data type: Unsigned16	Dynamic index: -			
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting 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	Feedback control	On	Off	
	02	De-select automatic line identification after POWER ON	Yes	No	

Note: Re bit 00:
When the pulsed mode for Smart Mode is de-activated, when regenerating, higher phase current gradients occur.

Re bit 01:
When feedback control is activated, the transistors are only activated for feedback. This reduces switching losses and the DC-link voltage reaches higher values (higher output voltage for the motors).
In the case of firmware version 4.3.x, a 1 signal is only permissible for S120 Combi.

Re 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.
In the case of firmware version 4.3.x, a 1 signal is only permissible for S120 Combi.

p3440 Smart Mode configuration / Smart Mode config

SIC_COMBI **Can be changed:** T **Calculated:** - **Access level:** 4
Data type: Unsigned16 **Dynamic index:** -
P-Group: Closed-loop control **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
-	-	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	Feedback control	On	Off	
	02	De-select automatic line identification after POWER ON	Yes	No	

Note: Re bit 00:
When the pulsed mode for Smart Mode is de-activated, when regenerating, higher phase current gradients occur.

Re bit 01:
When feedback control is activated, the transistors are only activated for feedback. This reduces switching losses and the DC-link voltage reaches higher values (higher output voltage for the motors).
In the case of firmware version 4.3.x, a 1 signal is only permissible for S120 Combi.

Re 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.
In the case of firmware version 4.3.x, a 1 signal is only permissible for S120 Combi.

p3441[0...1] Smart Mode Vdc ctrl Kp/Tn / SLM Vdc_ctrl Kp/Tn

AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
28, SIC_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** -
SIC_SINUMERIK_82 **P-Group:** Closed-loop control **Units group:** - **Unit selection:** -
8 **Not for motor type:** - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
0.00 [%]	1000.00 [%]	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		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 20.00 [ms]	Factory setting [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:	Refer to: r3445, r3446		
p3443[0...1]	Smart Mode line commutation current threshold values / SLM line com I_thr		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 1000.00 [%]	Factory setting [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		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 105.00 [%]	Factory setting [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:	Re 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. Re index 1: A value of 100% corresponds to the rectified value of the current line voltage. The value must be greater than or equal to 100%.		

r3445[0...1] Smart Mode voltages display / SLM voltages disp

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, SIC_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** -
 SIC_SINUMERIK_82 **P-Group:** Displays, signals **Units group:** 5_2 **Unit selection:** p0505
 8 **Not for motor type:** - **Scaling:** p2001 **Expert list:** 1

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

Description: Displays the various voltages in Smart Mode.
Index: [0] = DC link voltage smoothed
 [1] = DC-link voltage setpoint
Dependency: Refer to: r0070, p3442
Note: Re 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).
 Re 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

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, SIC_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** -
 SIC_SINUMERIK_82 **P-Group:** Displays, signals **Units group:** 6_4 **Unit selection:** p0505
 8 **Not for motor type:** - **Scaling:** p2002 **Expert list:** 1

Min **Max** **Factory setting**
 - [A] - [A] - [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: Re index 0:
 Displays the DC-link current setpoint requested by the DC-link voltage controller (Vdc controller) in Smart Mode.
 Re index 1:
 Displays the I component of the DC-link voltage controller (Vdc controller).
 Re index 2:
 Displays the monitored DC-link load current.

r3447 Smart Mode OFF angle / SLM phi_OFF

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 4
 28, SIC_COMBI, **Data type:** FloatingPoint32 **Dynamic index:** -
 SIC_SINUMERIK_82 **P-Group:** Displays, signals **Units group:** - **Unit selection:** -
 8 **Not for motor type:** - **Scaling:** p2005 **Expert list:** 1

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

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			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10.00 [%]	Max 10000.00 [%]	Factory setting [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 have to be entered manually.		
Note:	Re 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. Re 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 Infeed PLL status / INF PLL status			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 bin	Max 0111 bin	Factory setting -
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] Infeed PLL smoothing time / INF PLL t_smooth			
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.0 [ms]	Max 1000.0 [ms]	Factory setting [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		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting - [°]
	Min - [°]	Max - [°]	
Description:	Displays the PLL system deviation.		

r3461	Infeed PLL system deviation after filtering / INF PLL ctrl_devSm		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting - [°]
	Min - [°]	Max - [°]	
Description:	Displays the PLL system deviation after filtering.		
Dependency:	Refer to: p3458		

p3463	Infeed, line angle change, phase failure detection / INF phi ph_fail		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting 15.0 [°]
	Min -180.0 [°]	Max 180.0 [°]	
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:	Refer to: A06205		

r3467[0...1]	CO: Infeed current alpha/beta line filter / INF I a/b filter		
AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [A]
	Min - [A]	Max - [A]	
Description:	Displays the line current at the input terminals of the line filter in alpha/beta components.		
Index:	[0] = Alpha [1] = Beta		

r3468[0...1] CO: Infeed voltage alpha/beta line filter / INF V a/b filter

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the line supply voltage at the input terminals of the line filter in alpha/beta components.

Index: [0] = Alpha
[1] = Beta

Note: 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.

p3469[0...n] Latch delay time correction, zero crossover detection / t_latch corr PLL

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -10000.0 [µs]	Max 10000.0 [µs]	Factory setting 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

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

Description: Displays the active current requirement due to the line filter.

Dependency: Refer to: r0038, p0221, p0222

Note: With respect to the line supply, the sum of the active currents of the power unit (p0078) and line filter (p3470) 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

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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: Refer to: 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 (p3471) 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 V_I t_sm

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.0 [ms]	Max 30000.0 [ms]	Factory setting [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: Refer to: 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 (F6100).
p3472[3]: Sets the smoothing time constant to quickly detect line supply undervoltages for phase failure (A6205).
p3472[4]: Sets the smoothing time constant to quickly adapt the line supply pre-control for line supply voltage steps (p0286).

p3480	Infeed modulation depth limit / INF mod_depth lim		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 50.0 [%]	Max 110.0 [%]	Factory setting 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:	Refer to: p3481, r3485		
p3481	Infeed standby controller dynamic response / INF res_ctrl dyn		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 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:	Refer to: p3480, r3485		
r3485	Infeed standby controller output / INF res_ctrl outp		
AFE_SINUMERIK_8 28	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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:	Refer to: p3480, p3481		
p3490	Infeed delay time OFF1 command / INF t_del OFF1		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 1000000.0 [ms]	Factory setting 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:	Refer to: 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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [ms]	Max 65000 [ms]	Factory setting 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 V_line t_del

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [s]	Max 300 [s]	Factory setting 0 [s]

Description: Sets the delay time for shutdown due to a line supply undervoltage condition (A06100).
After the fault occurs, the power unit is only tripped (shut down) after this delay has expired. If the fault is removed during this design time, then the power unit is not tripped (shut down).

Dependency: Refer to: p0283
Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.60	Max 3.00	Factory setting 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: Refer to: 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 Infeed DC link voltage setpoint / INF Vdc setp

AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_2 Scaling: p2001	Access level: 2 Unit selection: p0505 Expert list: 1
	Min 100.00 [V]	Max 1600.00 [V]	Factory setting 600.00 [V]

Description: Sets the setpoint for the DC link voltage.

Dependency: Refer to: 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 CI: Infeed DC link voltage supplementary setpoint / INF Vdc Z_set

AFE_SINUMERIK_8 28	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the supplementary setpoint for the DC link voltage.

Dependency: Refer to: p3510

p3513 BI: Inhibit voltage-controlled operation / Inhib V_ctrl mode

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for inhibiting the voltage-controlled mode of the infeed.

Dependency: Refer to: 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 (0 signal) and slave (1 signal) operation and vice versa.

p3514 Infeed supplementary active current steady-state / INF I_sup_eff stat

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1000.00 [Arms]	Max 1000.00 [Arms]	Factory setting 0.00 [Arms]

Description: Sets a steady-state supplementary setpoint for the active line supply current.

Dependency: Refer to: p3515

p3515 CI: Infeed supplementary active current / INF I_suppl_eff

AFE_SINUMERIK_8 28	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the supplementary setpoint of the active current.

Dependency: Refer to: p3514

p3516 Infeed current distribution factor / INF I_distr_factor

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]

Description: Sets the factor to be multiplied by the active current setpoint for the current controller.

Dependency: Refer to: p3579

r3517 CO: Infeed active current controller unlimited setpoint / INF I_act ctrl set			
AFE_SINUMERIK_8 28	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: - Min - [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Scaling: p2002 Max - [Arms]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [Arms]
Description:	Displays 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.		
p3520[0...3] CI: Infeed power pre-control / INF pre-control P			
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 2 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for power pre-control.		
Dependency:	Refer to: 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			
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: - Min -100000.00000 [%]	Calculated: - Dynamic index: - Units group: - Scaling: PERCENT Max 100000.00000 [%]	Access level: 2 Unit selection: - Expert list: 1 Factory setting 100.00000 [%]
Description:	Sets the scaling factor for the power pre-control.		
Dependency:	Refer to: p3520		
p3530 Infeed current limit motoring / INF I_limit mot			
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: - Min 1.00 [Arms]	Calculated: - Dynamic index: - Units group: 6_2 Scaling: - Max 100000.00 [Arms]	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting 10000.00 [Arms]
Description:	Sets the motoring limit for the active line current. The currently effective current limit is displayed in r0067[0].		
Dependency:	Refer to: r0067, p3532		
Caution:	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.		

Notice: 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

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -100000.00 [Arms]	Max -1.00 [Arms]	Factory setting -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: Refer to: r0067, p3533

Caution: 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.

Notice: 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

AFE_SINUMERIK_8 28	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for inhibiting the motor mode of the infeed.

Dependency: Refer to: 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

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to inhibit the generator mode of the infeed.

Dependency: Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the maximum permissible current for the line filter set using p0220[0].

Dependency: Refer to: 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.

r3554 Infeed Vdc controller integral component / INF Vdc_ctr I_comp

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min	Max	Factory setting
	- [Arms]	- [Arms]	- [Arms]

Description: Displays the integral action component of the DC link voltage controller (Vdc controller).

p3555[0...5] Infeed Vdc controller integral component fast intervention / Vdc_ctr I-compFast

AFE_SINUMERIK_8 28, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 200.00 [%]	Factory setting [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.

Recommend.: 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 current 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 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		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.01 [%]	Max 1000.00 [%]	Factory setting 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).		
p3562	Infeed,Vdc controller integral time / INF Vdc_ctrl Tn		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.10 [%]	Max 100000.00 [%]	Factory setting 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_observe T		
AFE_SINUMERIK_8 28	Can be changed: T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 100.0 [ms]	Factory setting 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		
AFE_SINUMERIK_8 28	Can be changed: T Data type: FloatingPoint32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 40 [ms]	Max 1000 [ms]	Factory setting 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		
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min	Max	Factory setting
	-	-	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:	Refer to: p3513, p3571, p3572, r3573		
p3571[0...3]	CI: Master/slave active current setpoint, multiplexer input / I_act multi inp		
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min	Max	Factory setting
	-	-	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:	Refer to: 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		
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the required input value for the multiplexer. CI: p3572 = 0, 1, 2, 3 --> valid values Fault F06320 is output for other values.		
Dependency:	Refer to: p3570, p3571, r3573 Refer to: 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			
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505	
	Not for motor type: -	Scaling: p2002	Expert list: 1	
	Min - [Arms]	Max - [Arms]	Factory setting - [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:	Refer to: 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			
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: C2(1), T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Converter	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -60 [V]	Max 60 [V]	Factory setting [0] 20 [V] [1] -20 [V] [2] 5 [V] [3] -5 [V]	
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:	Refer to: p0210			
r3575.0...2	BO: Master/slave DC link voltage monitoring status / Vdc monit status			
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting -	
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:	Refer to: r0088, p3510, p3574			

p3576[0...5] Master/slave current distribution factor, multiplexer input / I_dist_factor inp.

AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]

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] = Multiplexer input value 0
[1] = Multiplexer input value 1
[2] = Multiplexer input value 2
[3] = Multiplexer input value 3
[4] = Multiplexer input value 4
[5] = Multiplexer input value 5

Dependency: Refer to: 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.

AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to select the required input value for the multiplexer.
CI: p3577 = 0, 1, 2, 3, 4, 5 --> valid values
Fault F06321 is output for other values.

Dependency: Refer to: p3576, r3578, p3579
Refer to: 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

AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays (connector output) the output for the multiplexer.
The signal value is used as standard for the current distribution factor for the infeed master slave operation.

Dependency: Refer to: 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		
AFE_SINUMERIK_8 28 (Master/Slave)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min -	Max -	Factory setting 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:	Refer to: p3576, p3577, r3578		
r3602	Infeed control status / INF ctrl state		
AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 bin	Max 1000 bin	Factory setting -
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		
AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 500.00 [%]	Factory setting 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.		
r3606	Infeed active current controller system deviation / INF I_act ctrl dev		
AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the system deviation of the active current controller.		

r3608 Infeed reactive current controller system deviation / INF I_reactvCtrDev

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

Description: Displays the system deviation of the reactive current controller.

p3610 Infeed reactive current fixed setpoint / INF I_reactv F_set

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -10000.0 [Arms]	Max 10000.0 [Arms]	Factory setting 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: Refer to: 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_reactv Z_set

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for the supplementary setpoint of the reactive current.

p3614 Infeed current actual value filter smoothing time / INF I_act t_sm

AFE_SINUMERIK_8 28	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [ms]	Max 2.000 [ms]	Factory setting 0.000 [ms]

Description: Sets the time constant for the PT1 filtering of the active current actual value and reactive current actual value.

Note: 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).
The current actual value filter is de-activated with p3614 = 0.
For an automatic controller setting with p3410 >= 2, the current actual value filter is automatically pre-set.

p3615	Infeed current controller P gain / INF I_ctrl Kp		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 1000.00 [%]	Factory setting 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).		
p3617	Infeed current controller integral time / INF I_ctrl Tn		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min 0.10 [%]	Max 100000.00 [%]	Factory setting 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		
AFE_SINUMERIK_8 28	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1 Scaling: p2001	Access level: 2 Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the integral component of the active current controller.		
r3619	Infeed reactive current controller integral component / INF I_reactv_ctrTn		
AFE_SINUMERIK_8 28	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 5_1 Scaling: p2001	Access level: 2 Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the integral action component of the reactive current controller.		
p3620	Infeed current controller adaptation lower application threshold / INF I_adptLowThrsh		
AFE_SINUMERIK_8 28	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 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: Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.01 [%]	Max 100.00 [%]	Factory setting 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: Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min 5	Max 13	Factory setting [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: Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min 0.0 [%]	Max 300.0 [%]	Factory setting 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: Refer to: 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

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [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: Refer to: p3624, p3625

r3632 Infeed input voltage Vsd (active component) / INF V_inp Vsd

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the voltage Vsd (active component) at the 3-phase line supply input of the power unit.

r3633 Infeed input voltage Vsq (reactive component) / INF V_inp Vsq

AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the voltage Vsq (reactive component) at the 3-phase line supply input of the power unit.

r3635	CO: Infeed input voltage angle / INF V_inp angle		
AFE_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the angle of the input voltage (relative to the line angle).		

p3660	VSM input line supply voltage, voltage scaler / VSM inp V_scaler		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min 0.00 [%]	Max 100000.00 [%]	Factory setting 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		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the voltage between phases L1 and L2.		
Dependency:	Refer to: 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		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the voltage between phases L2 and L3.		
Dependency:	Refer to: r0025, r0072, p3660		

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		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	Temperature alarm threshold exceeded	Yes	No	
	01	Temperature fault threshold exceeded	Yes	No	

Dependency: Refer to: p3665, r3666, p3667, p3668

p3665[0...n]	VSM temperature evaluation, sensor type / VSM TempSensorType		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: p0140	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	2	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

r3666	CO: VSM temperature KTY / VSM temp KTY		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min	Max	Factory setting
	- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value of a KTY84 temperature sensor connected to the Voltage Sensing Module (VSM).

Prerequisite:

A KTY84 sensor is connected and p3665 is set to 2.

Dependency: Refer to: 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	
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min 0 [°C]	Max 301 [°C]	Factory setting 150 [°C]
Description:	Sets the alarm threshold for the KTY temperature sensor of the Voltage Sensing Module (VSM) to monitor the line filter temperature. Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.		
Dependency:	Refer to: p3665 Refer to: A34211		

p3668		VSM line filter overtemperature shutdown threshold / VSM filt_T F_thres	
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min 0 [°C]	Max 301 [°C]	Factory setting 180 [°C]
Description:	Sets the shutdown threshold for the KTY temperature sensor of the VSM to monitor the line filter temperature.		
Dependency:	Refer to: p3667 Refer to: F34207		

p3669		VSM line filter overtemperature hysteresis / VSM filt_T hyst	
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min 1.0 [K]	Max 50.0 [K]	Factory setting 3.0 [K]
Description:	Sets the hysteresis for the alarm threshold of the VSM to monitor the line filter temperature.		
Dependency:	Refer to: p3667		

p3670		VSM 10 V input CT gain / VSM CT_gain	
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min 0.000 [A]	Max 1000.000 [A]	Factory setting 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:	Refer to: 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		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 1 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: 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		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the current actual value from current transducer (CT) 2 at the 10 V input of the Voltage Sensing Module (VSM).		
Dependency:	Refer to: 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 V_act		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 1 of the Voltage Sensing Modules (VSM).		
Dependency:	Refer to: p3670		
Note:	10 V input 1: Terminals X520.1 and X520.2		
r3674	CO: VSM 10 V input 2 actual value / VSM inp 2 V_act		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual value of the voltage measured at the 10 V input 2 of the Voltage Sensing Modules (VSM).		
Dependency:	Refer to: p3670		
Note:	10 V input 2: Terminals X520.3 and X520.4		

p3676 VSM line filter capacitance alarm threshold / VSMfilt C A_thresh

AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: T Data type: FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 0.00 [%]

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: Refer to: p3670
Refer to: A06250

Note: Prerequisites for monitoring the filter capacitance:
The phase currents must be measured at two capacitors of the line filter. To do this, CTs should be connected at the 10 V inputs of the VSM.

r3677[0...2] CO: VSM line filter capacitance / VSM filt C

AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min - [µF]	Max - [µF]	Factory setting - [µF]

Description: Displays the capacitance of the line filter (for a star circuit configuration).

Index: [0] = Phase U
[1] = Phase V
[2] = Phase W

Dependency: Refer to: p3676

Note: Prerequisite:
The monitoring of the filter capacitance is activated.

p3678[0...1] Filter monitoring threshold values / Filter monit thr

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: C2(1) Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [%]	Max 10000.00 [%]	Factory setting [0] 0.00 [%] [1] 0.00 [%]

Description: Sets the threshold values for filter monitoring.
Voltage threshold value monitoring refers to p0210.
Current threshold value monitoring refers to the nominal filter current.
Nominal filter current = $2 * PI * p0211 * 3 * p0221[0] * p0210 * \sqrt{2} / \sqrt{3}$

Index: [0] = Voltage threshold value
[1] = Current threshold value

Dependency: Refer to: r3671, r3672, r7310, r7311
Refer to: F06855

Note: The filter monitoring function is de-activated with p3676 = 0.00.
Recommended setting for activation:
Voltage threshold value: 3.0 %
Current threshold value: 500 %

p3679[0...1] Transformer filter monitoring times / Filter monit times

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: C2(1)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 40.00 [ms]	Factory setting [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: Refer to: F06855

p3680 BI: Braking Module internal inhibit / BM int inhib

BIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to inhibit the internal Braking Module.
1 signal: The Braking Module is inhibited.
0 signal: The Braking Module is enabled.

Dependency: Refer to: 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**

BIC_SINUMERIK_82 8	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to activate the DC link fast discharge for an internal braking module.
The DC link fast discharge is started later with delay time (p3682) when the following conditions apply:
- 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.

Recommend.: 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. F300027).

Dependency: Refer to: p3682
Refer to: F30027

p3682 Braking Module internal DC link fast discharge delay time / BM int DC dischg t

BIC_SINUMERIK_82 **Can be changed:** C1(3), T **Calculated:** - **Access level:** 3
 8 **Data type:** Unsigned32 **Dynamic index:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 500 [ms] 4294967295 [ms] 1000 [ms]

Description: Sets the delay time for switching in the DC link fast discharge for an internal Braking Module.
Dependency: Refer to: p3681

p3683 Braking Module internal activation threshold brake chopper / BM int chop level

BIC_SINUMERIK_82 **Can be changed:** C2(1) **Calculated:** - **Access level:** 3
 8 **Data type:** FloatingPoint32 **Dynamic index:** -
P-Group: Converter **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 110.00 [V] 780.00 [V] 760.00 [V]

Description: Sets the activation threshold for the brake chopper.
Note: The activation threshold is only effective if the "Reduced device supply voltage" function (p212.0 = 1) has been activated!

r3685 BO: Digital Braking Module: Pre-alarm I2t shutdown / Dig BM A I2t shutd

BIC_SINUMERIK_82 **Can be changed:** - **Calculated:** - **Access level:** 3
 8 **Data type:** Unsigned32 **Dynamic index:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

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: Refer to: A06905

r3686 BO: Digital Braking Module Fault / Dig BM Fault

BIC_SINUMERIK_82 **Can be changed:** - **Calculated:** - **Access level:** 3
 8 **Data type:** Unsigned32 **Dynamic index:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: The binector output uses a 1 signal to indicate an overcurrent fault or an I2t shutdown in the Braking Module.
Dependency: Refer to: F06906

r3687	BO: Digital Braking Module pre-alarm overtemperature / Dig BM A overtemp		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	The binector output uses a 1 signal to indicate an overtemperature condition at the connected temperature sensor of the braking resistor.		
r3688	BO: Digital Braking Module fault overtemperature / Dig BM F overtemp		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	The binector output uses a 1 signal to indicate that the highest permissible overtemperature at the connected temperature sensor has been reached and has caused a trip (shutdown).		
Dependency:	Refer to: F06908		
r3689	BO: Digital Braking Module Vce fault / Dig BM Uce fault		
BIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	The binector output uses a 1 signal to indicate that there is a Vce fault in the Digital Braking Module.		
Dependency:	Refer to: F06909		
p3820[0...n]	Friction characteristic, value n0 / Friction n0		
SERVO_SINUMERIK828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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:	Refer to: p3830, p3845		

p3821[0...n] Friction characteristic, value n1 / Friction n1

SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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: Refer to: p3831, p3845

p3822[0...n] Friction characteristic, value n2 / Friction n2

SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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: Refer to: p3832, p3845

p3823[0...n] Friction characteristic, value n3 / Friction n3

SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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: Refer to: p3833, p3845

p3824[0...n] Friction characteristic, value n4 / Friction n4

SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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: Refer to: p3834, p3845

p3825[0...n]	Friction characteristic, value n5 / Friction n5		
SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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:	Refer to: p3835, p3845		
p3826[0...n]	Friction characteristic, value n6 / Friction n6		
SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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:	Refer to: p3836, p3845		
p3827[0...n]	Friction characteristic, value n7 / Friction n7		
SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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:	Refer to: p3837, p3845		
p3828[0...n]	Friction characteristic, value n8 / Friction n8		
SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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:	Refer to: p3838, p3845		

p3829[0...n] Friction characteristic, value n9 / Friction n9

SERVO_SINUMERI K828	Can be changed: T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 210000.00 [rpm]	Factory setting 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: Refer to: p3839, p3845

p3830[0...n] Friction characteristic, value M0 / Friction M0

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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: Refer to: p3820, p3845

p3831[0...n] Friction characteristic, value M1 / Friction M1

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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: Refer to: p3821, p3845

p3832[0...n] Friction characteristic, value M2 / Friction M2

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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: Refer to: p3822, p3845

p3833[0...n]	Friction characteristic, value M3 / Friction M3		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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:	Refer to: p3823, p3845		

p3834[0...n]	Friction characteristic, value M4 / Friction M4		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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:	Refer to: p3824, p3845		

p3835[0...n]	Friction characteristic, value M5 / Friction M5		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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:	Refer to: p3825, p3845		

p3836[0...n]	Friction characteristic, value M6 / Friction M6		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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:	Refer to: p3826, p3845		

p3837[0...n] Friction characteristic, value M7 / Friction M7

SERVO_SINUMERI
K828

Can be changed: T	Calculated: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Functions	Units group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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: Refer to: p3827, p3845

p3838[0...n] Friction characteristic, value M8 / Friction M8

SERVO_SINUMERI
K828

Can be changed: T	Calculated: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Functions	Units group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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: Refer to: p3828, p3845

p3839[0...n] Friction characteristic, value M9 / Friction M9

SERVO_SINUMERI
K828

Can be changed: T	Calculated: -	Access level: 2
Data type: FloatingPoint32	Dynamic index: DDS, p0180	
P-Group: Functions	Units group: 7_1	Unit selection: p0505
Not for motor type: REL	Scaling: -	Expert list: 1
Min -1000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 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: Refer to: p3829, p3845

r3840.0...8 CO/BO: Friction characteristic, status word / Friction ZSW

SERVO_SINUMERI
K828

Can be changed: -	Calculated: -	Access level: 2
Data type: Unsigned32	Dynamic index: -	
P-Group: Functions	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min -	Max -	Factory setting -

Description: Displays the state 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_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Functions	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL	Scaling: p2003	Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque of the friction characteristic dependent on the speed.		
Dependency:	Refer to: p1569, p3842		

p3842 Friction characteristic activation / Frict act

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Setting to activate and de-activate the friction characteristic.		
Value:	0: Friction characteristic de-activated 1: Friction characteristic activated		
Dependency:	Refer to: p1569, r3841, p3845		

p3845 Friction characteristic record activation / Frict rec act

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 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_RFG		
SERVO_SINUMERIK828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 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:	Refer to: p3845		

p3847[0...n]	Friction characteristic record warm-up time / Frict rec t_warm		
SERVO_SINUMERIK828	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL	Scaling: -	Expert list: 1
	Min 0.000 [s]	Max 3600.000 [s]	Factory setting 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:	Refer to: p3829, p3845		

p3860	Number of Braking Modules connected in parallel / BM qty par_cct		
AFE_SINUMERIK_828 (Brk Mod ext), BIC_SINUMERIK_828 (Brk Mod ext), SIC_COMBI (Brk Mod ext), SIC_SINUMERIK_828 (Brk Mod ext)	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 8	Factory setting 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	BO: Braking Module inhibit/acknowledgement / BM inhib/ackn		
AFE_SINUMERIK_828 (Brk Mod ext), BIC_SINUMERIK_828 (Brk Mod ext), SIC_COMBI (Brk Mod ext), SIC_SINUMERIK_828 (Brk Mod ext)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Signal to energize terminal X21.1 "inhibit/acknowledgement" 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 Braking Module DC link fast discharge delay time / BM DC-dischg t_del

AFE_SINUMERIK_8 28 (Brk Mod ext), BIC_SINUMERIK_82 8 (Brk Mod ext), SIC_COMBI (Brk Mod ext), SIC_SINUMERIK_82 8 (Brk Mod ext)	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
500 [ms]	4294967295 [ms]	1000 [ms]

Description: Sets the delay time for switching in the DC link fast discharge.

Dependency: Refer to: p3863, r3864

Note: The DC link fast discharge is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3863 BI: Activating Braking Module DC link fast discharge / BM DC-dischg act

AFE_SINUMERIK_8 28 (Brk Mod ext), BIC_SINUMERIK_82 8 (Brk Mod ext), SIC_COMBI (Brk Mod ext), SIC_SINUMERIK_82 8 (Brk Mod ext)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
-	-	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.

Recommend.: 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: Refer to: r3864

Refer to: 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


AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28 (Brk Mod ext), **Data type:** Unsigned32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8 (Brk Mod ext), **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SIC_COMBI (Brk Mod ext),
 SIC_SINUMERIK_82
 8 (Brk Mod ext)

Min	-	Max	-	Factory setting	-
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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: Refer to: p3863
 Refer to: 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

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
 28 (Brk Mod ext), **Data type:** Unsigned32 / Binary **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** - **Units group:** - **Unit selection:** -
 8 (Brk Mod ext), **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SIC_COMBI (Brk Mod ext),
 SIC_SINUMERIK_82
 8 (Brk Mod ext)

Min	-	Max	-	Factory setting	0
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Description: Sets the signal source for the signal "pre-alarm I*t shutdown (X21.3) of the Braking Module.
 BI: p3865[0...7] = 0 signal --> no pre-alarm, I*t shutdown
 BI: p3865[0...7] = 1 signal --> pre-alarm I*t shutdown (A06901)

Dependency: Refer to: A06901

Note: The pre-alarm I*t shutdown is only possible for "booksize" formats. This function is not supported for "chassis" formats.

p3866[0...7]	BI: Braking Module fault / BM fault		
AFE_SINUMERIK_8 28 (Brk Mod ext), BIC_SINUMERIK_82 8 (Brk Mod ext), SIC_COMBI (Brk Mod ext), SIC_SINUMERIK_82 8 (Brk Mod ext)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the "fault" signal of the Braking Module (X21.4 for "booksize" formats and X21.3 for "chassis" formats). BI: p3866[0...7] = 0 signal --> fault (A06900) BI: p3866[0...7] = 1 signal --> No fault For a 1 signal, an acknowledgement via BO: r3861 is automatically carried out at certain time intervals.		
Dependency:	Refer to: A06900		

p3870	Long stator configuration / Long stator config			
SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description:	Sets the configuration when operating a long stator motor.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activate long stator help functions	Active	Inactive
	01	Suppress Gx_ZSW.14	Active	Inactive
Dependency:	Refer to: 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 commute with the zero mark (p0404).			
Note:	Re bit 00: All of the help functions for long stator motors can be enabled/disabled using this bit. Re 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		
SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to set the commutation angle available via connector input p3872.		
Dependency:	Refer to: 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_src com_angle

SERVO_SINUMERI
K828

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
P-Group: -	Units group: -	Unit selection: -
Not for motor type: -	Scaling: p2005	Expert list: 1
Min	Max	Factory setting
-	-	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:

Refer to: 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_src ctrl w/ enc

SERVO_SINUMERI
K828

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned32 / Binary	Dynamic index: -	
P-Group: Functions	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min	Max	Factory setting
-	-	0

Description:

Sets the signal source to change over to closed-loop control with encoder.

Dependency:

Refer to: 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

CI: Long stator signal source commutation angle oper. with encoder / S_src com_ang enc

SERVO_SINUMERI
K828

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
P-Group: -	Units group: -	Unit selection: -
Not for motor type: -	Scaling: p2005	Expert list: 1
Min	Max	Factory setting
-	-	3879[0]

Description:

Sets the signal source for the commutation angle for operation with encoder.

Dependency:

Refer to: 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 CO/BO: Long stator status word / Long stator ZSW

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for long stator motors.

Bit field:	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: Refer to: p3870, p3871, p3872, p3873, p3874, p3876, p3878, p3879

Note: The display is updated with a sampling time of 1 ms.

Re 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).

Re 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_src 1 enc unpark

SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source 1 to unpark the encoder.

Dependency: Refer to: 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_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min	Max	Factory setting
	-180 [°]	180 [°]	0 [°]

Description: Sets the commutation angle 1 for long stator motors.

Dependency: Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3879

p3879	CO: Long stator commutation angle 2 / Com_angle 2		
SERVO_SINUMERIK828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2005	Expert list: 1
	Min -180 [°]	Max 180 [°]	Factory setting 0 [°]
Description:	Sets the commutation angle 2 for long stator motors.		
Dependency:	Refer to: p3870, p3871, p3872, p3873, p3874, r3875, p3876, p3878		

p3900	Completion of quick commissioning / Compl quick_comm		
AFE_SINUMERIK_828, BIC_SINUMERIK_828, SIC_COMBI, SIC_SINUMERIK_828	Can be changed: C2(1)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	<p>Exits the quick commissioning (p0010 = 1) with automatic calculation of all of the parameters that depend on the entries made during the quick commissioning.</p> <p>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).</p> <p>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.</p> <p>p3900 = 3 only includes the end of quick commissioning.</p>		
Value:	<p>0: No quick parameterization</p> <p>1: Quick parameterization after parameter reset</p> <p>2: Quick param. (only) for controller par. and reset for BICO par</p> <p>3: Completion of quick commissioning</p>		
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 0.		

p3900	Completion of quick commissioning / Compl quick_comm		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: C2(1)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	<p>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.</p> <p>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.</p> <p>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 parameters are calculated (corresponding to p0340 = 1).</p> <p>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.</p> <p>p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.</p>		

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 0.
 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 (see 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:
 for induction motors p0320, p0352, p0353, p0604, p0605, p0626 ... p0628.
 for synchronous motors p0326, p0327, p0352, p0353, p0391 ... p0393, p0604, p0605.

p3901[0...n] Power unit EEPROM Vdc offset calibration / PU EEPROM Vdc_offs

BIC_SINUMERIK_82
8
Can be changed: C1, C2(1), T **Calculated:** - **Access level:** 3
Data type: FloatingPoint32 **Dynamic index:** PDS
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 -40.0 [V] 40.0 [V] 0.0 [V]

Description: Differential voltage for calibrating the offset for DC-link voltage measurement.

Dependency: Refer to: 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 bit 22 and p0212 bit 0 are set.

r3925[0...n] Identification final display / Ident final_disp

SERVO_COMBI,
SERVO_SINUMERIK828
Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned32 **Dynamic index:** DDS, p0180
P-Group: Motor **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

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	No	
	05	Motor encoder manually adjusted	Yes	No	
	15	Motor equivalent circuit diagram parameters changed	Changed	Not changed	

Note: The individual bits are only set if the appropriate action has been initiated and successfully completed.
 When motor rating plate parameters are changed, the final display is reset.
 When setting the individual bits, all of the most significant bits are reset.

r3927[0...n] Motor data identification induction motor data determined / MotID ASM dat det

SERVO_SINUMERI
K828

Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
Data type: Unsigned32	Dynamic index: DDS, p0180	
P-Group: Motor identification	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min	Max	Factory setting
-	-	-

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: Refer to: r3925

r3928[0...n] Motor data identification synchronous motor data determined / MotId PEM dat det

SERVO_SINUMERI
K828

Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
Data type: Unsigned32	Dynamic index: DDS, p0180	
P-Group: Motor identification	Units group: -	Unit selection: -
Not for motor type: REL	Scaling: -	Expert list: 1
Min	Max	Factory setting
-	-	-

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: Refer to: r3925

p3950	Service parameter / Serv. par.		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1, U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	For service personnel only.		

r3974	Drive unit status word / Drv_unit ZSW		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for the drive unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Software reset active	Yes	No	
	01	Writing of parameters disabled as parameter save in progress	Yes	No	
	02	Writing of parameters disabled as macro is running	Yes	No	

r3977	BICO counter, topology / BICO counter topo		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the BICO interconnections that have been parameterized in the complete (overall) topology. The counter is incremented by one for each modified BICO interconnection.

Dependency: Refer to: r3978, r3979

r3978	BICO CounterDevice / BICO CounterDevice		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the counter reading for modified BICO interconnections on this device. The counter is incremented by one for each modified BICO interconnection.

r3979 BICO counter, drive object / BICO counter DO

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_LINK, HUB, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
--	--	---	---

Min	-	Max	-	Factory setting	-
------------	---	------------	---	------------------------	---

Description: Displays the counter reading for modified BICO interconnections on this drive object.
The counter is incremented by one for each modified BICO interconnection.

p3981 Faults, acknowledge drive object / Faults ackn DO

All objects	Can be changed: U, T Data type: Unsigned8 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
-------------	--	---	---

Min	0	Max	1	Factory setting	0
------------	---	------------	---	------------------------	---

Description: Setting to acknowledge all active faults of a drive object.
Note: Parameter should be set from 0 to 1 to acknowledge.
After acknowledgement, the parameter is automatically reset to 0.

p3985 Master control mode selection / PcCtrl mode select

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Integer16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	---	---	---

Min	0	Max	1	Factory setting	0
------------	---	------------	---	------------------------	---

Description: Sets the mode to change over the master control / LOCAL mode.

Value:
0: Change master control for STW1.0 = 0
1: Change master control in operation

Danger: When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.



r3986	Parameter count / Parameter No.		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of parameters for this drive unit.
The number comprises the device-specific and the drive-specific parameters.

Dependency: Refer to: r0980, r0981, r0989

r3988[0...1]	Boot state / Boot_state		
CU_I_COMBI,	Can be changed: -	Calculated: -	Access level: 3
CU_I_SINUMERIK_8 28	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	10800	-

Description: Index 0:
Displays the boot state.
Index 1:
Displays the partial boot state

Value:	0: Not active
	1: Fatal fault
	10: Fault
	20: Reset all parameters
	30: Drive object modified
	40: Download using commissioning software
	50: Parameter download using commissioning software
	90: Reset Control Unit and delete drive objects
	100: Start initialization
	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	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	10800	-
Description:	Index 0: Displays the boot state.		
	Index 1: Displays the partial boot state		

Value:	0:	Not active
	1:	Fatal fault
	10:	Fault
	20:	Reset all parameters
	30:	Drive object modified
	40:	Download using commissioning software
	50:	Parameter download using commissioning software
	90:	Reset Control Unit and delete drive objects
	100:	Start initialization
	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	Parameter write inhibit status / Par_write inhib st		
All objects	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays whether writing to parameters is inhibited. r3996 = 0: Write to parameter is not inhibited. 0 < r3996 < 100: Write to parameter is inhibited. The value shows how the calculations are progressing.		

r3998	First infeed commissioning / First inf_comm		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	65535	-
Description:	Displays whether the infeed must be commissioned for the first time. 0 = Yes 2 = No		

r3998[0...n]	First drive commissioning / First drv_comm		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	65535	-
Description:	Displays whether the drive still has to be commissioned for the first time. 0 = Yes 2 = No		

p4100[0...3]	TM120 temperature evaluation, sensor type / TM120 sensor type		
TM120	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	4	1
Description:	Sets the temperature evaluation of 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		
Index:	[0] = Temperature sensor channel 1 [1] = Temperature sensor channel 2 [2] = Temperature sensor channel 3 [3] = Temperature sensor channel 4		

Note: The temperature sensor is connected to the following terminals:
 Channel 1: X521.2(+) and X521.1(-)
 Channel 2: X521.4(+) and X521.3(-)
 Channel 3: X521.6(+) and X521.5(-)
 Channel 4: X521.8(+) and X521.7(-)

r4101[0...3] TM120 temperature evaluation, sensor resistance / TM120 Temp R_sen

TM120	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]

Description: Displays the actual resistance value of the temperature sensor connected at Terminal Module 120 (TM120).

Index: [0] = Temperature sensor channel 1
 [1] = Temperature sensor channel 2
 [2] = Temperature sensor channel 3
 [3] = Temperature sensor channel 4

Note: The maximum measurable resistance value is approx. 1700 Ohm.
 The temperature sensor is connected to the following terminals:
 Channel 1: X521.2(+) and X521.1(-) .
 Channel 2: X521.4(+) and X521.3(-) .
 Channel 3: X521.6(+) and X521.5(-) .
 Channel 4: X521.8(+) and X521.7(-) .

p4102[0...7] TM120 temperature evaluation fault/alarm threshold / TM120 TempThresh

TM120	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -48 [°C]	Max 251 [°C]	Factory setting 251 [°C]

Description: Sets the fault/alarm threshold for the temperature evaluation of Terminal Module 120 (TM120).
 Temperature actual value 1 > p4102[0] --> alarm A35211 is output.
 Temperature actual value 1 > p4102[1] --> fault F35207 is output.
 Temperature actual value 2 > p4102[2] --> alarm A35212 is output.
 Temperature actual value 2 > p4102[3] --> fault F35208 is output.
 Temperature actual value 3 > p4102[4] --> alarm A35213 is output.
 Temperature actual value 3 > p4102[5] --> fault F35209 is output.
 Temperature actual value 4 > p4102[6] --> alarm A35214 is output.
 Temperature actual value 4 > p4102[7] --> fault F35210 is output.
 Alarms A35211, A35212, A35213, A35214 remain present until the temperature actual value (r4105[0..3]) falls below the corresponding value (p4102[0,2,4,6] hysteresis).
 Faults F35207, F35208, F35209, F35210 remain present until the temperature actual value (r4105[0..3]) falls below the corresponding value (p4102[1,3,5,7] hysteresis) and the fault has been acknowledged.
 The hysteresis value is 5 °C and cannot be changed by the user.

Index: [0] = Sensor 1 alarm threshold
 [1] = Sensor 1 fault threshold
 [2] = Sensor 2 alarm threshold
 [3] = Sensor 2 fault threshold
 [4] = Sensor 3 alarm threshold
 [5] = Sensor 3 fault threshold
 [6] = Sensor 4 alarm threshold
 [7] = Sensor 4 fault threshold

Dependency:

Refer to: p4103

Warning:

Fault F35207-F352010 only causes the drive to shut down if there is at least one BICO interconnection between the drive and TM120.

**Note:**

A value > 250 °C de-activates the alarm or fault.

The temperature sensor is connected to the following terminals:

Channel 1: X521.2(+) and X521.1(-) .

Channel 2: X521.4(+) and X521.3(-) .

Channel 3: X521.6(+) and X521.5(-) .

Channel 4: X521.8(+) and X521.7(-) .

p4103[0...3]**TM120 temperature evaluation timer / TM120 temp t_timer**

TM120

Can be changed: U, T**Calculated:** -**Access level:** 1**Data type:** FloatingPoint32**Dynamic index:** -**P-Group:** Motor**Units group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min**

0.000 [ms]

Max

600.000 [ms]

Factory setting

0.000 [ms]

Description:

Timer for the fault output of the temperature evaluation of Terminal Module 120 (TM120).

This timer is started when the temperature alarm threshold (p4102[0,2,4,6]) is exceeded.

If the timer expires before the temperature in the meantime falls below the alarm threshold, the fault F35207-F35210 is output.

If the temperature fault threshold (p4102[1,3,5,7]) is prematurely exceeded before the timer has expired, then fault F35207-F35210 is immediately output.

As long as the temperature of the TM120 has still not exceeded the fault threshold and the alarm threshold has again been undershot, the fault can be acknowledged.

Index:

[0] = Temperature sensor channel 1

[1] = Temperature sensor channel 2

[2] = Temperature sensor channel 3

[3] = Temperature sensor channel 4

Dependency:

Refer to: 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.

r4104.0...7**BO: TM120 temperature evaluation, status / TM120 temp status**

TM120

Can be changed: -**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**P-Group:** Terminals**Units group:** -**Unit selection:** -**Not for motor type:** -**Scaling:** -**Expert list:** 1**Min**

-

Max

-

Factory setting

-

Description:

Displays the status for the temperature evaluation of Terminal Module 120 (TM120).

This displays whether the temperature actual value has exceeded the fault/alarm threshold.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Temperature alarm threshold sensor 1 exceeded	Yes	No	
	01	Temperature fault threshold sensor 1 exceeded	Yes	No	
	02	Temperature alarm threshold sensor 2 exceeded	Yes	No	
	03	Temperature fault threshold sensor 2 exceeded	Yes	No	
	04	Temperature alarm threshold sensor 3 exceeded	Yes	No	
	05	Temperature fault threshold sensor 3 exceeded	Yes	No	
	06	Temperature alarm threshold sensor 4 exceeded	Yes	No	
	07	Temperature fault threshold sensor 4 exceeded	Yes	No	

Dependency: Refer to: p4102

r4105[0...3] **CO: TM120 temperature evaluation, actual value / TM120 temp act val**

TM120	Can be changed: -	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]

Description: Displays the actual temperature value of the temperature evaluation of Terminal Module 120 (TM120).

Index:
 [0] = Temperature sensor channel 1
 [1] = Temperature sensor channel 2
 [2] = Temperature sensor channel 3
 [3] = Temperature sensor channel 4

Dependency: For sensor type PTC thermistor (p4100 = 1) and bimetallic NC contact (p4100 = 4), the following applies:
 - below the nominal response temperature, r4105 = -50°C.
 - above the nominal response temperature, r4105 = 250 °C.
 For sensor type KTY84 (p4100 = 2), the following applies:
 - the displayed value corresponds to the temperature actual value.
 Refer to: p4100

Note: If there is an error in the sensors KTY84 or PTC thermistor (F35920-F35923 triggered), or if no sensor is selected (p4100[0..3] = 0), r4105[0..3] = -300 °C is displayed.
 The temperature sensor is connected to the following terminals:
 Channel 1: X521.2(+) and X521.1(-) .
 Channel 2: X521.4(+) and X521.3(-) .
 Channel 3: X521.6(+) and X521.5(-) .
 Channel 4: X521.8(+) and X521.7(-) .

p4600[0...n] **Motor temperature sensor 1 sensor type / Temp_sens 1 type**

SERVO_SINUMERIK828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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
Dependency:	Refer to: 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_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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
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Dependency: Refer to: r0458, p0600, p0601

Note: This parameter is effective only when p0601 = 10.
Terminals for KTY84: 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_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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
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Dependency: Refer to: 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] Motor temperature sensor 4 sensor type / Temp_sens 4 type

SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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

Dependency: Refer to: 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] Motor temperature sensor 1 sensor type MDS / Temp sens1 typ MDS

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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
- 30: Bimetallic NC contact fault
- 31: Bimetallic NC contact alarm
- 32: Bimetallic NC contact alarm & timer

Dependency: Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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 30: Bimetallic NC contact fault 31: Bimetallic NC contact alarm 32: Bimetallic NC contact alarm & timer		
Dependency:	Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 32	Factory setting 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 30: Bimetallic NC contact fault 31: Bimetallic NC contact alarm 32: Bimetallic NC contact alarm & timer		
Dependency:	Refer to: 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] Motor temperature sensor 4 sensor type MDS / Temp sens4 typ MDS

SERVO_COMBI, SERVO_SINUMERIK828

Can be changed: C2(3), U, T	Calculated: -	Access level: 2
Data type: Integer16	Dynamic index: MDS, p0130	
P-Group: Motor	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min 0	Max 32	Factory setting 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
- 30: Bimetallic NC contact fault
- 31: Bimetallic NC contact alarm
- 32: Bimetallic NC contact alarm & timer

Dependency: Refer to: 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] Motor temperature measured / Mot_temp meas

SERVO_SINUMERIK828

Can be changed: -	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: -	
P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
Not for motor type: -	Scaling: TEMP	Expert list: 1
Min - [°C]	Max - [°C]	Factory setting - [°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 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 SM

SERVO_COMBI, SERVO_SINUMERIK828

Can be changed: -	Calculated: -	Access level: 4
Data type: Unsigned32	Dynamic index: -	
P-Group: Encoder	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min -	Max -	Factory setting -

Description: Encoder diagnostics for the Profidrive interface.

p4650	Encoder functional reserve component number / Enc fct_res num		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 399	Factory setting 0
Description:	Sets the component number (p0141) of the encoder whose functional reserve is to be displayed (r4651).		
Dependency:	Refer to: r4651		

r4651[0...3]	Encoder functional reserve / Enc fct_reserve		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the functional reserve of the encoder selected via p4650. 0 ... 25 %: The function limit has been reached. A service is recommended. 26 ... 100 %: The encoder is working in the specified range.		
Index:	[0] = Incremental [1] = Reserved [2] = Abs track [3] = Code conn		
Dependency:	Refer to: p4650		
Note:	Value = 999 means: - the component specified in p4650 is not connected - the encoder does not support the display of the functional reserve		

p4660[0...2]	Sensor Module filter bandwidth / SM Filt_bandw		
SERVO_COMBI, SERVO_SINUMERIK K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [kHz]	Max 20000.00 [kHz]	Factory setting 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:	Refer to: r4661		
Note:	A value of zero is displayed if an encoder is not present.		

r4661[0...2]	Sensor Module filter bandwidth display / SM Filt_bandw disp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [kHz]	Max - [kHz]	Factory setting - [kHz]
Description:	Display of the effective filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos). The bandwidth of the filter is set using p4660.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Encoder 3		
Dependency:	Refer to: p4660		
Note:	A value of zero is displayed if an encoder is not present.		

p4670[0...n]	Analog sensor configuration / Ana_sens config				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: EDS, p0140			
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting 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	
	09	Fault/alarm messages	Alarm	Fault	
	10	Chann B act	Yes	No	
	11	Chann A act	Yes	No	
	13	Commutation angle constant	Yes	No	
Notice:	Re bit 06: Setting the bit sets the velocity actual value (r0061) permanently to 0. Re bit 13: Setting the bit sets the commutation angle permanently to the commutation angle offset (p0431).				
Note:	Re 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. Re 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.				

p4671[0...n]	Analog sensor input / Ana_sens inp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -10.0000 [V]	Max 10.0000 [V]	Factory setting 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -10.0000 [V]	Max 10.0000 [V]	Factory setting 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -10.0000 [V]	Max 10.0000 [V]	Factory setting 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**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 4
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** EDS, p0140
K828 **P-Group:** - **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
-10.0000 [V] 10.0000 [V] 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] **Analog sensor range limit threshold / Ana_sens lim thr**

SERVO_COMBI, **Can be changed:** U, T **Calculated:** - **Access level:** 4
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** EDS, p0140
K828 **P-Group:** - **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.0 [%] 100.0 [%] 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: Refer to: p4673, p4675

p4677[0...n] **Analog sensor LVDT configuration / Ana_sens LVDT conf**

SERVO_COMBI, **Can be changed:** C2(4) **Calculated:** - **Access level:** 4
SERVO_SINUMERI **Data type:** Unsigned32 **Dynamic index:** EDS, p0140
K828 **P-Group:** Encoder **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

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

p4680[0...n] **Zero mark monitoring tolerance permissible / ZM_monit tol perm**

SERVO_COMBI, **Can be changed:** C2(4) **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned32 **Dynamic index:** EDS, p0140
K828 **P-Group:** Encoder **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 1000 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: Refer to: p0430
 Refer to: F31100

Note: The parameter is activated using p0430.21 = 1 (zero mark tolerance).

p4681[0...n] Zero mark monitoring, tolerance window limit 1 positive / ZM tol lim 1 pos

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1000	Factory setting 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, 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 (r4688). The accumulator can be de-activated using p0437.7.

Dependency: Refer to: p0437, p4688
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1001	Max 0	Factory setting -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 (r4688). The accumulator can be de-activated using p0437.7.

Dependency: Refer to: p0437, p4681, p4688
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 100000	Factory setting 0

Description: Sets the positive tolerance window in encoder pulses for limit 2 for the zero mark monitoring. If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency: Refer to: p0437, p4681, p4682, p4688
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -100001	Max 0	Factory setting -100001

Description: Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.
If the zero mark deviation is higher than the tolerance set in p4681 and p4682 and fault F3x131 is re-parameterized to alarm (A) or no message (N), the accumulator p4688 is compared with this parameter and, if applicable, alarm A3x422 is output for 5 seconds.

Dependency: Refer to: p0437, p4683, p4688
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 20	Factory setting 0

Description: Sets the number of current controller clock cycles for mean value generation of the speed actual value.

Note: Value = 0, 1: No mean value generation.
Higher values also mean higher dead times for the speed actual value.

p4686[0...n] Zero mark minimum length / ZM min length

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 10	Factory setting 1

Description: Sets the minimum length for the zero mark.

Dependency: Refer to: p0425, p0437

Note: The value for the minimum length of the zero mark must be set less than p0425.
The parameter is activated using p0437.1 = 1 (zero mark edge detection).

p4688[0...2] CO: Zero mark monitoring, differential pulse count / ZM diff_pulse qty

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147483648	Max 2147483647	Factory setting 0

Description: Displays the number of differential pulses for the zero mark monitoring that have accumulated.
If fault F3x131 is re-parameterized to alarm (A) or no message (N), the encoder pulses which have not been corrected are added to the accumulator (p4688).

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

Dependency: Refer to: p4681, p4682, p4683, p4684

Note: The display can only be reset to zero.

r4689[0...2] CO: Squarewave encoder, diagnostics / Sq-wave enc diag

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder status according to PROFIdrive for a squarewave encoder.

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

Dependency: Refer to: A31422

Note: In the case of alarm A3x422 being output, this parameter is set for 100 ms.

p4690 SMI spare part component number / SMI comp_no

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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: Refer to: p4691, p4692, p4693

Note: DQI: DRIVE-CLiQ Sensor Integrated
SMI: SINAMICS Sensor Module Integrated

p4691 SMI spare part save/download SMI data / Save/DL SMI data

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	38	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... 21, 37, 38: Error vales 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
 - 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

Dependency: Refer to: 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 card that is not blank.

Help for error value = 21:

- Set the correct component number (p4690).

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).

p4692 SMI spare part save data of all SMIs / Save SMI data			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 29	Factory setting 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 vales 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 connection. Help for error value = 20: - Use an SMI card 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] SMI spare part data backup directory / SMI dat_bkup dir			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 399	Factory setting 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:	Refer to: p4691, r4694		
Notice:	If p4693[0] is not equal to 0 and p4693[0] 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
 Re 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the motor order number (MLFB) of the data backup selected with p4693.
Dependency: Refer to: 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	0	1	0

Value: 0: Stop trace
 1: Start trace
Index: [0] = Trace 0
 [1] = Trace 1

p4701 Measuring function, control / Meas fct ctrl

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	0	3	0

Value: 0: Stop measuring function
 1: Start measuring function
 2: Measuring function, check parameterization
 3: Start measuring function without enable signals

r4705[0...1]	Trace status / Trace status		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0	Max 4	Factory setting -
Description:	Displays the actual status of the trace.		
Value:	0: Trace inactive 1: Trace is recording presamples 2: Trace is waiting for trigger event 3: Trace is recording 4: Recording (trace) ended		
Index:	[0] = Trace 0 [1] = Trace 1		
r4706	Measuring function, status / Meas fct status		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0	Max 5	Factory setting -
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		
r4708[0...1]	Trace memory space required / Trace mem required		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the required memory in bytes for the actual parameterization.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Refer to: r4799		
r4709[0...1]	Trace memory space required for measuring functions / Trace mem required		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the memory space required for the current parameter setting in bytes, if the trace is used for the measuring functions.		

Index: [0] = Trace 0
 [1] = Trace 1
Dependency: Refer to: r4799

p4710[0...1] Trace trigger condition / Trace Trig_cond

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Integer16 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0 Factory setting 2
	Min 1	Max 7	

Description: Sets the trigger condition for the trace.
Value: 1: Immediate 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
Index: [0] = Trace 0
 [1] = Trace 1

p4711[0...5] Trace trigger signal / Trace trig_signal

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
	Min -	Max -	

Description: Selects the trigger signal for the trace.
Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id
Dependency: Only effective when p4710 does not equal 1.
Note: It only makes sense to trace the PINs using the commissioning software.
 For index 2(4) and 3(5) equal to zero, index 0(1) can only be written and vice versa.
 Re index 0 ... 1:
 Here, the trigger signal for trace 0 or 1 is entered as parameter in the BICO format.
 For trace with a physical address (p4789), the data type of the trigger signal is set here.
 Re index 2 ...3:
 The triggering PIN for trace 0 is entered here.
 Index 2 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart
 Index 3 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN
 Re index 4 ... 5:
 The triggering PIN for trace 1 is entered here.
 Index 4 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart
 Index 5 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

p4712[0...1]	Trace trigger threshold / Trace trig_thresh		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -340.28235E36	Calculated: - Dynamic index: - Units group: - Scaling: - Max 340.28235E36	Access level: 3 Unit selection: - Expert list: 0 Factory setting 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 / Trace trig thresh		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -340.28235E36	Calculated: - Dynamic index: - Units group: - Scaling: - Max 340.28235E36	Access level: 3 Unit selection: - Expert list: 0 Factory setting 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 / Trace trig thresh		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -340.28235E36	Calculated: - Dynamic index: - Units group: - Scaling: - Max 340.28235E36	Access level: 3 Unit selection: - Expert list: 0 Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Scaling: - Max 4294967295	Access level: 3 Unit selection: - Expert list: 0 Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Scaling: - Max 4294967295	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
Description:	Sets the trigger condition for bit mask trigger.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 6.		
p4717	Measuring function, number of averaging operations / Meas fct avg qty		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Scaling: - Max 255	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
p4718	Measuring function, number of stabilizing periods / MeasFct StabPerQty		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Scaling: - Max 255	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
r4719[0...1]	Trace trigger index / Trace Trig_index		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the trigger index in the trace buffer. The trigger event occurred at this point.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		
p4720[0...1]	Trace recording cycle / Trace record_cyc		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min 0.000 [ms]	Calculated: - Dynamic index: - Units group: - Scaling: - Max 60000.000 [ms]	Access level: 3 Unit selection: - Expert list: 0 Factory setting 1.000 [ms]
Description:	Sets the recording cycle for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4721[0...1]	Trace recording time / Trace record_time		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0.000 [ms]	Max 3600000.000 [ms]	Factory setting 1000.000 [ms]
Description:	Sets the recording time for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4722[0...1]	Trace trigger delay / Trace trig_delay		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min -3600000.000 [ms]	Max 3600000.000 [ms]	Factory setting 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]	Time slice cycle for trace / Trace cycle		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0.03125 [ms]	Max 4.00000 [ms]	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 0001 bin	Factory setting 0000 bin
Index:	[0] = Trace 0 [1] = Trace 1		

r4725[0...1]	Trace, data type 1 traced / Trace rec type 1		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4726[0...1]	Trace, data type 2 traced / Trace rec type 2		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4727[0...1]	Trace, data type 3 traced / Trace rec type 3		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4728[0...1]	Trace, data type 4 traced / Trace rec type 4		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4729[0...1]	Trace number of recorded values / Trace rec values		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of traced values for each signal.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		

p4730[0...5]	Trace record signal 0 / Trace record sig 0		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the first signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4731[0...5]	Trace record signal 1 / Trace record sig 1		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the second signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4732[0...5]	Trace record signal 2 / Trace record sig 2		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the third signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4733[0...5]	Trace record signal 3 / Trace record sig 3		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the fourth signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4734[0...5] Trace record signal 4 / Trace record sig 4

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the fifth signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4735[0...5] Trace record signal 5 / Trace record sig 5

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the sixth signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4736[0...5] Trace record signal 6 / Trace record sig 6

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	0

Description: Selects the seventh signal to be traced.

Index:
 [0] = Trace 0 parameter in BICO format
 [1] = Trace 1 parameter in BICO format
 [2] = Trace 0 PINx with DO Id and chart Id
 [3] = Trace 0 PINx with block Id and PIN Id
 [4] = Trace 1 PINy with DO Id and chart Id
 [5] = Trace 1 PINy with block Id and PIN Id

p4737[0...5]	Trace record signal 7 / Trace record sig 7		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
Description:	Selects the eighth signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
r4740[0...16383]	Trace 0 trace buffer signal 0 floating point / Trace 0 trace sig0		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the trace buffer (record buffer) for trace 0 and signal 0. The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks. Example A: The first 16384 values of signal 0, trace 0 are to be read out. In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read out using r4740[0] to r4740[16383]. Example B: The values 16385 to 32768 from signal 0, trace 0 are to be read out. In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].		
Dependency:	Refer to: p4795		
r4741[0...16383]	Trace 0 trace buffer signal 1 floating point / Trace 0 trace sig1		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 0 Factory setting -
Description:	Displays the trace buffer (record buffer) for trace 0 and signal 1.		
Dependency:	Refer to: r4740, p4795		

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 trace sig2

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 trace sig3

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 trace sig4

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 trace sig5

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 trace sig6

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 trace sig7

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace 1 trace sig0

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: Refer to: r4740, p4795

r4751[0...16383] Trace 1 trace buffer signal 1 floating point / Trace 1 trace sig1

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: Refer to: r4740, p4795

r4752[0...16383] Trace 1 trace buffer signal 2 floating point / Trace 1 trace sig2

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: Refer to: r4740, p4795

r4753[0...16383] Trace 1 trace buffer signal 3 floating point / Trace 1 trace sig3

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: Refer to: r4740, p4795

r4754[0...16383] Trace 1 trace buffer signal 4 floating point / Trace 1 trace sig4

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: Refer to: r4740, p4795

r4755[0...16383] Trace 1 trace buffer signal 5 floating point / Trace 1 trace sig5

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4740, p4795

r4756[0...16383] Trace 1 trace buffer signal 6 floating point / Trace 1 trace sig6

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: Refer to: r4740, p4795

r4757[0...16383] Trace 1 trace buffer signal 7 floating point / Trace 1 trace sig7

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: Refer to: r4740, p4795

r4760[0...16383] Trace 0 trace buffer signal 0 / Trace 0 trace sig0

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0 as integer number.

Note: For signals, data type I32 or U32, the trace buffer is assigned as follows:
r4760[0] = value 0
r4760[1] = value 1
...
r4760[8191] = value 8191
For signals, data type I16 or U16, the trace buffer is assigned as follows:
r4760[0] = value 0 (bit 31 ... 16) and value 1 (bit 15 ... 0)
r4760[1] = value 2 (bit 31 ... 16) and value 3 (bit 15 ... 0)
...
r4760[8191] = value 16382 (bit 31 ... 16) and value 16383 (bit 15 ... 0)
For signals, data type I8 or U8, the trace buffer is assigned as follows:
r4760[0] = value 0 (bit 31 ... 24) value 1 (bit 23 ... 16) value 2 (bit 15 ... 8) value 3 (bit 7 ... 0)
r4760[1] = value 4 (bit 31 ... 24) value 5 (bit 23 ... 16) value 6 (bit 15 ... 8) value 7 (bit 7 ... 0)
...
r4760[8191] = value 32764 (bit 31 ... 24) value 32765 (bit 23 ... 16) value 32766 (bit 15 ... 8) value 32767 (bit 7 ... 0)

r4761[0...16383] Trace 0 trace buffer signal 1 / Trace 0 trace sig1

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: Refer to: r4760

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 trace sig2

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4760

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 trace sig3

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4760

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 trace sig4

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.
Dependency: Refer to: r4760

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 trace sig5

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.
Dependency: Refer to: r4760

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 trace sig6

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.
Dependency: Refer to: r4760

r4767[0...16383] Trace 0 trace buffer signal 7 / Trace 0 trace sig7

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.
Dependency: Refer to: r4760

r4770[0...16383] Trace 1 trace buffer signal 0 / Trace 1 trace sig0

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.
Dependency: Refer to: r4760

r4771[0...16383] Trace 1 trace buffer signal 1 / Trace 1 trace sig1

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: Refer to: r4760

r4772[0...16383] Trace 1 trace buffer signal 2 / Trace 1 trace sig2

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: Refer to: r4760

r4773[0...16383] Trace 1 trace buffer signal 3 / Trace 1 trace sig3

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: Refer to: r4760

r4774[0...16383] Trace 1 trace buffer signal 4 / Trace 1 trace sig4

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: Refer to: r4760

r4775[0...16383] Trace 1 trace buffer signal 5 / Trace 1 trace sig5

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4760

r4776[0...16383] Trace 1 trace buffer signal 6 / Trace 1 trace sig6

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.
Dependency: Refer to: r4760

r4777[0...16383] Trace 1 trace buffer signal 7 / Trace 1 trace sig7

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.
Dependency: Refer to: r4760

p4780[0...1] Trace physical address signal 0 / Trace PhyAddr Sig0

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the second signal to be traced.
 The data type is defined using p4731.

Index: [0] = Trace 0
 [1] = Trace 1

p4782[0...1]	Trace physical address signal 2 / Trace PhyAddr Sig2		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min -	Max -	Factory setting -

Index: [0] = Trace 0
 [1] = Trace 1

r4791[0...1]	Trace, data type 6 traced / Trace rec type 6		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4792[0...1]	Trace, data type 7 traced / Trace rec type 7		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

r4793[0...1]	Trace, data type 8 traced / Trace rec type 8		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		

p4795	Trace memory bank changeover / Trace mem changeov		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	0	500	0
Description:	Changes over the memory bank to read out the contents of the trace buffer.		
Dependency:	Refer to: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753		

r4799	Trace memory location free / Trace mem free		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the free memory for the trace in bytes.		
Dependency:	Refer to: r4708		

p4800	Function generator control / FG control		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	The function generator is started with p4800 = 1. The signal is only generated for a 1 signal of binector input p4819.		
Value:	0: Stop function generator 1: Start function generator 2: Check function generator parameterization 3: Start function generator without enable signals		
Dependency:	Refer to: p4819		

r4805	Function generator status / FG status		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 6	Factory setting -
Description:	Displays the actual status of the function generator.		
Value:	0: Inactive 1: Generate accelerating ramp to offset 2: Generate parameterized signal shape 3: Generate braking ramp 4: Function generator stopped due to missing enable signals 5: Function generator waits for BI: p4819 6: Function generator parameterization has been checked		
Dependency:	Refer to: p4800, p4819		

r4806.0	BO: Function generator status signal / FG status signal			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Trace and function generator	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays the status of the function generator. 0 signal: Function generator inactive 1 signal: Function generator running			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Bit 0	On	Off
				FP

p4810	Function generator mode / FG operating mode		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 99	Factory setting 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
- 99: Connection at physical address and r4818

p4812	Function generator physical address / FG phys address		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 4294967295	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.00	Max 1000000.00	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 65535	Factory setting 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.

r4818	CO: Function generator output signal / FG output signal		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the output signal for the function generator.		
Dependency:	Refer to: p4810		
Note:	The value is displayed independently of the function generator mode. The signal is available as connector output for an ongoing interconnection.		

p4819	BI: Function generator control / FG control		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source to control the function generator. When the function generator is running, signal generation is stopped with a 0 signal from BI: p4819 and p4800 is set to 0.		
Dependency:	Refer to: p4800		

p4820	Function generator signal shape / FG signal shape		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 5	Factory setting 1
Description:	Sets the signal to be generated for the function generator.		
Value:	1: Square-wave 2: Staircase 3: Delta 4: Binary noise - PRBS (Pseudo Random Binary Signal) 5: Sine-wave		

p4821	Function generator period / FG period duration		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 60000.00 [ms]	Factory setting 1000.00 [ms]
Description:	Sets the period of the signal to be generated for the function generator.		
Dependency:	Ineffective when p4820 = 4 (PRBS).		

p4822	Function generator pulse width / FG pulse width		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 60000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the pulse width for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 1 (square-wave).		

p4823	Function generator bandwidth / FG bandwidth		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0025 [Hz]	Max 16000.0000 [Hz]	Factory setting 4000.0000 [Hz]
Description:	Sets the bandwidth for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 4 (PRBS). Refer to: p4830 Refer to: A02041		

p4824	Function generator amplitude / FG amplitude		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 5.00 [%]
Description:	Sets the amplitude for the signal to be generated for the function generator.		
Dependency:	Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).		

p4825	Function generator 2nd amplitude / FG 2nd amplitude		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 7.00 [%]
Description:	Sets the second amplitude for the signal to be generated for the function generator.		
Dependency:	Only effective for p4820 = 2 (staircase). Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).		

p4826	Function generator offset / FG offset		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 0.00 [%]
Description:	Sets the offset (DC component) of the signal to be generated for the function generator.		
Dependency:	Units are dependent on p4810. If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current). If p4810 = 3, 5: The offset is referred to p2000 (reference speed). If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint.		

p4827	Function generator ramp-up time to offset / FG ramp-up offset		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 32.00 [ms]
Description:	Sets the ramp-up time to the offset for the function generator.		

p4828	Function generator lower limit / FG lower limit		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -10000.00 [%]	Max 0.00 [%]	Factory setting -100.00 [%]
Description:	Sets the lower limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		

p4829	Function generator upper limit / FG upper limit		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 10000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the upper limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		

p4830	Function generator time slice cycle / FG time slice		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.03125 [ms]	Max 2.00000 [ms]	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00000 [%]	Max 200.00000 [%]	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -340.28235E36 [%]	Max 340.28235E36 [%]	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -340.28235E36 [%]	Max 340.28235E36 [%]	Factory setting 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		

r4950		OA application count / OA no	
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
	Min 0	Max 10	Factory setting -
Description:	Displays the number of OA applications installed on the memory card/device memory.		
Dependency:	Refer to: r4951, r4952, r4955, p4956, r4957, r4958, r4959, r4960		
Note:	OA: Open Architecture		

r4951		OA application identifier, total length / OA ID length	
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
	Min 0	Max 90	Factory setting -
Description:	Displays the total length of the IDs of all the OA applications installed on the memory card/device memory.		
Dependency:	Refer to: 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 application GUID, total length / OA GUID length	
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
	Min 0	Max 180	Factory setting -
Description:	Displays the total length of the GUIDs of all the OA applications installed on the memory card/device memory.		

Dependency: Refer to: 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 application identifier / OA ID

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4951 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
---	--	---	---

Min	Max	Factory setting
-	-	-

Description: Displays the IDs of all the OA applications installed on the memory card/device memory.
 r4955[0...8]: Identifier of OA application 1
 r4955[9...17]: Identifier of OA applications 2, ...

Dependency: Refer to: r4950, r4951, r4952, p4956, r4957, r4958, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

p4956[0...n] OA application activation / OA act

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: C1, T Data type: Integer16 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4950 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
---	--	---	---

Min	Max	Factory setting
0	1	0

Description: Setting to activate the OA applications installed on the memory card/device memory.
 r4956[0]: Activates OA application 1
 r4956[1]: Activates OA application 2, ...

Value: 0: OA application inactive
 1: OA application active

Dependency: Refer to: r4950, r4951, r4952, r4955, r4957, r4958, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

r4957[0...n] OA application version / OA version

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 4
 28, **Data type:** Unsigned32 **Dynamic index:** r4950
 BIC_SINUMERIK_82 **P-Group:** OEM range **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 0
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828, HUB,
 SERVO_COMBI,
 SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min	Max	Factory setting
-	-	-

Description: Displays the versions of the OA applications installed on the memory card/device memory.
 r4957[0]: Version of OA application 1
 r4957[1]: Version of OA application 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4958, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

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

r4958[0...n] OA application interface version / OA int_version

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 4
 28, **Data type:** Unsigned32 **Dynamic index:** r4950
 BIC_SINUMERIK_82 **P-Group:** OEM range **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 0
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828, HUB,
 SERVO_COMBI,
 SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min	Max	Factory setting
-	-	-

Description: Displays the interface versions of the OA applications installed on the memory card/device memory.
 r4958[0]: Interface version of OA application 1
 r4958[1]: Interface version of OA applications 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4959, r4960

Notice: If there is no OA application, then it is not possible to access an index.

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

r4959[0...n] OA application GUID / OA GUID

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_COMBI, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4952 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
---	--	---	---

Min	Max	Factory setting
-	-	-

Description: Displays the GUIDs of the OA applications installed on the memory card/device memory.

r4959[0...15]: GUID of OA application 1
r4960[16]: Major information of OA application 1
r4960[17]: Minor information of OA application 1
r4959[18...33]: GUID of OA application 2
r4960[34]: Major information of OA application 2
r4960[35]: Minor information of OA application 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4960

Notice: If there is no OA application, then it is not possible to access an index.

r4960[0...n] OA application GUID drive object / OA GUID DO

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned8 P-Group: OEM range Not for motor type: -	Calculated: - Dynamic index: r4952 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 0
---	--	---	---

Min	Max	Factory setting
-	-	-

Description: Displays the GUIDs of the drive object of the OA applications installed on the memory card/device memory.

r4960[0...15]: GUID of this drive object of OA application 1
r4960[16]: Major information of this drive object of OA application 1
r4960[17]: Minor information of this drive object of OA application 1
r4960[18...33]: GUID of this drive object of OA application 2
r4960[34]: Major information of this drive object of OA application 2
r4960[35]: Minor information of this drive object of OA application 2, ...

Dependency: Refer to: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4959

Notice: If there is no OA application, then it is not possible to access an index.

p4961[0...n] OA application logbook module selection / OA logbook module

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 4
 28, **Data type:** Unsigned32 **Dynamic index:** r4950
 BIC_SINUMERIK_82 **P-Group:** OEM range **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 0
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828, HUB,
 SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min **Max** **Factory setting**
 0000 hex FFFF FFFF hex 0000 hex

Description: Only for service purposes.

r4975 OA application invalid number / OA inv no.

CU_I_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 4
 CU_I_SINUMERIK_8 **Data type:** Unsigned16 **Dynamic index:** -
 28, CU_NX_828 **P-Group:** OEM range **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the number of invalid OA applications installed on the memory card/device memory.
Dependency: Refer to: r4976, r4978, r4979
Note: OA: Open Architecture

r4976 OA application invalid identifier, total length / OA inv ID length

CU_I_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 4
 CU_I_SINUMERIK_8 **Data type:** Unsigned16 **Dynamic index:** -
 28, CU_NX_828 **P-Group:** OEM range **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 0

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

Description: Displays the total length of the IDs of all the invalid OA applications installed on the memory card/device memory.
Dependency: Refer to: r4975, r4978, r4979
Note: The identifier of an invalid OA application comprises a maximum of 8 characters plus separator.

r4978[0...n] OA application invalid identifier / OA inv ID

CU_I_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 4
 CU_I_SINUMERIK_8 **Data type:** Unsigned8 **Dynamic index:** r4976
 28, CU_NX_828 **P-Group:** OEM range **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 0

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

Description: Displays the IDs of all the invalid OA applications installed on the memory card/device memory.
 r4978[0...8]: Identifier of invalid OA application 1
 r4978[9...17]: Identifier of invalid OA application 2, ...

Dependency: Refer to: r4975, r4976, r4979
Notice: If there is no invalid OA application, then it is not possible to access an index.

r4979[0...n] OA application invalid error code / OA inv error code

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: r4975	
	P-Group: OEM range	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the error code of the invalid OA applications installed on the memory card/device memory.
r4979[0]: Fault value of OA application 1
r4979[1]: Fault value of OA application 2, ...

Dependency: Refer to: r4975, r4976, r4978

Notice: If there is no invalid OA application, then it is not possible to access an index.

Note: The value in the error code must be interpreted in binary form. The bits have the following meaning:
Bit 0: Incompatible OA interface version.
Bit 1: OA application could not be loaded.
Bit 2: Incorrect description files.
Bit 3: OA application does not define a CPU type.
Bit 4: OA application for this device not supported (incorrect CPU type).
Bit 5: OA application for this device not supported (incorrect type ID).
Bit 6: Incorrect description files (Const/Startup incompatible).

p5460 VSM2 input line supply voltage, voltage scaler / VSM2 inp U_scaler

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	0.00 [%]	100000.00 [%]	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

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min	Max	Factory setting
	- [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

AFE_SINUMERIK_8
28 (Line transf)

Can be changed: - **Calculated:** - **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** -

P-Group: Closed-loop control **Units group:** 5_3 **Unit selection:** p0505

Not for motor type: - **Scaling:** p2001 **Expert list:** 1

Min **Max** **Factory setting**
- [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

AFE_SINUMERIK_8
28 (Line transf)

Can be changed: - **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dynamic index:** -

P-Group: Terminals **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

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

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	Temperature alarm threshold exceeded	Yes	No	
01	Temperature fault threshold exceeded	Yes	No	

p5465[0...n] VSM2 temperature evaluation sensor type / VSM2 temp sens_typ

AFE_SINUMERIK_8
28 (Line transf)

Can be changed: T **Calculated:** - **Access level:** 3

Data type: Integer16 **Dynamic index:** -

P-Group: Closed-loop control **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0 2 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

r5466[0...n] CO: VSM2 temperature KTY / VSM2 temp KTY

AFE_SINUMERIK_8
28 (Line transf)

Can be changed: - **Calculated:** - **Access level:** 3

Data type: FloatingPoint32 **Dynamic index:** -

P-Group: Closed-loop control **Units group:** 21_1 **Unit selection:** p0505

Not for motor type: - **Scaling:** TEMP **Expert list:** 1

Min **Max** **Factory setting**
- [°C] - [°C] - [°C]

Description: Displays the temperature actual value of a KTY84 temperature sensor connected to Voltage Sensing Module 2 (VSM2).
Prerequisite:
A KTY84 sensor is connected and p5465 = 2 is set.

Dependency: Refer to: 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		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min 0.00 [°C]	Max 301.00 [°C]	Factory setting 150.00 [°C]
Description:	Sets the alarm threshold for the KTY temperature sensor on Voltage Sensing Module 2 (VSM2). Prerequisite: A KTY84 sensor is connected and p5465 = 2 is set.		
Dependency:	Refer to: p5465 Refer to: A34211		

p5468[0...n]	VSM2 overtemperature shutdown threshold / VSM2 temp F_thresh		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min 0.00 [°C]	Max 301.00 [°C]	Factory setting 180.00 [°C]
Description:	Sets the shutdown threshold for the KTY temperature sensor of the VSM2 to monitor a temperature.		
Dependency:	Refer to: p5467 Refer to: F34207		

p5469[0...n]	VSM2 overtemperature hysteresis / VSM2 temp hyst		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: 21_2	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min 1.00 [K]	Max 50.00 [K]	Factory setting 3.00 [K]
Description:	Sets the hysteresis for the warning threshold of the VSM2 to monitor a temperature.		
Dependency:	Refer to: p5467		

p5470[0...n]	VSM2 10 V input CT gain / VSM2 CT_gain		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min 0.000 [A]	Max 1000.000 [A]	Factory setting 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

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]

Description: Displays the current actual value from current transducer (CT) 1 at the 10 V input of Voltage Sensing Module 2 (VSM2).

Dependency: Refer to: 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

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]

Description: Displays the current actual value from current transducer (CT) 2 at the 10 V input of Voltage Sensing Module 2 (VSM2).

Dependency: Refer to: 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

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the actual value of the voltage measured at the 10 V input 1 of Voltage Sensing Modules 2 (VSM2).

Dependency: Refer to: 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

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the actual value of the voltage measured at the 10 V input 2 of Voltage Sensing Modules 2 (VSM2).

Dependency: Refer to: p5470

Note: 10 V input 2: Terminals X520.3 and X520.4

p5480		Transformer magnetization mode / Transf mag mode		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0	Max 102	Factory setting 0	
Description:	Sets the mode for transformer magnetization.			
	11: Identification 1 for transformer data Automatic determination of the magnetizing inductance. The magnetizing inductance determined in r5491 must be transferred to p5492 in order to take effect.			
	12: Identification 2 for transformer data 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.			
	13: Identification 3 for transformer data 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 reset (p3410 = 0). The total leakage inductance of the transformer determined in r5489 must be transferred to p5490 in order to take effect.			
	101: Test operation 1 The infeed switches to line droop control, but the main switch/circuit breaker does not close. Test operation requires the "Line droop control" function module to be activated.			
	102: Test operation 2 As test operation 1, but without synchronization with the line (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: De-activated 1: Normal operation 1 11: Identification of the transformer magnetizing inductance 12: Identification of transformer phase shift and gain correction 13: Identification of the 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)			
Note:	Re 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 ramp-up time/bounce time/timeout / Transf mag t_r-up		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0.10 [s]	Max 100.00 [s]	Factory setting [0] 2.00 [s] [1] 1.00 [s] [2] 1.00 [s]	
Description:	Sets the ramp-up time for the voltage ramp, the bounce time for the circuit breaker, and a maximum time for line synchronization.			
	If the maximum time elapses without the line being synchronized, fault F06501 is triggered. The minimum duration of line synchronization is 25 % of the maximum time p5481[2].			

Index: [0] = Voltage ramp ramp-up time
 [1] = Circuit breaker bounce time
 [2] = Timeout line synchronization

r5482	Transf magnetization state / Transf mag state		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 9	Factory setting -
Description:	Displays the state of sequence control for transformer magnetization.		
Value:	0: Initialization 1: Wait for r3402 = 12 2: Magnetization with voltage ramp running 3: Line synchronization in progress 4: Wait for CB enable (p5483 = 1 signal) 5: Wait for bounce time for circuit breaker 6: Transition to operation running (r3402 = 9) 7: Procedure complete 8: Identification of magnetizing inductance 9: Identification of transformer phase shift and gain correction		

p5483	BI: Transf. magnetiz. signal source for circuit breaker activation / Trans mag CB ON		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for activating the circuit breaker after following voltage ramp ramp-up.		

p5484[0...2]	Transf magnetization integration times / Transf mag t_integ		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting [0] 50.00 [ms] [1] 50.00 [ms] [2] 100.00 [ms]
Description:	Sets the various integration times for transformer magnetization.		
Index:	[0] = Angle controller [1] = Voltage controller [2] = Voltage threshold		

p5485	Transf magnetization voltage threshold / Transf mag U_thr		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [V]	Max 300 [V]	Factory setting 35 [V]
Description:	Sets the permissible voltage difference between the space vectors of the line voltage and the Active Line Module (ALM).		
Dependency:	Refer to: p5484		
p5486	Transf rated voltage primary / Transf U_rated pri		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: C2(1, 2)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [Vrms]	Max 63000.00 [Vrms]	Factory setting 400.00 [Vrms]
Description:	Sets the primary rated voltage of the transformer.		
p5487[0...1]	Cl: Transf primary voltage / Transf U_prim		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min -	Max -	Factory setting [0] 5461[0] [1] 5462[0]
Description:	Sets the signal source for the measured phase voltage (u12, u23) on the primary side.		
Index:	[0] = Phase voltage u12 [1] = Phase voltage u23		
r5488[0...2]	CO: Transf secondary voltage transformed / Transf U_sec trans		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the components for the transformed voltage on the secondary side of the transformer from measured primary voltage (p5487).		
Index:	[0] = Alpha [1] = Beta [2] = Amplitude		
Dependency:	Refer to: p5487		

r5489 Transf leakage inductance identified / Transf L_l ident

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: - Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [mH]
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Min - [mH] **Max** - [mH]

Description: Displays the total leakage inductance of the line transformer determined by means of automatic transformer identification (p5480 = 13).
The result should be entered in parameter p5490.
During identification, the value previously entered in p5490 is not effective.

Dependency: Refer to: p5480, p5490

p5490 Transf leakage inductance / Transf L_leak

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: C2(1) Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0.100 [mH]
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Min 0.001 [mH] **Max** 1000.000 [mH]

Description: Sets the total leakage inductance of the line transformer.

r5491 Transf magnetizing inductance identified / Transf L_m ident

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: - Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [mH]
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Min - [mH] **Max** - [mH]

Description: Displays the magnetizing inductance of the line transformer determined by means of automatic transformer identification (p5480 = 11).
The result should be entered in parameter p5492.
During identification, the value previously entered in p5492 is not effective.

Dependency: Refer to: p5480, p5492

p5492 Transf magnetizing inductance / Transf L_mag

AFE_SINUMERIK_8 28 (Line transf)	Can be changed: C2(1) Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 250.00 [mH]
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Min 0.10 [mH] **Max** 10000.00 [mH]

Description: Sets the magnetizing inductance of the line transformer.

Dependency: Refer to: r5491

r5493.0	CO/BO: Transf control signals / Transf ctrl sig			
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the control signals for transformer magnetization.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Control bypass contactor	Yes	No
Dependency:	Refer to: r0863, r3402			
Note:	Re bit 00: The signal is used to control the external bypass contactor in the pre-charge branch. The external bypass contactor is closed if pre-charging is complete (r3402 > 5) and the circuit breaker has not been activated (r0863.1 = 0).			
p5494	Transformer scaling setpoint magnetization / Tranfs setp scal			
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Converter	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	90.0 [%]	100.0 [%]	100.0 [%]	
Description:	Sets the scaling for the setpoint voltage for the transformer magnetization.			
r5497[0...1]	CO: Transf secondary current / Transf I_second			
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	- [A]	- [A]	- [A]	
Description:	Displays the components for the transformer's calculated secondary current.			
Index:	[0] = Alpha [1] = Beta			
r5498[0...2]	CO: Transf secondary voltage / Transf U_second			
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	- [V]	- [V]	- [V]	
Description:	Displays the components for the secondary voltage calculated from the filter (r3467, r3468) via the transformer model.			
Index:	[0] = Alpha [1] = Beta [2] = Amplitude			
Dependency:	Refer to: r3467, r3468, p5490, p5492			

p6420	Line transformer phase shift / Transf ph_shift		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -180.00 [°]	Max 179.90 [°]	Factory setting 0.00 [°]
Description:	Sets the phase shift between the line transformer's primary and secondary voltages.		
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 is 150° ahead). This phase shift must be determined when commissioning the system.		

p6421	Line transformer gain adaptation / Transf gain		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 50.000 [%]	Max 200.000 [%]	Factory setting 100.000 [%]
Description:	Sets the gain factor correction for fine calibration of the line transformer transformation ratio.		
Dependency:	Refer to: r6441		

r6440	Line transformer phase shift identified / Trans phase ident		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the phase shift between the primary and secondary voltages of the line transformer identified by automatic transformer identification (p5480 = 12).		
Dependency:	Refer to: 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 is 150° ahead). The result should be entered in parameter p6420. During identification, the value previously entered in p6420 is not effective.		

r6441	Line transformer gain adaptation identified / Transf gain ident		
AFE_SINUMERIK_8 28 (Line transf)	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the gain factor correction identified (p5480 = 12) for fine calibration of the line transformer transformation ratio.		
Dependency:	Refer to: p6421		
Note:	The result should be entered in parameter p6421. During identification, the value previously entered in p6421 is not effective.		
r7000	Par_circuit No. of active power units / Qty active PU		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the active power units for a parallel circuit configuration.		
Dependency:	Refer to: p7001		
p7001[0...n]	Par_circuit power units enable / PU enable		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: PDS	
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Enables the power units in the parallel circuit configuration.		
Value:	0: De-activated 1: Activated		
Dependency:	Refer to: 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]	Par_circuit status power units / Status PU		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: PDS	
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting -
Description:	Displays the status of the power units in the parallel circuit configuration.		
Value:	0: Pulses inhibited 1: Pulses enabled		
Dependency:	Refer to: r7000, p7001		

p7010	Par_circuit current dissymmetry alarm threshold / i_dissym A thresh		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: PERCENT	Access level: 3 Unit selection: - Expert list: 1
	Min 2 [%]	Max 100 [%]	Factory setting 20 [%]
Description:	Sets the alarm threshold to detect current dissymmetry 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:	Refer to: r7251 Refer to: A05052		

p7011	Par_circuit DC link voltage dissymmetry alarm threshold / Vdc_dissym A thrsh		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: PERCENT	Access level: 3 Unit selection: - Expert list: 1
	Min 2 [%]	Max 100 [%]	Factory setting 10 [%]
Description:	Sets the alarm threshold to detect dissymmetry 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:	Refer to: A05053		

r7020[0...n]	CO: Par_circuit deviation current in phase U / Phase U curr dev		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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:	Refer to: r7021, r7022, r7025		

r7021[0...n]	CO: Par_circuit deviation current in phase V / Phase V curr dev		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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:	Refer to: r7020, r7022, r7026		

r7022[0...n]	CO: Par_circuit deviation current in phase W / Phase W curr dev		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [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:	Refer to: r7020, r7021, r7027		
r7025	CO: Par_circuit max. deviation currents phase U / Phase U Max i_dev		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [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:	Refer to: r7020, r7026, r7027 Refer to: A05052		
r7026	CO: Par_circuit max. deviation currents phase V / Phase V Max i_dev		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [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:	Refer to: r7021, r7025, r7027 Refer to: A05052		
r7027	CO: Par_circuit max. deviation currents phase W / Phase W Max i_dev		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [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:	Refer to: r7022, r7025, r7026 Refer to: A05052		

r7030[0...n]	CO: Par_circuit DC link voltage deviation / Vdc deviation		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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:	Refer to: r7031		

r7031	CO: Par_circuit DC link voltage maximum deviation / Vdc deviation max.		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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:	Refer to: r7030 Refer to: A05053		

p7035	Infeed par_circuit circulating current control operating mode / Circ_I mode		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: Integer16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 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 control control activated		

p7036	Infeed par_cct circulating current controller proportional gain / Circ_I Kp		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00000 [%]	Max 1000.00000 [%]	Factory setting 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 100000.0 [%]	Factory setting 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1 [%]	Max 100 [%]	Factory setting 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min -1000000.00 [µs]	Max 1000000.00 [µs]	Factory setting 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min -1000000.00 [µs]	Max 1000000.00 [µs]	Factory setting 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.		

r7044[0...n] Par_circuit correction valve lockout time phase W / Comp t_lockout W

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting 0.00 [µs]
	Min -1000000.00 [µs]	Max 1000000.00 [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.

r7050[0...n] Par_circuit circulating current phase U / Circ_I_phase U

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [A]
	Min - [A]	Max - [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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [A]
	Min - [A]	Max - [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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 6_5 Scaling: p2002	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [A]
	Min - [A]	Max - [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

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
	Min -	Max -	

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: Refer to: 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

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	---	---	---

Min	Max	Factory setting
-	-	-

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 (VSMSD)

Dependency: Refer to: 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

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	---	---	---

Min	Max	Factory setting
-	-	-

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: Refer to: 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

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: Unsigned32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
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Min	Max	Factory setting
-	-	-

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: Refer to: 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: - Scaling: PERCENT	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [%]
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		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [°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]	Par_circuit power unit temperatures max. rectifier / PU temp max rect		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1 Factory setting - [°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]	Par_circuit power unit temperatures air intake / PU temp air intake		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 21_1 Scaling: TEMP	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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		
AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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		
AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel),	Can be changed: -	Calculated: -	Access level: 3
BIC_SINUMERIK_82 8 (Parallel),	Data type: FloatingPoint32	Dynamic index: PDS	
SIC_SINUMERIK_82 8 (Parallel)	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -	Scaling: TEMP	Expert list: 1

Min	Max	Factory setting
- [°C]	- [°C]	- [°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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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**

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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**

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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**

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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**

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [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**

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 6_5	Unit selection: p0505
	Not for motor type: -	Scaling: p2002	Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]

Description: Displays the measured sum of the currents in phases U, V and W as peak 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		
AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 5_2 Scaling: p2001	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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 / V_phase U act val		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 5_3 Scaling: p2001	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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 / V_phase U act val		
AFE_SINUMERIK_8 28 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 5_3 Scaling: p2001	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual voltage, phase U.		

r7232[0...n]	CO: Par_circuit phase voltage actual value phase V / V_phase V act val		
AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 5_3 Scaling: p2001	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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 / V_phase V act val		
AFE_SINUMERIK_8 28 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: PDS Units group: 5_3 Scaling: p2001	Access level: 3 Unit selection: p0505 Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the actual voltage, phase V.		

r7233[0...n] **CO: Par_circuit phase voltage actual value phase W / V_phase W act val**

AFE_SINUMERIK_8 28, SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [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 / V_phase W act val**

AFE_SINUMERIK_8 28 (Parallel)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: PDS	
	P-Group: Displays, signals	Units group: 5_3	Unit selection: p0505
	Not for motor type: -	Scaling: p2001	Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the actual voltage, phase W.

r7250[0...4] **Par_circuit power unit rated power / PU P_rated**

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: 14_6	Unit selection: p0100
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [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] = Rating plate
[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].
Refer to: p0100

r7251[0...4] **Par_circuit power unit rated current / PU PI_rated**

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [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] = Rating plate
 [1] = Load duty cycle with low overload
 [2] = Load duty cycle with high overload
 [3] = S1 cont duty cyc
 [4] = S6 load duty cycle

r7252[0...4] Par_circuit maximum power unit current / PU I_max

AFE_SINUMERIK_8 28 (Parallel), BIC_SINUMERIK_82 8 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
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Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
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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] = Rating plate
 [1] = Load duty cycle with low overload
 [2] = Load duty cycle with high overload
 [3] = S1 cont duty cyc
 [4] = S6 load duty cycle

r7300[0...n] CO: Par_circuit VSM input line voltage u1 - u2 / VSM inp u1-u2

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1
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Min - [V]	Max - [V]	Factory setting - [V]
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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: Refer to: 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

AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1
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Min - [V]	Max - [V]	Factory setting - [V]
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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: Refer to: 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			
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: p0140		
	P-Group: Terminals	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting -	
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	Temperature alarm threshold exceeded	Yes	No
	01	Temperature fault threshold exceeded	Yes	No
Dependency:	Refer to: p3665, r3666, p3667, p3668			

r7306[0...n]	CO: Par_circuit VSM temperature KTY / VSM temp KTY			
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: p0140		
	P-Group: Closed-loop control	Units group: 21_1	Unit selection: p0505	
	Not for motor type: -	Scaling: TEMP	Expert list: 1	
	Min - [°C]	Max - [°C]	Factory setting - [°C]	
Description:	Displays the temperature actual value of the KTY84 temperature sensor connected to the Voltage Sensing Module (VSM) for a parallel circuit configuration. The maximum value of all VSMS is displayed in r3666. Prerequisite: A KTY84 sensor is connected and p3665 is set to 2.			
Dependency:	Refer to: p3665			

r7310[0...n]	CO: Par_circuit VSM 10 V input CT1 actual value / VSM CT 1 I_act			
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: p0140		
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: p2002	Expert list: 1	
	Min - [A]	Max - [A]	Factory setting - [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:	Refer to: 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: p2002	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [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:	Refer to: 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 V_act		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [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:	Refer to: 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 V_act		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: p2001	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [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:	Refer to: 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting - [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:	Refer to: 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting - [µF]
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:	Refer to: 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		
AFE_SINUMERIK_8 28 (Parallel), SIC_SINUMERIK_82 8 (Parallel)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: p0140 Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting - [µF]
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:	Refer to: p3676		
Note:	Prerequisites: The monitoring of the filter capacitance is activated.		

p7770	NVRAM action / NVRAM action		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, HUB, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the action to be executed for NVRAM data. At the end of the action the value is automatically set to 0.		
Value:	0: Inactive 1: Load NVRAM data to parameters 2: Load parameters to NVRAM 3: Reset		
Notice:	After action p7770 = 1 no more pulses may be enabled. After action p7770 = 2, it is essential that parameters are backed up (p0977 = 1) and that a warm restart is then performed (p0009 = 30, p0976 = 2, 3). This will apply the values written.		

Note: Re value = 1:
This action loads the NVRAM data to the parameters.
Re value = 2:
This action loads the parameters to the NVRAM.
Re 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.

p7788 Sign-of-life monitoring tolerance window /

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
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Min	Max	Factory setting
1	1000	10

Description: The size of the window for monitoring sign-of-life errors on the power unit.

Dependency: Refer to: 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, A30853 is issued. The lower the value in p7788, the greater the tolerance of the monitoring procedure.

p7789 Sign-of-life monitoring fault threshold /

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
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Min	Max	Factory setting
0	1000	1

Description: Number of consecutive sign-of-life errors on the power unit that are tolerated.

Dependency: Refer to: F30008

Note: If more sign-of-life errors than the number set in p7789 occur one after the other, F30008 is issued. The higher the value in p7789, the greater the tolerance of the monitoring procedure.

p7820 DRIVE-CLiQ component component number / DLQ comp_no

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
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Min	Max	Factory setting
0	65535	0

Description: Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed.

Dependency: Refer to: p7821, p7822, r7823

p7821	DRIVE-CLiQ component parameter number / DLQ para_no		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the parameter number to access a parameter of a DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7822, r7823		

p7822	DRIVE-CLiQ component parameter index / DLQ para_index		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the parameter index to access a parameter of a DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7821, r7823		

r7823	DRIVE-CLiQ component read parameter value / Read DLQ value		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the parameter value read from the DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7821, p7822		

r7825[0...6]	DRIVE-CLiQ component versions / DLQ version		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware and EPROM versions of the DRIVE-CLiQ component selected using p7828[1].		
Index:	[0] = Reference firmware version [1] = Actual firmware version [2] = EPROM0 version [3] = EPROM1 version [4] = EPROM2 version [5] = EPROM3 version [6] = EPROM4 version		
Dependency:	Refer to: p7828		
Note:	Reference firmware version: Version on the memory card/device memory. Current firmware version: Actual version of the DRIVE-CLiQ component. EPROM version: Current EPROM version of the DRIVE-CLiQ component.		

p7826	Firmware update automatic / FW update auto		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Sets the behavior for the automatic firmware update of the DRIVE-CLiQ components.		
Value:	0: De-activated 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the progress when updating the firmware of the DRIVE-CLiQ components.		
p7828[0...1]	Firmware download component number / FW download number		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 399	Factory setting 0
Description:	Sets the component number for the required DRIVE-CLiQ component. Index 0: Component number of the DRIVE-CLiQ component for which a firmware download is to be made. Index 1: Component number of the DRIVE-CLiQ component for which the reference firmware version, saved in r7825 on the memory card/device memory, is to be displayed.		
Index:	[0] = Firmware download [1] = Reference firmware version		
Dependency:	Refer to: p0121, p0141, p0151, p7829		
Note:	For p7828[0] = 399, the firmware for all of the existing components is downloaded. The firmware download is started with p7829 = 1.		

p7829 Activate firmware download / FW download act

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 999	Factory setting 0

Description: Activating the firmware download for the DRIVE-CLiQ components specified in p7828.
 1: Activate download.
 0: Download successfully completed.
 > 1: Fault code
 011: DRIVE-CLiQ component has detected a checksum error.
 015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file.
 018: Firmware version is too old and is not accepted by the component.
 019: Firmware version is not suitable for the hardware release of the component.
 101: After several communication attempts, no response from the DRIVE-CLiQ component.
 140: Firmware file for the DRIVE-CLiQ component not available on the memory card/device memory.
 143: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.
 144: When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card/device memory is defective.
 145: Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.
 156: Component with the specified component number is not available.
 Additional values:
 Only for internal Siemens troubleshooting.

Dependency: Refer to: p7828

Note: p7829 is automatically set to 0 after the firmware has been successfully downloaded.
 The new firmware only becomes active at the next system run-up.

p7830 Diagnostics telegram selection / Diag telegram

SERVO_SINUMERIK K828	Can be changed: T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 0

Description: Selects a telegram whose contents should be shown in p7831 ... p7836.

Value:
 0: Reserved
 1: First cyclic receive telegram sensor 1
 2: First cyclic receive telegram sensor 2
 3: First cyclic receive telegram sensor 3

Dependency: Refer to: r7831, r7832, r7833, r7834, r7835, r7836

r7831[0...15] Telegram diagnostics signals / Tel diag signals

SERVO_SINUMERIK K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 11826	Factory setting -

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
	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
	10564: ENC_SELFTEMP_ACT
	10565: ENC_ID_MOTOR_TEMP_TOP
	10566: ENC_ID_MOTOR_TEMP_1
	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
	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_VEKTOR
	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

- 10676: ENC_ID_COUNTCORR_SAW_VALUE
- 10677: ENC_ID_COUNTCORR_ABS_VALUE
- 10678: ENC_ID_SAWTOOTH_CORR
- 10692: ENC_ID_RESISTANCE_CALIB_INSTANT
- 10693: ENC_ID_SERPROT_POS
- 10724: ENC_ID_ACT_FUNMAN_FUNCTION
- 10725: ENC_ID_SAFETY_COUNTER_CRC
- 10740: ENC_ID_POS_ABSOLUTE
- 10741: ENC_ID_POS_REFMARK
- 10742: ENC_ID_SAWTOOTH
- 10743: ENC_ID_SAFETY_PULSE_COUNTER
- 10756: ENC_ID_DSA_ACTUAL_SPEED
- 10757: ENC_ID_SPEED_DEV_ABS
- 10772: ENC_ID_DSA_POS_XIST1
- 10788: ENC_ID_AB_GROSS_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

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

r7832[0...15] Telegram diagnostics numerical format / tel diag format

SERVO_SINUMERI K828	Can be changed: - Data type: Integer16 P-Group: - Not for motor type: - Min -1	Calculated: - Dynamic index: - Units group: - Scaling: - Max 14	Access level: 4 Unit selection: - Expert list: 1 Factory setting -
------------------------	--	---	--

Description: Indicates the original numerical format of the signals contained in the telegram. The associated signal number is represented at the appropriate index in 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:	SIMUMERIK frame type
	14:	SIMUMERIK axis type
Index:	[0] =	
	[1] =	
	[2] =	
	[3] =	
	[4] =	
	[5] =	
	[6] =	
	[7] =	
	[8] =	
	[9] =	
	[10] =	
	[11] =	
	[12] =	
	[13] =	
	[14] =	
	[15] =	

r7833[0...15] Telegram diagnostics unsigned / Tel diag unsigned

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Parameter to display a DSA signal in the unsigned-integer format.
The associated signal number is represented at the appropriate index in r7831.

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

r7834[0...15] Telegram diagnostics signed / Tel diag signed			
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer32	Dynamic index: -	Unit selection: -
	P-Group: -	Units group: -	Expert list: 1
	Not for motor type: -	Scaling: -	Factory setting
	Min	Max	
	-	-	-
Description:	Parameter to display a DSA signal in the signed-integer format. The associated signal number is represented at the appropriate index in r7831.		
Index:	[0] = [1] = [2] = [3] = [4] = [5] = [6] = [7] = [8] = [9] = [10] = [11] = [12] = [13] = [14] = [15] =		

r7835[0...15] Telegram diagnostics real / Tel diag real			
SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Unit selection: -
	P-Group: -	Units group: -	Expert list: 1
	Not for motor type: -	Scaling: -	Factory setting
	Min	Max	
	-	-	-
Description:	Parameter to display a DSA signal in the float format. The associated signal number is represented at the appropriate index in r7831.		
Index:	[0] = [1] = [2] = [3] = [4] = [5] = [6] = [7] = [8] = [9] = [10] = [11] = [12] = [13] = [14] = [15] =		

r7836[0...15] Telegram diagnostics unit / Tel diag unit

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Unit selection: -
	P-Group: -	Units group: -	Expert list: 1
	Not for motor type: -	Scaling: -	Factory setting
	Min	Max	-
	-1	147	

Description: Parameter to display 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 V/sec^2
	8:	m/sec^2
	9:	V/sec^2
	10:	m/sec^3 or V/sec^3
	11:	m/sec^3
	12:	V/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 / Amps
	35:	Volt / Amp
	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 meter
	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:	Millimeters / 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:	Tenth 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 * second)
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

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

r7843[0...20]	Memory card serial number / Mem_card ser.no		
CU_I_COMBI,	Can be changed: -	Calculated: -	Access level: 1
CU_I_SINUMERIK_8 28	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual serial number of the memory card.
 The individual characters of the serial number are displayed in the ASCII code in the indices.

Notice: An ASCII table (excerpt) can be found, for example, in the Appendix of 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...1]	Memory card/device memory firmware version / Mem_crd/dev_mem FW		
CU_I_COMBI,	Can be changed: -	Calculated: -	Access level: 1
CU_I_SINUMERIK_8 28	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the version of the firmware stored on the memory card/device memory.
 Index 0: Firmware version internal (e.g. 01203300)
 Index 1: Firmware version external (e.g. 01020000 -> 1.2)

r7850[0...23]	Drive object operational/not operational / DO ready for oper		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -32786	Max 32767	Factory setting -
Description:	Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed). 0: Drive object not ready for operation 1: Drive object ready for operation		
p7852	Number of indices for r7853 / Qty indices r7853		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 200	Factory setting 1
Description:	Displays the number of indices for r7853[0...n]. This corresponds to the number of DRIVE-CLiQ components that are in the target topology.		
Dependency:	Refer to: r7853		
Note:	The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up.		
r7853[0...n]	Component available/not available / Comp present		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: p7852	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF hex	Factory setting -
Description:	Displays the component and whether this component is currently present. High byte: Component number Low byte: 0/1 (not available/available)		
Dependency:	Refer to: p7852		
Note:	The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power-up.		

p7857 Sub-boot mode / Sub-boot mode

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, CU_LINK, HUB,
SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8, TM120,
TM54F_MA,
TM54F_SL

Can be changed: U, T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 4
Unit selection: -
Expert list: 1

Min	0	Max	1	Factory setting	1
------------	---	------------	---	------------------------	---

Description: Sets the mode for the sub-boot.

Value: 0: Sub-boot manual
1: Sub-boot automatic

Note: For p7857 = 0 (manual sub-boot) the following applies:
The parameter should be set to 1 to start the sub-boot.

p7859[0...199] Component number global / Comp_nr global

CU_I_COMBI,
CU_I_SINUMERIK_8
28, CU_NX_828

Can be changed: U, T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 4
Unit selection: -
Expert list: 0

Min	-32786	Max	32767	Factory setting	0
------------	--------	------------	-------	------------------------	---

Description: Sets the global and unique component number in a drive system with several Control Units.
Each index of the parameter corresponds to a possible local component number on the corresponding Control Unit.
The indices are allocated to the global component numbers as follows:
p7859[0]: Not used
p7859[1]: Sets the global component number for the local component number 1
p7859[2]: Sets the global component number for the local component number 2
...
p7859[199]: Sets the global component number for the local component number 199

Notice: This parameter is preferably set via suitable commissioning software (e.g. UpdateAgent, STARTER, SCOUT).
Changing the parameter via the AOP (Advanced Operator Panel) or BOP (Basic Operator Panel) can destroy a valid unique setting.

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

r7867 Status/configuration changes global / Changes global

CU_I_COMBI,
CU_I_SINUMERIK_8
28, CU_NX_828

Can be changed: -
Data type: Unsigned32
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 4
Unit selection: -
Expert list: 1

Min	-	Max	-	Factory setting	-
------------	---	------------	---	------------------------	---

Description: Displays status and configuration changes of all of the drive objects in the complete unit.
When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented.

Dependency: Refer to: r7868, r7869, r7870

r7868[0...24]	Configuration changes drive object reference / Config_chng DO ref		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Reference to the drive objects whose configuration has changed. Index 0: When changing one of the following indices, then the value in this index is increased. Index 1...n: The drive object with object number in p0101[n-1] has changed its configuration. Example: r7868[3] was incremented since the last time it was read. --> the configuration of the drive object with object number in p0101[2] was changed.		
Index:	[0] = Sum of the following indices [1] = Object number in p0101[0] [2] = Object number in p0101[1] [3] = Object number in p0101[2] [4] = Object number in p0101[3] [5] = Object number in p0101[4] [6] = Object number in p0101[5] [7] = Object number in p0101[6] [8] = Object number in p0101[7] [9] = Object number in p0101[8] [10] = Object number in p0101[9] [11] = Object number in p0101[10] [12] = Object number in p0101[11] [13] = Object number in p0101[12] [14] = Object number in p0101[13] [15] = Object number in p0101[14] [16] = Object number in p0101[15] [17] = Object number in p0101[16] [18] = Object number in p0101[17] [19] = Object number in p0101[18] [20] = Object number in p0101[19] [21] = Object number in p0101[20] [22] = Object number in p0101[21] [23] = Object number in p0101[22] [24] = Object number in p0101[23]		
Dependency:	Refer to: p0101, r7867, r7871		

r7869[0...24] Status changes drive object reference / Status_chng DO ref

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Reference to the drive objects whose status has changed.
 Index 0:
 When changing one of the following indices, then the value in this index is increased.
 Index 1...n:
 The drive object with object number in p0101[n-1] has changed its status.
 Example:
 r7868[3] was incremented since the last time it was read.
 --> the status of the drive object with object number in p0101[2] was changed.

- Index:**
- [0] = Sum of the following indices
 - [1] = Object number in p0101[0]
 - [2] = Object number in p0101[1]
 - [3] = Object number in p0101[2]
 - [4] = Object number in p0101[3]
 - [5] = Object number in p0101[4]
 - [6] = Object number in p0101[5]
 - [7] = Object number in p0101[6]
 - [8] = Object number in p0101[7]
 - [9] = Object number in p0101[8]
 - [10] = Object number in p0101[9]
 - [11] = Object number in p0101[10]
 - [12] = Object number in p0101[11]
 - [13] = Object number in p0101[12]
 - [14] = Object number in p0101[13]
 - [15] = Object number in p0101[14]
 - [16] = Object number in p0101[15]
 - [17] = Object number in p0101[16]
 - [18] = Object number in p0101[17]
 - [19] = Object number in p0101[18]
 - [20] = Object number in p0101[19]
 - [21] = Object number in p0101[20]
 - [22] = Object number in p0101[21]
 - [23] = Object number in p0101[22]
 - [24] = Object number in p0101[23]

Dependency: Refer to: p0101, r7867, r7872

r7870[0...7] Configuration changes global / Config_chng global

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the configuration changes of all of the drive objects in the complete unit.

Index: [0] = Sum of the following indices
 [1] = r7871[0] of a drive object
 [2] = p0101 or r0102
 [3] = PROFIBUS configuration (p0978)
 [4] = DRIVE-CLiQ actual topology (r9900 or r9901)
 [5] = DRIVE-CLiQ target topology (r9902 or r9903)
 [6] = DRIVE-CLiQ ports (p0109)
 [7] = OA applications

Dependency: Refer to: r7867, r7871

Note: Index 0:
 When changing one of the following indices, then the value in this index is incremented.
 Index 1:
 Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented.
 Index 2:
 Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented.
 Index 3:
 PROFIBUS configuration unit. When changing p0978, the value in this index is incremented.
 Index 4:
 DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented.
 Index 5:
 DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented.
 Index 6:
 DRIVE-CLiQ ports. When changing p0109, the value in this index is incremented.
 Index 7:
 OA applications. When changing OA applications, the value in this index is incremented.

r7871[0...10] Configuration changes drive object / Config_chng DO

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
--	---	---	---

Min	Max	Factory setting
-	-	-

Description: Displays the configuration changes on the drive object.

Index: [0] = Sum of the following indices
 [1] = p0010, p0107 or 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 or p0108

Dependency: Refer to: r7868, r7870

Note:

Re index 0:
When changing one of the following indices, then the value in this index is incremented.

Re index 1:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.

Re index 2:
Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

Re index 7:
Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

Re index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

r7871[0...10]	Configuration changes drive object / Config_chng DO		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the configuration changes on the drive object.		
Index:	[0] = Sum of the following indices [1] = p0107 or 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 or p0108		
Dependency:	Refer to: r7868, r7870		

Note:

Re index 0:
When changing one of the following indices, then the value in this index is incremented.

Re index 1:
Drive object commissioning: When changing either p0107 or p0108, the value in this index is incremented.

Re index 2:
Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

Re index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

r7871[0...10] Configuration changes drive object / Config_chng DO

CU_LINK, HUB, TM120	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:

- [0] = Sum of the following indices
- [1] = p0010, p0107 or 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 or p0108

Dependency: Refer to: r7868, r7870

Note:

Re index 0:
When changing one of the following indices, then the value in this index is incremented.

Re index 1:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.

Re index 2:
Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

Re index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the configuration changes on the drive object.

Index:

- [0] = Sum of the following indices
- [1] = p0010, p0107 or 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 or p0108
- [11] = p0530 or p0531
- [12] = Reserved
- [13] = Reserved
- [14] = Reserved
- [15] = SERVO or VECTOR (e.g. p0300)

Dependency: Refer to: r7868, r7870

Note:

Re index 0:
When changing one of the following indices, then the value in this index is incremented.

Re index 1:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.

Re index 2:
Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 5:
Drive object activity: When changing p0105, the value in this index is incremented.

Re index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

Re index 7:
Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.

Re index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

Re index 15:
SERVO/VECTOR configuration. When changing p0300, p0301 or p0400, the value in this index is incremented.

r7871[0...10] Configuration changes drive object / Config_chng DO			
TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the configuration changes on the drive object.		
Index:	[0] = Sum of the following indices [1] = p0010, p0107 or 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 or p0108		
Dependency:	Refer to: r7868, r7870		

Note:

Re index 0:
When changing one of the following indices, then the value in this index is incremented.

Re index 1:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.

Re index 2:
Drive object name. When changing p0199, the value in this index is incremented.

Re index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Re index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Re index 6:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.

Re index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.

Re index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Re index 10:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.

r7872[0...3] Status changes drive object / Status_chng DO

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
---	---	---	---

Min	Max	Factory setting
-	-	-

Description: Displays the status changes on the drive object.

Index 0:
When changing one of the following indices, then the value in this index is incremented.

Index 1:
Drive object faults. When changing r0944, the value in this index is incremented.

Index 2:
Drive object alarms. When changing r2121, the value in this index is incremented.

Index 3:
Drive object safety messages. When changing r9744, the value in this index is incremented.

Index:
[0] = Sum of the following indices
[1] = Faults (r0944)
[2] = Alarms (r2121)
[3] = Safety messages (r9744)

Dependency: Refer to: r7869

p7900[0...23]	Drive objects priority / DO priority		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 65535	Factory setting 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...43]	Sampling times / t_{sample}		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [µs]
Description:	Displays the sampling times currently present on the drive unit. For r7901[x] = 0, the following applies: The time slice is not active.		

r7903	Hardware sampling times still cannot be assigned / HW t_{samp} free		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of hardware sampling times that can still be assigned. These free sampling times can be used by OA applications such as DCC (Drive Control Chart) or FBLOCKS (free function blocks).

Note: OA: Open Architecture

p8500[0...7]	BI: Data transfer 0 bitwise / Transfer 0 bit		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for bitwise data transfer. These signals are available in BO: r8510.0 ... 7 for further interconnection.

Index:
 [0] = Send signal to BO: r8510.0
 [1] = Send signal to BO: r8510.1
 [2] = Send signal to BO: r8510.2
 [3] = Send signal to BO: r8510.3
 [4] = Send signal to BO: r8510.4
 [5] = Send signal to BO: r8510.5
 [6] = Send signal to BO: r8510.6
 [7] = Send signal to BO: r8510.7

Dependency: Refer to: r8510

p8500[0...7]	BI: Data transfer 0 bitwise / Transfer 0 bit		
CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for bitwise data transfer. These signals are transferred to another Control Unit and are located in BO: r8510.0 ... 7 for further interconnection.

Index:
 [0] = Send signal to BO: r8510.0
 [1] = Send signal to BO: r8510.1
 [2] = Send signal to BO: r8510.2
 [3] = Send signal to BO: r8510.3
 [4] = Send signal to BO: r8510.4
 [5] = Send signal to BO: r8510.5
 [6] = Send signal to BO: r8510.6
 [7] = Send signal to BO: r8510.7

Dependency: Refer to: 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] BI: Data transfer 1 bitwise / Transfer 1 bit			
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for bitwise data transfer. These signals are available in BO: r8511.0 ... 15 for further interconnection.		
Index:	[0] = Send signal to BO: r8511.0 [1] = Send signal to BO: r8511.1 [2] = Send signal to BO: r8511.2 [3] = Send signal to BO: r8511.3 [4] = Send signal to BO: r8511.4 [5] = Send signal to BO: r8511.5 [6] = Send signal to BO: r8511.6 [7] = Send signal to BO: r8511.7 [8] = Send signal to BO: r8511.8 [9] = Send signal to BO: r8511.9 [10] = Send signal to BO: r8511.10 [11] = Send signal to BO: r8511.11 [12] = Send signal to BO: r8511.12 [13] = Send signal to BO: r8511.13 [14] = Send signal to BO: r8511.14 [15] = Send signal to BO: r8511.15 [16] = Send signal to BO: r8511.16 [17] = Send signal to BO: r8511.17 [18] = Send signal to BO: r8511.18 [19] = Send signal to BO: r8511.19 [20] = Send signal to BO: r8511.20 [21] = Send signal to BO: r8511.21		
Dependency:	Refer to: r8511		

p8501[0...21]	BI: Data transfer 1 bitwise / Transfer 1 bit		
CU_LINK	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	[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 BO: r8511.0 ... 15 for further interconnection.

Index:

- [0] = Send signal to BO: r8511.0
- [1] = Send signal to BO: r8511.1
- [2] = Send signal to BO: r8511.2
- [3] = Send signal to BO: r8511.3
- [4] = Send signal to BO: r8511.4
- [5] = Send signal to BO: r8511.5
- [6] = Send signal to BO: r8511.6
- [7] = Send signal to BO: r8511.7
- [8] = Send signal to BO: r8511.8
- [9] = Send signal to BO: r8511.9
- [10] = Send signal to BO: r8511.10
- [11] = Send signal to BO: r8511.11
- [12] = Send signal to BO: r8511.12
- [13] = Send signal to BO: r8511.13
- [14] = Send signal to BO: r8511.14
- [15] = Send signal to BO: r8511.15
- [16] = Send signal to BO: r8511.16
- [17] = Send signal to BO: r8511.17
- [18] = Send signal to BO: r8511.18
- [19] = Send signal to BO: r8511.19
- [20] = Send signal to BO: r8511.20
- [21] = Send signal to BO: r8511.21

Dependency: Refer to: r8511

p8501[0...21] BI: Data transfer 1 bitwise / Transfer 1 bit			
CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	[0] 722.0
			[1] 722.1
			[2] 722.2
			[3] 722.3
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 722.8
			[9] 722.9
			[10] 722.10
			[11] 722.11
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 722.16
			[17] 722.17
			[18] 0
			[19] 0
			[20] 0
			[21] 0

Description: Sets the signal source for bitwise data transfer.
These signals are transferred to another Control Unit and are located in BO: r8511.0 ... 15 for further interconnection.

Index:

- [0] = Send signal to BO: r8511.0
- [1] = Send signal to BO: r8511.1
- [2] = Send signal to BO: r8511.2
- [3] = Send signal to BO: r8511.3
- [4] = Send signal to BO: r8511.4
- [5] = Send signal to BO: r8511.5
- [6] = Send signal to BO: r8511.6
- [7] = Send signal to BO: r8511.7
- [8] = Send signal to BO: r8511.8
- [9] = Send signal to BO: r8511.9
- [10] = Send signal to BO: r8511.10
- [11] = Send signal to BO: r8511.11
- [12] = Send signal to BO: r8511.12
- [13] = Send signal to BO: r8511.13
- [14] = Send signal to BO: r8511.14
- [15] = Send signal to BO: r8511.15
- [16] = Send signal to BO: r8511.16
- [17] = Send signal to BO: r8511.17
- [18] = Send signal to BO: r8511.18
- [19] = Send signal to BO: r8511.19
- [20] = Send signal to BO: r8511.20
- [21] = Send signal to BO: r8511.21

Dependency: Refer to: r8511

p8502	CI: Data transfer 0 wordwise / Transfer 0 word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).
This signal value is available in CO: r8512 for further interconnection.

Dependency: Refer to: r8512

p8502	CI: Data transfer 0 wordwise / Transfer 0 word		
CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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 CO: r8512 for further interconnection.

Dependency: Refer to: r8512

p8503	CI: Data transfer 1 wordwise / Transfer 1 word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).
This signal value is available in CO: r8513 for further interconnection.

Dependency: Refer to: r8513

p8503	CI: Data transfer 1 wordwise / Transfer 1 word		
CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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 in CO: r8513 for further interconnection.

Dependency: Refer to: r8513

p8504	CI: Data transfer 2 wordwise / Transfer 2 word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).

This signal value is available in CO: r8514 for further interconnection.

Dependency: Refer to: r8514

p8504	CI: Data transfer 2 wordwise / Transfer 2 word		
CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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 in CO: r8514 for further interconnection.

Dependency: Refer to: r8514

p8505	CI: Data transfer 3 wordwise / Transfer 3 word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the wordwise data transfer (process signal).

This signal value is available in CO: r8515 for further interconnection.

Dependency: Refer to: r8515

p8505	CI: Data transfer 3 wordwise / Transfer 3 word		
CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	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 in CO: r8515 for further interconnection.

Dependency: Refer to: r8515

r8510.0...7		BO: Data transfer 0 receive bitwise / Trans 0 recv bit			
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the signals of the bitwise received data. These signals were interconnected and transferred via BI: p8500[0...7].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8500	On	Off	
	01	Receive signal from BI: p8500	On	Off	
	02	Receive signal from BI: p8500	On	Off	
	03	Receive signal from BI: p8500	On	Off	
	04	Receive signal from BI: p8500	On	Off	
	05	Receive signal from BI: p8500	On	Off	
	06	Receive signal from BI: p8500	On	Off	
	07	Receive signal from BI: p8500	On	Off	
Dependency:	Refer to: p8500				

r8510.0...7		BO: Data transfer 0 receive bitwise / Trans 0 recv bit			
CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the signals of the bitwise received data. These signals were interconnected and transferred to another Control Unit via BI: p8500[0...7].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8500	On	Off	
	01	Receive signal from BI: p8500	On	Off	
	02	Receive signal from BI: p8500	On	Off	
	03	Receive signal from BI: p8500	On	Off	
	04	Receive signal from BI: p8500	On	Off	
	05	Receive signal from BI: p8500	On	Off	
	06	Receive signal from BI: p8500	On	Off	
	07	Receive signal from BI: p8500	On	Off	
Dependency:	Refer to: p8500				

r8511.0...21		BO: Data transfer 1 receive bitwise / Trans 1 recv bit		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the signals of the bitwise received data. These signals were interconnected and transferred via BI: p8501[0...15].			

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8501	On	Off	
	01	Receive signal from BI: p8501	On	Off	
	02	Receive signal from BI: p8501	On	Off	
	03	Receive signal from BI: p8501	On	Off	
	04	Receive signal from BI: p8501	On	Off	
	05	Receive signal from BI: p8501	On	Off	
	06	Receive signal from BI: p8501	On	Off	
	07	Receive signal from BI: p8501	On	Off	
	08	Receive signal from BI: p8501	On	Off	
	09	Receive signal from BI: p8501	On	Off	
	10	Receive signal from BI: p8501	On	Off	
	11	Receive signal from BI: p8501	On	Off	
	12	Receive signal from BI: p8501	On	Off	
	13	Receive signal from BI: p8501	On	Off	
	14	Receive signal from BI: p8501	On	Off	
	15	Receive signal from BI: p8501	On	Off	
	16	Receive signal from BI: p8501	On	Off	
	17	Receive signal from BI: p8501	On	Off	
	18	Receive signal from BI: p8501	On	Off	
	19	Receive signal from BI: p8501	On	Off	
	20	Receive signal from BI: p8501	On	Off	
	21	Receive signal from BI: p8501	On	Off	

Dependency: Refer to: p8501

r8511.0...21 **BO: Data transfer 1 receive bitwise / Trans 1 recv bit**

CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the signals of the bitwise received data.

These signals were interconnected and transferred to another Control Unit via BI: p8501[0...15].

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8501	On	Off	
	01	Receive signal from BI: p8501	On	Off	
	02	Receive signal from BI: p8501	On	Off	
	03	Receive signal from BI: p8501	On	Off	
	04	Receive signal from BI: p8501	On	Off	
	05	Receive signal from BI: p8501	On	Off	
	06	Receive signal from BI: p8501	On	Off	
	07	Receive signal from BI: p8501	On	Off	
	08	Receive signal from BI: p8501	On	Off	
	09	Receive signal from BI: p8501	On	Off	
	10	Receive signal from BI: p8501	On	Off	
	11	Receive signal from BI: p8501	On	Off	
	12	Receive signal from BI: p8501	On	Off	
	13	Receive signal from BI: p8501	On	Off	
	14	Receive signal from BI: p8501	On	Off	
	15	Receive signal from BI: p8501	On	Off	
	16	Receive signal from BI: p8501	On	Off	
	17	Receive signal from BI: p8501	On	Off	
	18	Receive signal from BI: p8501	On	Off	
	19	Receive signal from BI: p8501	On	Off	
	20	Receive signal from BI: p8501	On	Off	
	21	Receive signal from BI: p8501	On	Off	

Dependency: Refer to: p8501

r8512	CO: Data transfer 0 receive wordwise / Trans 0 recv word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8502.		
Dependency:	Refer to: p8502		

r8512	CO: Data transfer 0 receive wordwise / Trans 0 recv word		
CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred to another Control Unit via CI: p8502.		
Dependency:	Refer to: p8502		

r8513	CO: Data transfer 1 receive wordwise / Trans 1 recv word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8503.		
Dependency:	Refer to: p8503		

r8513	CO: Data transfer 1 receive wordwise / Trans 1 recv word		
CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred to another Control Unit via CI: p8503.		
Dependency:	Refer to: p8503		

r8514	CO: Data transfer 2 receive wordwise / Trans 2 rcv word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8504.		
Dependency:	Refer to: p8504		

r8514	CO: Data transfer 2 receive wordwise / Trans 2 rcv word		
CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred to another Control Unit via CI: p8504.		
Dependency:	Refer to: p8504		

r8515	CO: Data transfer 3 receive wordwise / Trans 3 rcv word		
CU_I_COMBI, CU_I_SINUMERIK_8 28	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: PERCENT	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8505.		
Dependency:	Refer to: p8505		

r8515	CO: Data transfer 3 receive wordwise / Trans 3 rcv word		
CU_LINK, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred to another Control Unit via CI: p8505.		
Dependency:	Refer to: p8505		

p8520[0...3]	CU_LINK signal value scaling / Sig val scal		
CU_LINK, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00010	Max 10000.00000	Factory setting 1.00000
Description:	Sets the scaling for signal value 0 ... 3 (process signals).		
Index:	[0] = Signal value 0 (CI: p8502) scaling [1] = Signal value 1 (CI: p8503) scaling [2] = Signal value 2 (CI: p8504) scaling [3] = Signal value 3 (CI: p8505) scaling		
Dependency:	Refer to: p8502, p8503, p8504, p8505		

p8550	AOP LOCAL/REMOTE / AOP LOCAL/REMOTE				
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting 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	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the macro file saved in the appropriate directory on the memory card/device memory.		
Dependency:	Refer to: p0015		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8571[0...39]	Macro Binector Input (BI) / Macro BI		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Dependency:	Refer to: p0700		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8572[0...39]	Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Dependency:	Refer to: p1000		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8573[0...39]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Dependency:	Refer to: p1500		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8585 Actual macro executed / Macro executed			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 1 Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the macro currently being executed on the drive object.		
Dependency:	Refer to: p0015, p0700, p1000, p1500, r8570, r8571, r8572, r8573		

p8848 IF2 PZD sampling time / IF2 PZD t_sample			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1.00 [ms]	Max 16.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the sampling time for the cyclic interface 2 (IF2).		

r8850[0...4] CO: IF2 PZD receive word / IF2 PZD rcv word			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: 4000H	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
Notice:	Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer16 or FloatingPoint32 data types.		
Note:	IF2: Interface 2 PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.		

r8850[0...15] CO: IF2 PZD receive word / IF2 PZD rcv word			
SERVO_SINUMERI K828	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: 4000H	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.		

Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16
Dependency:	Refer to: r8860, r8890, r8891, r8892, r8893
Notice:	Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer16 or FloatingPoint32 data types.
Note:	IF2: Interface 2 PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

p8851[0...7]	CI: IF2 PZD send word / IF2 PZD send word		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: 4000H	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Selects the PZD (actual values) to be sent via interface 2 in the word format.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8		
Note:	IF2: Interface 2		

p8851[0...15]	CI: IF2 PZD send word / IF2 PZD send word		
SERVO_SINUMERI K828	Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: 4000H	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Selects the PZD (actual values) to be sent via interface 2 in the word format.		

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

Dependency: Refer to: p8861

Note: IF2: Interface 2

r8853[0...7] IF2 diagnostics PZD send / IF2 diag PZD send

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8

Can be changed: - **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dynamic index:** -

P-Group: Communications **Units group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**

- - -

Description: Displays the sent PZD (actual values) sent via interface 2.

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

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...15] IF2 diagnostics PZD send / IF2 diag PZD send

SERVO_SINUMERI K828 **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
- - -

Description: Displays the sent PZD (actual values) sent via interface 2.

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

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

Dependency: Refer to: p8851, p8861

Note: IF2: Interface 2

r8860[0...14] CO: IF2 PZD receive double word / IF2 PZD recv DW

SERVO_SINUMERI K828 **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Integer32 **Dynamic index:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** 4000H **Expert list:** 1
Min **Max** **Factory setting**
- - -

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

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

Dependency: Refer to: r8850

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer32 or FloatingPoint32 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...14] CI: IF2 PZD send double word / IF2 PZD send DW

SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: 4000H	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Selects the PZD (actual values) to be sent via interface 2 in the 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

Dependency: Refer to: p8851

Notice: A BICO interconnection for a single PZD can only take place either on r8851 or r8861.

Note: IF2: Interface 2

r8863[0...14] IF2 diagnostics PZD send double word / IF2 diag send DW

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the PZD sent via interface 2 (actual values) with double word format.

Index:

[0] = PZD 1 + 2
 [1] = PZD 2 + 3
 [2] = PZD 3 + 4
 [3] = PZD 4 + 5
 [4] = PZD 5 + 6
 [5] = PZD 6 + 7
 [6] = PZD 7 + 8
 [7] = PZD 8 + 9
 [8] = PZD 9 + 10
 [9] = PZD 10 + 11
 [10] = PZD 11 + 12
 [11] = PZD 12 + 13
 [12] = PZD 13 + 14
 [13] = PZD 14 + 15
 [14] = PZD 15 + 16

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

p8870[0...15] SINAMICS Link receive telegram word PZD / Recv link word

TM120 (PROFINET)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	16	0

Description: Assignment of a PZD to a telegram word from a SINAMICS Link receive telegram. PZD p2050[index] is assigned by means of p8870[index], p8872[index].

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

Dependency: Refer to: p8872

Note: Value range:
 0: Not used
 1 ... 16: Telegram word
 A pair of values p8870[index], p8872[index] may only be used once in single a device.

p8871[0...15] SINAMICS Link send telegram word PZD / Send link word

TM120 (PROFINET)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	16	0

Description: Assigns a PZD to a telegram word in the SINAMICS Link send telegram.
 p8871[index] assigns PZD p2051[index].

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

Dependency: Refer to: p2051, p8851
 Refer to: 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.

p8872[0...15] SINAMICS Link address receive PZD / Link addr recv

TM120 (PROFINET)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	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: Refer to: p8870

Note: Value range:
0: Not used
1 ... 64: Address

r8874[0...4] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5

r8874[0...15] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the bus address of sender from which the PZD is received.

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

Note: IF2: Interface 2
 Value range:
 0 - 125: Bus address of the sender
 255: Not assigned

r8875[0...4] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the byte offset of the PZD in the receive telegram.

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

r8875[0...15] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the byte offset of the PZD in the receive telegram.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8
- [8] = PZD 9
- [9] = PZD 10
- [10] = PZD 11
- [11] = PZD 12
- [12] = PZD 13
- [13] = PZD 14
- [14] = PZD 15
- [15] = PZD 16

Note: IF2: Interface 2
Value range:
0 - 242: Byte offset
255: Not assigned

r8876[0...7] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:

- [0] = PZD 1
- [1] = PZD 2
- [2] = PZD 3
- [3] = PZD 4
- [4] = PZD 5
- [5] = PZD 6
- [6] = PZD 7
- [7] = PZD 8

r8876[0...15] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

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

Note: IF2: Interface 2
 Value range:
 0 - 242: Byte offset
 255: Not assigned

p8880[0...15] BI: IF2 binector-connector converter status word 1 / Bin/con ZSW1

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
---	--	---	---

Min	Max	Factory setting
-	-	0

Description: Selects bits to be sent to the fieldbus master.
 The individual bits are combined to form status word 1.

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

Dependency: Refer to: p8888, r8889

p8881[0...15]	BI: IF2 binector-connector converter status word 2 / Bin/con ZSW2		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the fieldbus master. The individual bits are combined to form status word 2.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p8888, r8889		

p8882[0...15]	BI: IF2 binector-connector converter status word 3 / Bin/con ZSW3		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the fieldbus master. The individual bits are combined to form free status word 3.		

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

Dependency: Refer to: p8888, r8889

p8883[0...15] BI: IF2 binector-connector converter status word 4 / Bin/con ZSW4

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
---	--	---	---

Min	Max	Factory setting
-	-	0

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

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

Dependency: Refer to: p8888, r8889

p8884[0...15] BI: IF2 binector-connector converter status word 5 / Bin/con ZSW5

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8, SERVO_COMBI,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: U, T
Data type: Unsigned32 / Binary
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min	Max	Factory setting
-	-	0

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

Index:

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

Dependency: Refer to: p8888, r8889

p8888[0...4] IF2 invert binector-connector converter status word / Bin/con ZSW inv

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: U, T
Data type: Unsigned16
P-Group: Communications
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min	Max	Factory setting
-	-	0000 bin

Description: Setting to invert the individual binector inputs of the binector connector converter.

Index:

- [0] = Status word 1
- [1] = Status word 2
- [2] = Free status word 3
- [3] = Free status word 4
- [4] = Free status word 5

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	
	01	Bit 1	Inverted	Not inverted	
	02	Bit 2	Inverted	Not inverted	
	03	Bit 3	Inverted	Not inverted	
	04	Bit 4	Inverted	Not inverted	
	05	Bit 5	Inverted	Not inverted	

06	Bit 6	Inverted	Not inverted
07	Bit 7	Inverted	Not inverted
08	Bit 8	Inverted	Not inverted
09	Bit 9	Inverted	Not inverted
10	Bit 10	Inverted	Not inverted
11	Bit 11	Inverted	Not inverted
12	Bit 12	Inverted	Not inverted
13	Bit 13	Inverted	Not inverted
14	Bit 14	Inverted	Not inverted
15	Bit 15	Inverted	Not inverted

Dependency: Refer to: p8880, p8881, p8882, p8883, r8889

r8889[0...4] CO: IF2 send binector-connector converter status word / Bin/con ZSW send

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
---	--	---	---

Min	Max	Factory setting
-	-	-

Description: Connector output to interconnect the status words to a PZD send word.

Index:
 [0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4
 [4] = Free status word 5

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

Dependency: Refer to: p8851, p8880, p8881, p8882, p8883

Note: r8889 together with p8880 to p8883 forms four binector-connector converters.

r8890.0...15 BO: IF2 PZD1 receive bit-serial / IF2 PZD1 rcv bitw

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8

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

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received via interface 2.

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

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8891.0...15 BO: IF2 PZD2 receive bit-serial / IF2 PZD2 rcv bitw

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8

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

Description: Binector output for bit-serial interconnection of PZD2 received via interface 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	
	01	Bit 1	On	Off	
	02	Bit 2	On	Off	
	03	Bit 3	On	Off	
	04	Bit 4	On	Off	
	05	Bit 5	On	Off	

06	Bit 6	On	Off
07	Bit 7	On	Off
08	Bit 8	On	Off
09	Bit 9	On	Off
10	Bit 10	On	Off
11	Bit 11	On	Off
12	Bit 12	On	Off
13	Bit 13	On	Off
14	Bit 14	On	Off
15	Bit 15	On	Off

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8892.0...15 BO: IF2 PZD3 receive bit-serial / IF2 PZD3 rcv bitw

SERVO_SINUMERI
K828

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

Description: Binector output for bit-serial interconnection of PZD3 received via interface 2.

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

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8893.0...15 BO: IF2 PZD4 receive bit-serial / IF2 PZD4 rcv bitw

SERVO_SINUMERI
K828

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

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received via interface 2.

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

Dependency: Refer to: r8850

Note: IF2: Interface 2

r8894.0...15 **BO: IF2 connector-binector converter binector output / Con/bin outp**

AFE_SINUMERIK_8
28,
BIC_SINUMERIK_82
8,
SERVO_SINUMERI
K828, SIC_COMBI,
SIC_SINUMERIK_82
8

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** -
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Binector output for bit-serial onward interconnection of a PZD word received from the fieldbus master. The PZD is selected via p8899[0].

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

Dependency: Refer to: p8899

r8895.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_SINUMERIK828, SIC_COMBI,
 SIC_SINUMERIK_82
 8

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

Description: Binector output for bit-serial interconnection of a PZD word received from the fieldbus master.
 The PZD is selected via p8899[1].

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

Dependency: Refer to: p8899

p8898[0...1] IF2 invert connector-binector converter binector output / Con/bin outp inv

AFE_SINUMERIK_8 **Can be changed:** U, T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Communications **Units group:** - **Unit selection:** -
 8, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 SERVO_SINUMERIK828, SIC_COMBI,
 SIC_SINUMERIK_82
 8

Min - **Max** - **Factory setting** 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: Refer to: r8894, r8895, p8899

p8899[0...1] CI: IF2 connector-binector converter signal source / Con/bin S_src

AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8	Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
---	---	---	---

Min	Max	Factory setting
-	-	0

Description: Sets the signal source for the connector-binector converter.

A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: Refer to: r8894, r8895

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

p9300 SI Motion monitoring clock cycle (Motor Module) / SI Mtn clock MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	---	---	---

Min	Max	Factory setting
500.00 [µs]	25000.00 [µs]	12000.00 [µs]

Description: Sets the monitoring clock cycle for safe motion monitoring.

Dependency: Refer to: p9500, p9511

Refer to: 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 SI Motion enable safety functions (Motor Module) / SI Mtn enable MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
--	--	---	---

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the enable signals for the safe motion monitoring.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SOS/SLS enable	Enable	Inhibit	
	03	Actual value synchronization enable	Enable	Inhibit	
	16	Enable NX Hys Fil	Enable	Inhibit	
Dependency:	Refer to: p9501				
	Refer to: 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.				
	SLS: Safely-Limited Speed				
	SOS: Safe Operating Stop				

p9302	SI Motion axis type (Motor Module) / SI Mtn AxisType MM			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0	1	0	
Description:	Sets the axis type (linear axis or rotary axis/spindle).			
Value:	0: Linear axis 1: Rot axis/spindle			
Dependency:	Refer to: 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.			

p9306	SI Motion function specification (Motor Module) / SI Mtn fct_spc MM			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0	1	0	
Description:	Sets the function specification for Safety Integrated.			
Value:	0: Safety with encoder 1: Safety without encoder			
Dependency:	Refer to: C30711			

p9307	SI Motion function configuration MM / SI Mtn config MM				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	0010 bin		
Description:	Function configuration for Safe Motion Monitoring				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Extended alarm acknowledgment	Yes	No	
	01	Setpoint speed limit for stop F	No	Yes	
Dependency:	Refer to: C01711				

p9311		SI Motion actual value sensing clock cycle (Motor Module) / SI Mtn act clk MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0.0000 [µs]	Max 25000.0000 [µs]	Factory setting 0.0000 [µs]	
Description:	Sets the clock cycle time of the actual value sensing for safe motion monitoring. The slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for the 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. 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 (p115).			
Dependency:	Refer to: p0115, p9300, p9511 Refer to: 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. A change only becomes effective after a POWER ON.			
p9315		SI Motion coarse position value configuration (Motor Module) / SI Mtn s config MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 0000 bin	
Description:	Sets the encoder configuration for the redundant coarse position value.			
Bit field:	Bit	Signal name	1 signal	0 signal
	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
	16	DRIVE-CLiQ encoder	Yes	No
Dependency:	Refer to: r0474, p9515			
p9316		SI Motion encoder configuration, safety functions (Motor Module) / SI Mtn enc_cfg MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 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: Refer to: p0404, p0410, p9516

p9317 SI Motion linear scale grid division (Motor Module) / SI Mtn grid MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [nm]	Max 250000000.00 [nm]	Factory setting 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 must be parameterized in this parameter.

Dependency: Refer to: p0407, p9316

p9318 SI Motion encoder pulses per revolution (Motor Module) / SI Mtn p/rev MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 100000	Factory setting 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 must be parameterized in this parameter.

Dependency: Refer to: p0408, p9316

p9319 SI Motion fine resolution G1_XIST1 (Motor Module) / SI Mtn G1_XIST1 MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 2	Max 18	Factory setting 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 must be parameterized in this parameter.

Dependency: Refer to: p0418
Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.1000 [mm]	Max 8388.0000 [mm]	Factory setting 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 must be parameterized in this parameter.		
Dependency:	Refer to: p9520		
Notice:	The fourth decimal point can be rounded-off depending on the size of the entered number (from three places before the decimal point).		
p9321[0...7]	SI Motion gearbox encoder (motor)/load denom (Motor Module) / SI Mtn denom MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the denominator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load.		
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:	Refer to: p9322		
Notice:	It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.		
p9322[0...7]	SI Motion gearbox encoder (motor)/load numerator (Motor Module) / SI Mtn numer MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the numerator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load.		
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:	Refer to: p9321		

Notice: It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.

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)

p9323	SI Motion red. coarse position value valid bits (Motor Module) / Valid bits MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 16	Factory setting 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 must be parameterized in this parameter.

Dependency: Refer to: r0470, p9523

p9324	SI Motion redundant coarse pos. value fine resolution bits (MM) / SI Mtn fine bit MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -16	Max 16	Factory setting -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 must be parameterized in this parameter.

Dependency: Refer to: r0471, p9524

p9325	SI Motion redundant coarse pos. value relevant bits (MM) / Relevant bits MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 16	Factory setting 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 must be parameterized in this parameter.

Dependency: Refer to: p0414, r0472, p9525

p9326	SI Motion encoder assignment (Motor Module) / SI Mtn encoder MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 3	Factory setting 1

Description: Sets the number of the encoder that the 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).
Refer to: p0187, p0188, p0189, p0430, p9526

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: 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] SI Motion Sensor Module Node Identifier (Motor Module) / SI Mtn SM Ident MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00FF hex	Factory setting 0000 hex

Description: Sets the node identifier of the Sensor Module that is used by the Motor Module for the motion monitoring functions.

Dependency: Refer to: r9881

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9329 SI Motion Gx_XIST1 Safe most significant bit (MM) / Gx_XIST1 MSB MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 31	Factory setting 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 must be parameterized in this parameter.

Dependency: Refer to: p0415, r0475, p9529

Note: MSB: Most Significant Bit

p9330 SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [mm]	Max 100.000 [mm]	Factory setting 1.000 [mm]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).

Dependency: Refer to: p9530

Refer to: C01707

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SOS: Safe Operational Stop

p9330	SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [°]	Max 100.000 [°]	Factory setting 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: p9530 Refer to: C01707		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	SOS: Safe Operational Stop		

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 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 SLP4		
Dependency:	Refer to: p9363, p9531 Refer to: 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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 1000000.00 [rpm]	Factory setting 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 SLP4		
Dependency:	Refer to: p9363, p9531 Refer to: C01714		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	SLS: Safely-Limited Speed		

p9342	SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0010 [mm]	Max 360.0000 [mm]	Factory setting 0.1000 [mm]
Description:	Sets the tolerance for the cross-check 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 and 1 mm linear).		
Dependency:	Refer to: p9542 Refer to: C01711		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
p9342	SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn actV tol MM		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0010 [°]	Max 360.0000 [°]	Factory setting 0.1000 [°]
Description:	Sets the tolerance for the cross-check 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 and 1 mm linear).		
Dependency:	Refer to: p9542 Refer to: C01711		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
p9345	SI Motion SSM filter time (Motor Module) / SI Mtn SSM filt MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [µs]	Max 100000.00 [µs]	Factory setting 0.00 [µs]
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 (p9300/p9500 Bit 16 = 1). The parameter is included in the data cross-check 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**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 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.
If a value of 0 is entered in p9368/p9568, the value of parameter p9346/p9546 applies also for the safe acceleration monitor SBR.

Dependency: Refer to: p9546

Caution: The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.



Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SBR: Safe Acceleration Monitor
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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 1000000.00 [rpm]	Factory setting 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.
If a value of 0 is entered in p9368/p9568, the value of parameter p9346/p9546 applies also for the safe acceleration monitor SBR.

Dependency: Refer to: p9546

Caution: The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.



Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SBR: Safe Acceleration Monitor
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9347 **SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [mm/min]	Max 500.0000 [mm/min]	Factory setting 10.0000 [mm/min]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency: Refer to: C01711

Note: The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1).
The parameter is included in the data cross-check of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9347	SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.0010 [rpm]	Max 500.0000 [rpm]	Factory setting 10.0000 [rpm]
Description:	Sets the velocity hysteresis for the SSM feedback signal to detect standstill ($n < nx$).		
Dependency:	Refer to: C01711		
Note:	The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1). The parameter is included in the data cross-check of the two monitoring channels. SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		
p9348	SI Motion SBR actual velocity tolerance (Motor Module) / SI Mtn SBR Tol MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 120000.00 [mm/min]	Factory setting 300.00 [mm/min]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: p9548 Refer to: C01706		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	SBR: Safe Acceleration Monitor		
p9348	SI Motion SBR actual velocity tolerance (Motor Module) / SI Mtn SBR Tol MM		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [rpm]	Max 120000.00 [rpm]	Factory setting 300.00 [rpm]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: p9548 Refer to: C01706		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	SBR: Safe Acceleration Monitor		
p9349	SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 6.00 [mm/min]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in cross-check between the Control Unit and the Motor Module.		
Dependency:	Refer to: 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 data cross-check.

p9349 SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 6000.00 [rpm]	Factory setting 6.00 [rpm]

Description: Sets the velocity tolerance that is used for a 2-encoder system in cross-check between the Control Unit and the Motor Module.

Dependency: Refer to: 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 data cross-check.

p9351 SI Motion SLS changeover delay time (Motor Module) / SI Mtn SLS t MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the delay time for the SLS changeover or for the changeover from SLS to SOS for the function "Safely-Limited Speed" (SLS).

When transitioning from a higher to a lower safely-limited velocity/speed stage or to the safe operating stop (SOS), within this delay time, the "old" velocity stage remains active.

Even if SLS or SOS is activated from non safety-related operation, then this delay is still applied.

Dependency: Refer to: p9551

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SLS: Safely Limited Speed
SOS: Safe Operating Stop

p9352 SI Motion transition time STOP C to SOS (Motor Module) / SI Mtn t C->SOS MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the transition time from STOP C to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9552

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SOS: Safe Operational Stop

p9353 SI Motion transition time STOP D to SOS (Motor Module) / SI Mtn t D->SOS MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the transition time from STOP D to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9553

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SOS: Safe Operating Stop

p9355 SI Motion transition time STOP F to STOP B (Motor Module) / SI Mtn t F->B MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 0.00 [µs]

Description: Sets the transition time from STOP F to STOP B.

Dependency: Refer to: C01711

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9356 SI Motion pulse suppression delay time (Motor Module) / SI Mtn IL t_del MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the delay time for the safe pulse suppression after STOP B / SS1.

In the case of encoderless motion monitoring functions (p9506/p9306 = 1), the parameter has no effect.

Dependency: Refer to: p9360, p9556

Refer to: C01701

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SS1: Safe Stop 1

p9357 SI Motion pulse suppression test time (Motor Module) / SI Mtn IL t MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 10000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the time after which the pulses must have been suppressed when initiating the test stop.

Dependency: Refer to: p9557

Refer to: C01798

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9358 SI Motion acceptance test mode time limit (Motor Module) / SI Mtn acc t MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 5000000.00 [µs]	Max 10000000.00 [µs]	Factory setting 4000000.00 [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: Refer to: p9558
Refer to: C01799

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

p9360 SI Motion pulse suppression shutdown velocity (Motor Module) / SI Mtn IL v_shutMM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 0.00 [mm/min]

Description: Sets the shutdown velocity for pulse suppression.
Below this velocity "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).
In the case of encoderless motion monitoring functions, the parameter must be > 0 (recommended value: 10).

Dependency: Refer to: p9356, p9560

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SS1: Safe Stop 1

p9360 SI Motion pulse suppression shutdown speed (Motor Module) / SI Mtn IL n_shutMM

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 6000.00 [rpm]	Factory setting 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: Refer to: p9356, p9560

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: SS1: Safe Stop 1

p9363[0...3] SI Motion SLS stop response (Motor Module) / SI Mtn SLS Stop MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 14	Factory setting 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 (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 pulse suppression when the bus fails
- 11: STOP B with delayed pulse suppression when the bus fails
- 12: STOP C with delayed pulse suppression when the bus fails
- 13: STOP D with delayed pulse suppression when the bus fails
- 14: STOP E with delayed pulse suppression when the bus fails

Index:

- [0] = Limit value SLS1
- [1] = Limit value SLS2
- [2] = Limit value SLS3
- [3] = Limit value SLP4

Dependency: Refer to: p9331, p9380, p9563

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.
Values 10 to 14 are being prepared and are presently ineffective.

Note: SLS: Safely-Limited Speed / SG: Safely reduced speed

p9368 SI Motion SBR velocity limit (Motor Module) / SI Mtn SBR v_limMM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 1000.00 [mm/min]	Factory setting 0.00 [mm/min]

Description: Sets the velocity limit for the "SBR" function.
SBR 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: SBR: Safe Acceleration Monitor
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 SBR.

p9368 SI Motion SBR velocity limit (Motor Module) / SI Mtn SBR v_limMM

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 1000.00 [rpm]	Factory setting 0.00 [rpm]

Description: Sets the velocity limit for the "SBR" function.
SBR 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: SBR: Safe Acceleration Monitor
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 SBR.

p9370	SI Motion acceptance test mode (Motor Module) / SI Mtn acc_mod MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting 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:	Refer to: p9358, r9371 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting -
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:	Refer to: p9358, p9370 Refer to: C01799		

p9380	SI Motion pulse suppression delay bus failure (Motor Module) / SI Mtn t to IL MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 800000.00 [µs]	Factory setting 0.00 [µs]
Description:	Sets the delay time after which the pulses are safely suppressed after a bus failure.		
Dependency:	Refer to: p9363		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive. The parameter is being prepared and is presently ineffective.		

p9381	SI Motion brake ramp reference value (Motor Module) / SI Mtn ramp ref MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 600.0000 [mm/min]	Max 24000.0000 [mm/min]	Factory setting 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:	Refer to: p9382, p9383		

p9381	SI Motion brake ramp reference value (Motor Module) / SI Mtn ramp ref MM		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 600.0000 [rpm]	Max 24000.0000 [rpm]	Factory setting 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:	Refer to: p9382, p9383		

p9382	SI Motion brake ramp delay time (Motor Module) / SI Mtn rp t_del MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10000.00 [μs]	Max 99000000.00 [μs]	Factory setting 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:	Refer to: p9381, p9383		

p9383	SI Motion brake ramp monitoring time (Motor Module) / SI Mtn rp t_mon MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 500.00 [ms]	Max 1000000.00 [ms]	Factory setting 10000.00 [ms]
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:	Refer to: p9381, p9382		

p9387 SI Motion act val sensing encoderless filter time (Motor Module) / SI Mtn EL filt MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 100000.00 [µs]	Factory setting 25000.00 [µs]

Description: Sets the filter time for smoothing the actual value with encoderless actual value sensing.

Note: This parameter is only effective for encoderless actual value sensing (p9306/p9506 = 1).

p9388 SI Motion act val sensing encoderless min current (Motor Module) / SI Mtn EL I_min MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 10.00 [%]

Description: Sets the minimum current for encoderless actual value sensing.
 - 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.

Dependency: Refer to: C30711

Notice: Reducing this percentage value can adversely affect actual value sensing.

Note: This parameter is only effective for encoderless actual value sensing (p9306/p9506 = 1).

p9389 SI Motion voltage tolerance acceleration (Motor Module) / SI Mtn V tol MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]

Description: Sets the voltage tolerance for suppressing acceleration peaks.
 Increasing this percentage value means that voltage peaks will need to have a higher amplitude during acceleration procedures if they are not to affect actual value sensing.

- The value must be increased if C30711 has occurred with message value 1042.
- The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

Dependency: Refer to: C30711

Note: This parameter is only effective for encoderless actual value sensing (p9306/p9506 = 1).

r9390[0...3] SI Motion version safety motion monitoring (Motor Module) / SI Mtn Version MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -

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: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the checksum for the checked Safety Integrated parameters of the motion monitoring function (actual checksum) on the Motor Module.

Index: [0] = Checksum over SI parameters for motion monitoring
 [1] = Checksum over SI parameters with hardware reference

Dependency: Refer to: p9399

Note: SI: Safety Integrated

p9399[0...1] SI Motion reference checksum SI parameters (Motor Module) / SI Mtn setp CRC MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters of the motion monitoring functions (reference checksum) on the Motor Module.

Index: [0] = Checksum over SI parameters for motion monitoring
 [1] = Checksum over SI parameters with hardware reference

Dependency: Refer to: r9398

Note: SI: Safety Integrated

r9406[0...19] PS file parameter number parameter not transferred / PS parameter No.

All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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

--> Displays the parameter number whose value was not able to be completely transferred or for an indexed parameter, for at least 1 index, was not able to be transferred. The first index that is not transferred is displayed in r9407.

Dependency: Refer to: 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	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: 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	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Only for internal Siemens service purposes.

Dependency: Refer to: 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

r9481	Number of BICO interconnections / BICO count		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0

	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of BICO interconnections (signal sinks). The selected BICO interconnections should be entered into r9482[0...59] and r9483[0...59].		
Dependency:	Refer to: r9482, r9483		

r9482[0...59]	BICO interconnections BI/CI parameters / BICO BI/CI par		
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0

	Min	Max	Factory setting
	-	-	-
Description:	Displays the signal sinks (binector/connector inputs, BI/CI parameters). The number of BICO interconnections is displayed in r9481.		
Dependency:	Refer to: r9481, r9483		
Note:	The list is sorted according to signal sources and is structured as follows: r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded) r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded) ...		

r9483[0...59] BICO interconnections BO/CO parameters / BICO BO/CO par

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 0
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min	Max	Factory setting
-	-	-

Description: Displays the signal sources (binector/connector outputs, BO/CO parameters).
 The number of BICO interconnections is displayed in r9481.

Dependency: Refer to: r9481, r9482

Note: The list is sorted according to signal sources and is structured as follows:
 r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
 r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
 ...

p9484 BICO interconnections search signal source / BICO S_src srch

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** - **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 0
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828,
 SERVO_COMBI,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min	Max	Factory setting
0	4294967295	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[0...59], r9483[0...59])?

Dependency: Refer to: r9481, r9482, r9483, r9485, r9486

r9485 BICO interconnections signal source search count / BICO S_src srchQty			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the number of BICO interconnections to the signal sink being searched for. The signal source to be searched is set in p9484 (BICO-coded). The search result is contained in r9482[0...59] and r9483[0...59] and is specified by the count (r9485) and the first index (r9486).		
Dependency:	Refer to: r9481, r9482, r9483, p9484, r9486		

r9486 BICO interconnections signal source search first index / BICO S_src srchIdx			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, SERVO_COMBI, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the first index of the signal source being searched for. The signal source to be searched is set in p9484 (BICO-coded). The search result is contained in r9482[0...59] and r9483[0...59] and is specified by the count (r9485) and the first index (r9486).		
Dependency:	Refer to: r9481, r9482, r9483, p9484, r9485		

r9490			
Number of BICO interconnections to other drives / Qty BICO to drive			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned16 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of signal sources from this drive to other drives/drive objects (Binector Output/Connector Output, BO/CO).		
Dependency:	Refer to: r9491, r9492, p9493		
r9491[0...9]			
BI/CI of BICO interconnections to other drives / BI/CI to drive			
AFE_SINUMERIK_8 28, BIC_SINUMERIK_82 8, CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_LINK, CU_NX_828, HUB, SERVO_SINUMERI K828, SIC_COMBI, SIC_SINUMERIK_82 8, TM120, TM54F_MA, TM54F_SL	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the signal receiver list (Binector Input/Connector Input, BI/CI) for the first interconnections between this drive and other drives/drive objects.		
Dependency:	Refer to: r9490, r9492, p9493		
Notice:	A drive cannot be deleted if this list is not empty! Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.		
Note:	All indices of r9491 to p9493 designate the same interconnection. r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the inter-connection.		

r9492[0...9] BO/CO of BICO interconnections to other drives / BO/CO to drive

AFE_SINUMERIK_8 **Can be changed:** - **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828, HUB,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min	Max	Factory setting
-	-	-

Description: Displays the signal source list (Binector Output/Connector Output, BO/CO) for the first interconnections between this drive and other drives/drive objects.

Dependency: Refer to: r9490, r9491, p9493

Notice: A drive cannot be deleted if this list is not empty! Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.

Note: All indices of r9491 to p9493 designate the same interconnection.
 r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9493[0...9] Reset BICO interconnections to other drives / Reset BICO to driv

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
 28, **Data type:** Integer16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** - **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828, HUB,
 SERVO_SINUMERI
 K828, SIC_COMBI,
 SIC_SINUMERIK_82
 8, TM120,
 TM54F_MA,
 TM54F_SL

Min	Max	Factory setting
0	15	15

Description: Setting to reset the BICO interconnections to other drives. Each interconnection can be individually reset.

Value:
 0: Set connection to 0
 1: Set connection to 1 (100 %)
 2: Set connection to factory setting
 15: Finished

Dependency: Refer to: r9490, r9491, r9492

Note: All indices of r9491 to p9493 designate the same interconnection.
 r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9495 BICO behavior to de-activated drive objects / Behav to deact obj

AFE_SINUMERIK_8 28,
BIC_SINUMERIK_828, CU_I_COMBI,
CU_I_SINUMERIK_828, CU_LINK,
CU_NX_828,
SERVO_SINUMERI
K828, TM120

Can be changed: T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	2	0

Description: Setting for the behavior for BICO interconnections to other non-operational/de-activated drive objects. If this drive object has BICO interconnections to other non-operational or de-activated drive objects as drain, then using these parameters, all of the associated BI/CI parameters of this drive object can be marked and then set to the factory setting or only marked.

Value: 0: Do not do anything
1: Mark connection
2: Mark connection and then set to the factory setting

Dependency: Refer to: p9496, p9497, p9498, p9499
Refer to: A01318, A01507

Note: The BI/CI parameters involved are listed in r9498[0...29] (drain).
The associated BO/CO parameters are listed in r9499[0...29] (source).
However, r9498 and r9499 are only then filled if p9495 is not equal to 0, otherwise they remain empty.

p9496 Restore BICO to the drive objects that are now activated / Rest BICO act obj

AFE_SINUMERIK_8 28,
BIC_SINUMERIK_828, CU_I_COMBI,
CU_I_SINUMERIK_828, CU_LINK,
CU_NX_828,
SERVO_SINUMERI
K828, TM120

Can be changed: T
Data type: Integer16
P-Group: -
Not for motor type: -

Calculated: -
Dynamic index: -
Units group: -
Scaling: -

Access level: 3
Unit selection: -
Expert list: 1

Min	Max	Factory setting
0	2	0

Description: If this drive object has BICO interconnections to other drive objects that are either not operational or have been de-activated, then using this parameter, all of the BI/CI parameters involved with this drive object can be re-established.

Value: 0: Do not do anything
1: Restore the connections from the list
2: Delete the connection from the list

Dependency: Refer to: p9495, p9497, p9498, p9499
Refer to: A01318, A01507

Note: The BI/CI parameters involved are listed in r9498[0...29] (drain).
The associated BO/CO parameters are listed in r9499[0...29] (source).
After setting p9496 to 1 or 2, r9498 and r9499 are reset, r9497 is set to 0 and p9496 itself is set to 0.

p9497 BICO number of interconnections to de-activated drive objects / Qty to deact obj

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned16 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828,
 SERVO_SINUMERI
 K828, TM120

Min	0	Max	65535	Factory setting	0
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Description: Displays the number of signal sinks of this drive object to other drives/drive objects that are no longer operational/de-activated (Binector Input/Connector Input, BI/CI).
Dependency: Refer to: p9495, p9496, p9498, p9499
 Refer to: A01318, A01507
Note: The parameter is only used for display purposes and cannot be written into.

p9498[0...29] BICO BI/CI parameters to de-activated drive objects / BI/CI to deact obj

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828,
 SERVO_SINUMERI
 K828, TM120

Min	-	Max	-	Factory setting	0
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Description: List of the BI/CI parameters that represent a connection to non-operational/de-activated drive objects.
Dependency: Refer to: p9495, p9496, p9497, p9499
 Refer to: A01318, A01507
Note: All indices from r9498 to r9499 designate the same BICO interconnection.
 This signal sink is in r9498[x] and the associated signal source in r9499[x].

p9499[0...29] BICO BO/CO parameters to de-activated drive objects / BO/CO to deact obj

AFE_SINUMERIK_8 **Can be changed:** T **Calculated:** - **Access level:** 3
 28, **Data type:** Unsigned32 **Dynamic index:** -
 BIC_SINUMERIK_82 **P-Group:** Commands **Units group:** - **Unit selection:** -
 8, CU_I_COMBI, **Not for motor type:** - **Scaling:** - **Expert list:** 1
 CU_I_SINUMERIK_8
 28, CU_LINK,
 CU_NX_828,
 SERVO_SINUMERI
 K828, TM120

Min	-	Max	-	Factory setting	0
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Description: List of the BO/CO parameters that represent a connection to non-operational/de-activated drive objects.
Dependency: Refer to: p9495, p9496, p9497, p9498
 Refer to: A01318, A01507
Note: All indices from r9498 to r9499 designate the same BICO interconnection.
 This signal sink is in r9498[x] and the associated signal source in r9499[x].

p9500 SI Motion monitoring clock cycle (Control Unit) / SI Mtn clock CU				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0.50 [ms]	Max 25.00 [ms]	Factory setting 12.00 [ms]	
Description:	Sets the monitoring clock cycle for safe motion monitoring.			
Dependency:	Refer to: r2064, p9511 Refer to: 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 in p9511 (dbSI) or of the DP clock cycle (ncSI).			
p9501 SI Motion enable safety functions (Control Unit) / SI Mtn enable CU				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 0000 bin	
Description:	Sets the enable signals for the safe motion monitoring.			
Bit field:	Bit	Signal name	1 signal	0 signal FP
	00	SOS/SLS (SBH/SG) enable	Enable	Inhibit
	03	Actual value synchronization enable	Enable	Inhibit
	16	Enable NX Hys Fil	Enable	Inhibit
Dependency:	Refer to: F01682, F01683			
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop			
p9502 SI Motion axis type (Control Unit) / SI Mtn ax type CU				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0	Max 1	Factory setting 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	SI Motion SCA (SN) enable (Control Unit) / SI Mtn SCA enab				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Setting to enable the function "Safe Cam" (SCA).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SCA1 (SN1) enable	Enable	Inhibit	
	01	SCA2 (SN2) enable	Enable	Inhibit	
	02	SCA3 (SN3) enable	Enable	Inhibit	
	03	SCA4 (SN4) enab	Enable	Inhibit	
	04	SCA5 (SN5) enab	Enable	Inhibit	
	05	SCA6 (SN6) enable	Enable	Inhibit	
	06	SCA7 (SN7) enable	Enable	Inhibit	
	07	SCA8 (SN8) enable	Enable	Inhibit	
	08	SCA9 (SN9) enable	Enable	Inhibit	
	09	SCA10 (SN10) enable	Enable	Inhibit	
	10	SCA11 (SN11) enable	Enable	Inhibit	
	11	SCA12 (SN12) enable	Enable	Inhibit	
	12	SCA13 (SN13) enable	Enable	Inhibit	
	13	SCA14 (SN14) enable	Enable	Inhibit	
	14	SCA15 (SN15) enable	Enable	Inhibit	
	15	SCA16 (SN16) enable	Enable	Inhibit	
	16	ESCA17 (SN17) enable	Enable	Inhibit	
	17	SCA18 (SN18) enable	Enable	Inhibit	
	18	SCA19 (SN19) enable	Enable	Inhibit	
	19	SCA20 (SN20) enable	Enable	Inhibit	
	20	SCA21 (SN21) enable	Enable	Inhibit	
	21	SCA22 (SN22) enable	Enable	Inhibit	
	22	SCA23 (SN23) enable	Enable	Inhibit	
	23	SCA24 (SN24) enable	Enable	Inhibit	
	24	SCA25 (SN25) enable	Enable	Inhibit	
	25	SCA26 (SN26) enable	Enable	Inhibit	
	26	SCA27 (SN27) enable	Enable	Inhibit	
	27	SCA28 (SN28) enable	Enable	Inhibit	
	28	SCA29 (SN29) enable	Enable	Inhibit	
	29	SCA30 (SN30) enable	Enable	Inhibit	
Dependency:	Refer to: p9501 Refer to: 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 SCA (SN) modulo value (Control Unit) / SI Mtn SCA modulo		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0 [°]	Max 737280 [°]	Factory setting 0 [°]
Description:	Sets the modulo range of the safe position actual value in degrees for the function "Safe Cam" (SCA) for rotary axes.		
Dependency:	Refer to: p9536, p9537		
Note:	SCA: Safe Cam / SN: Safe software cam		

p9506	SI Motion function specification (Control Unit) / SI Mtn fct_spc CU			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0	Max 1	Factory setting 0	
Description:	Sets the function specification for Safety Integrated.			
Value:	0: Safety with encoder 1: Safety without encoder			
Dependency:	Refer to: C01711			
p9507	SI Motion function specification (Control Unit) / SI Mtn config			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min -	Max -	Factory setting 0010 bin	
Description:	Function configuration for Safe Motion Monitoring			
Bit field:	Bit	Signal name	1 signal	0 signal FP
	00	Extended alarm acknowledgment	Yes	No
	01	Setpoint speed limit for stop F	No	Yes
Dependency:	Refer to: C01711			
p9510	SI Motion clock-cycle synchronous PROFIBUS master / SI Mtn sync master			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 4	
	Data type: Integer16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min 0	Max 1	Factory setting 0	
Description:	Setting for the clock-cycle synchronous PROFIBUS master. The parameter must be set if the safety-relevant motion monitoring functions integrated in the drive are enabled and there is a clock-cycle synchronous PROFIBUS master. This is, for example, the case when using the following controls: - clock-cycle synchronous control for the motion control (e.g. SIMOTION). - clock-cycle synchronous PROFIsafe master (e.g. SIMATIC S7-400F).			
Value:	0: No clock-cycle synchronous PROFIBUS master 1: Clock-cycle synchronous PROFIBUS master present			
Dependency:	Refer to: C01711, A01796			
Notice:	As of firmware V2.6, the parameter has no effect.			

p9511	SI Motion actual value sensing cycle clock (Control Unit) / SI Mtn act clk CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0000 [ms]	Max 25.0000 [ms]	Factory setting 0.0000 [ms]
Description:	<p>Sets the clock cycle time of the actual value sensing for safe motion monitoring.</p> <p>Setting criteria if the motion monitoring functions are executed with an encoder.</p> <ul style="list-style-type: none"> - 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. <p>Setting criteria if the motion monitoring functions are executed without an encoder:</p> <ul style="list-style-type: none"> - The actual value sensing clock cycle must be set to the same value as the current controller clock cycle (p115). 		
Dependency:	<p>Refer to: p0115</p> <p>Refer to: F01652</p>		
Note:	<p>The parameter is only active for drive-based motion monitoring functions (p9601.2 = 1).</p> <p>The monitoring clock cycle from p9500 must be an integer multiple of this parameter.</p> <p>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.</p> <p>The clock cycle time of the actual value sensing should not be set to more than 8 ms.</p> <p>A change only becomes effective after a POWER ON.</p>		

p9515	SI Motion encoder coarse position value config (Control Unit) / SI Mtn s config CU				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the encoder configuration for the redundant coarse position value.				
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	
	16	DRIVE-CLiQ encoder	Yes	No	
Dependency:	Refer to: r0474, p9315				
Note:	<p>For safe functions that are not enabled (p9501 = 0), the following applies:</p> <ul style="list-style-type: none"> - p9515 is automatically set the same as p0474 when the system boots. <p>For safety functions that are enabled (p9501 > 0), the following applies:</p> <ul style="list-style-type: none"> - p9515 is checked to see that it matches p0474. 				

p9516		SI Motion encoder configuration safety functions (Control Unit) / SI Mtn enc_cfg CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description:	Sets the configuration for the motor encoder and position actual value.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Motor encoder, rotating/linear	Linear	Rotating:
	01	Position actual value, sign change	Yes	No
Dependency:	Refer to: p0404, p0410 Refer to: F01671			
Note:	For safe functions that are not enabled (p9501 = 0), the following applies: - p9516.0 is automatically set when booting as for p0410.0. When booting, p9516.1 is automatically set as for p0404.1. For safety functions that are enabled (p9501 > 0), the following applies: - p9516.1 is checked to identify whether it tallies with p0404.1.			
p9517		SI Motion linear scale grid division (Control Unit) / SI Mtn grid CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0.00 [nm]	250000000.00 [nm]	10000.00 [nm]	
Description:	Sets the grid division for a linear motor encoder.			
Dependency:	Refer to: p0407, p9516 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0	100000	2048	
Description:	Sets the number of encoder pulses per revolution for rotary motor encoders.			
Dependency:	Refer to: p0408, p9516 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 2	Max 18	Factory setting 11
Description:	Sets the fine resolution for G1_XIST1 in bits.		
Dependency:	Refer to: p0418 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.1000 [mm]	Max 8388.0000 [mm]	Factory setting 10.0000 [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 three places before the decimal point).		

p9521[0...7]	SI Motion gearbox enc (motor)/load denominator (Control Unit) / SI Mtn gear denom		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the denominator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load.		
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:	Refer to: p9522		
Notice:	It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.		

p9522[0...7] SI Motion gearbox encoder (motor)/load numerator (Control Unit) / SI Mtn gear numer			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the numerator for the gearbox between the encoder (or motor in the case of encoderless monitoring functions) and the load.		
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:	Refer to: p9521		
Notice:	It is not possible to change over the gearbox stages. Gearbox 1 (index 0) is always active.		
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			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 16	Factory setting 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:	Refer to: r0470, p9323		
Note:	For safe functions that are not enabled (p9501 = 0), the following applies: - p9523 is automatically set the same as r0470 when the system boots. For safety functions that are enabled (p9501 > 0), the following applies: - p9523 is checked to see that it matches r0470.		

p9524 SI Motion Redundant coarse pos. value fine resolution bits (CU) / SI Mtn fine bit CU			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -16	Max 16	Factory setting -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:	Refer to: r0471, p9324		

Note: For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9524 is automatically set the same as r0471 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9524 is checked to see that it matches r0471.

p9525 SI Motion Redundant coarse pos. value relevant bits (CU) / Relevant bits CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 16	Factory setting 16

Description: Sets the number of relevant bits for the redundant coarse position value.

Dependency: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 3	Factory setting 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).
 Refer to: 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 Safe most significant bit (CU) / Gx_XIST1 MSB CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 31	Factory setting 14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Dependency: Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [mm]	Max 100.000 [mm]	Factory setting 1.000 [mm]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: C01707		
Note:	SOS: Safe Operating Stop / SBH: Safe operating stop		

p9530	SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.000 [°]	Max 100.000 [°]	Factory setting 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 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 SLP4		
Dependency:	Refer to: p9532, p9561, p9563 Refer to: 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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 1000000.00 [rpm]	Factory setting 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 SLP4		

Dependency: Refer to: p9532, p9561, p9563
Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
0.000 [%]	100.000 [%]	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: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1

Min	Max	Factory setting
0.000 [%]	100.000 [%]	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
Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting 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:	Refer to: p9501, p9535, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. 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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting 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:	Refer to: p9501, p9535, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9535[0...1]	SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting -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:	Refer to: p9501, p9534, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9535[0...1]	SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting -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:	Refer to: p9501, p9534, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. 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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting 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:	Refer to: 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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting 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:	Refer to: 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_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting -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: Refer to: 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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting -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: Refer to: 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_COMBI,
SERVO_SINUMERI
K828

Can be changed: U, T

Data type: Unsigned32

P-Group: Safety Integrated

Not for motor type: -

Min
100

Calculated: -

Dynamic index: -

Units group: -

Scaling: -

Max
414

Access level: 4

Unit selection: -

Expert list: 1

Factory setting

- [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: Refer to: p9501, p9503
Refer to: F01681

Note: A change only becomes effective after a POWER ON.
SCA: Safe Cam / SN: Safe software cam

p9540 **SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol**

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [mm]	Max 10.0000 [mm]	Factory setting 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**

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [°]	Max 10.0000 [°]	Factory setting 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.

p9542 SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act val tol

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [mm]	Max 360.0000 [mm]	Factory setting 0.1000 [mm]

Description: Sets the tolerance for the cross-check 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 and 1 mm linear).

Dependency: Refer to: C01711

p9542 SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act val tol

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [°]	Max 360.0000 [°]	Factory setting 0.1000 [°]

Description: Sets the tolerance for the cross-check 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 and 1 mm linear).

Dependency: Refer to: C01711

p9544 SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0000 [mm]	Max 36.0000 [mm]	Factory setting 0.0100 [mm]

Description: Sets the tolerance to check the actual values after referencing (incremental encoder) or when powering up (absolute encoder).

Dependency: Refer to: C01711

Note: A change only becomes effective after a POWER ON.



p9544 SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0000 [°]	Max 36.0000 [°]	Factory setting 0.0100 [°]

Description: Sets the tolerance to check the actual values after referencing (incremental encoder) or when powering up (absolute encoder).

Dependency: Refer to: C01711

Note: A change only becomes effective after a POWER ON.

p9545	SI Motion SSM (SGA n < nx) filter time (Control Unit) / SI Mtn SSM filt CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 100.00 [ms]	Factory setting 0.00 [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 (p9300/p9500 Bit 16 = 1). The parameter is included in the data cross-check of the two monitoring channels. 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 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" (SGA n < n_x) is set. If a value of 0 is entered in p9368/p9568, the value of parameter p9346/p9546 also applies for the safe acceleration monitor SBR.		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.		
			
Note:	F-DO: Failsafe Digital Output / SGA: Safety-related output SBR: Safe Acceleration Monitor 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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 1000000.00 [rpm]	Factory setting 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" (SGA n < n_x) is set. If a value of 0 is entered in p9368/p9568, the value of parameter p9346/p9546 also applies for the safe acceleration monitor SBR.		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.		
			
Note:	F-DO: Failsafe Digital Output / SGA: Safety-related output SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx		

p9547 SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [mm/min]	Max 500.0000 [mm/min]	Factory setting 10.0000 [mm/min]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency: Refer to: C01711

Note: The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1).
The parameter is included in the data cross-check of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9547 SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.0010 [rpm]	Max 500.0000 [rpm]	Factory setting 10.0000 [rpm]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency: Refer to: C01711

Note: The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1).
The parameter is included in the data cross-check of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9548 SI Motion SBR actual velocity tolerance (Control Unit) / SI Mtn SBR tol

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 120000.00 [mm/min]	Factory setting 300.00 [mm/min]

Description: Sets the velocity tolerance for the "Safe Acceleration Monitor".

Dependency: Refer to: C01706

Note: SBR: Safe Acceleration Monitor

p9548 SI Motion SBR actual velocity tolerance (Control Unit) / SI Mtn SBR tol

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 120000.00 [rpm]	Factory setting 300.00 [rpm]

Description: Sets the velocity tolerance for the "Safe Acceleration Monitor".

Dependency: Refer to: C01706

Note: SBR: Safe Acceleration Monitor

p9549	SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 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:	Refer to: 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 data cross-check.		
p9549	SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [rpm]	Max 6000.00 [rpm]	Factory setting 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:	Refer to: 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 data cross-check.		
p9550	SI Motion SGE changeover tolerance time (Control Unit) / SI Mtn SGE_chg tol		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the tolerance time for the changeover of the safety-related inputs (SGE).		
p9551	SI Motion SLS (SG) changeover delay time (Control Unit) / SI Mtn SLS t CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the delay time for the SLS changeover or for the changeover from SLS to SOS for the function "Safely-Limited Speed" (SLS). When transitioning from a higher to a lower safely-limited velocity/speed stage or to the safe operating stop (SOS), within this delay time, the "old" velocity stage remains active. Even if SLS or SOS is activated from non safety-related operation, then this delay is still applied.		
Note:	SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop		

p9552 SI Motion transition time STOP C to SOS (SBH) (Control Unit) / SI Mtn t C->SOS CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the transition time from STOP C to "Safe Operating Stop" (SOS).

Note: SOS: Safe Operating Stop / SBH: Safe operating stop

p9553 SI Motion transition time STOP D to SOS (SBH) (Control Unit) / SI Mtn t D->SOS CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the transition time from STOP D to "Safe Operating Stop" (SOS).

Note: SOS: Safe Operating Stop / SBH: Safe operating stop

p9554 SI Motion transition time STOP E to SOS (SBH) (Control Unit) / SI Mtn time E->SOS

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the transition time from STOP E to "Safe Operating Stop" (SOS).

Note: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 0.00 [ms]

Description: Sets the transition time from STOP F to STOP B.

Dependency: Refer to: C01711

p9556 SI Motion pulse suppression delay time (Control Unit) / SI Mtn IL t_del CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the delay time for the safe pulse suppression after STOP B.

In the case of encoderless motion monitoring functions (p9506/p9306 = 1), the parameter has no effect.

Dependency: Refer to: p9560
Refer to: C01701

p9557	SI Motion pulse suppression test time (Control Unit) / SI Mtn IL t_test		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the time after which the pulses must have been suppressed when initiating the test stop.

Dependency: Refer to: C01798

Note: A change only becomes effective after a POWER ON.

p9558	SI Motion acceptance test mode time limit (Control Unit) / SI Mtn acc_test t		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 5000.00 [ms]	Max 100000.00 [ms]	Factory setting 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: Refer to: C01799

p9559	SI Motion forced checking procedure timer (Control Unit) / SI Mtn dyn timer		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [h]	Max 9000.00 [h]	Factory setting 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: Refer to: p9705

Refer to: A01697, C01798

Note: STO: Safe Torque Off

p9560 SI Motion pulse suppression shutdown velocity (Control Unit) / SI Mtn IL v_shutCU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 0.00 [mm/min]

Description: Sets the shutdown velocity for pulse suppression.
Below this velocity "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).
In the case of encoderless motion monitoring functions, the parameter must be > 0 (recommended value: 10).

Dependency: Refer to: p9556

p9560 SI Motion pulse suppression shutdown speed (Control Unit) / SI Mtn IL n_shutCU

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 6000.00 [rpm]	Factory setting 0.00 [rpm]

Description: Sets the shutdown speed for the pulse suppression.
Below this speed "standstill" is assumed and for STOP B, the pulses are suppressed by changing to STOP A).

Dependency: Refer to: p9556

p9561 SI Motion SLS (SG) stop response (Control Unit) / SI Mtn SLS resp

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 14	Factory setting 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.

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 pulse suppression when the bus fails
- 11: STOP B with delayed pulse suppression when the bus fails
- 12: STOP C with delayed pulse suppression when the bus fails
- 13: STOP D with delayed pulse suppression when the bus fails
- 14: STOP E with delayed pulse suppression when the bus fails

Dependency: Refer to: p9531, p9563, p9580

Note: SLS: Safely-Limited Speed / SG: Safely reduced speed

p9562	SI Motion SLP (SE) stop response (Control Unit) / SI Mtn SLP resp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 2	Max 4	Factory setting 2
Description:	Sets the stop response for the function "Safely-Limited Position" (SLP).		
Value:	2: STOP C 3: STOP D 4: STOP E		
Dependency:	Refer to: p9534, p9535		
Note:	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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 14	Factory setting 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. 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 pulse suppression when the bus fails 11: STOP B with delayed pulse suppression when the bus fails 12: STOP C with delayed pulse suppression when the bus fails 13: STOP D with delayed pulse suppression when the bus fails 14: STOP E with delayed pulse suppression when the bus fails		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9531, p9561, p9580		
Notice:	Values 10 to 14 are being prepared and are presently ineffective.		
Note:	SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9568	SI Motion SBR velocity limit (Control Unit) / SI MtnSBR v_lim CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [mm/min]	Max 1000.00 [mm/min]	Factory setting 0.00 [mm/min]
Description:	Sets the velocity limit for the "SBR" function. SBR is de-activated once the set velocity limit has been undershot.		

Note: SBR: Safe Acceleration Monitor
 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 SBR.

p9568	SI Motion SBR velocity limit (Control Unit) / SI MtnSBR v_lim CU		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [rpm]	Max 1000.00 [rpm]	Factory setting 0.00 [rpm]
Description:	Sets the velocity limit for the "SBR" function. SBR is de-activated once the set velocity limit has been undershot.		
Note:	SBR: Safe Acceleration Monitor 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 SBR.		

p9570	SI Motion acceptance test mode (Control Unit) / SI Mtn Acc_mode		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting 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:	Refer to: p9558, r9571, p9601 Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting -
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:	Refer to: p9558, p9570 Refer to: C01799		

p9580 SI Motion pulse suppression delay time after bus failure (CU) / SI Mtn t to IL

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 800.00 [ms]	Factory setting 0.00 [ms]

Description: Sets the delay time after which the pulses are safely suppressed after a bus failure.

Dependency: Refer to: p9561, p9563

p9581 SI Motion brake ramp reference value (Control Unit) / SI Mtn ramp ref CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 600.0000 [mm/min]	Max 24000.0000 [mm/min]	Factory setting 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: Refer to: p9582, p9583

p9581 SI Motion brake ramp reference value (Control Unit) / SI Mtn ramp ref CU

SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 600.0000 [rpm]	Max 24000.0000 [rpm]	Factory setting 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: Refer to: p9582, p9583

p9582 SI Motion brake ramp delay time (Control Unit) / SI Mtn rp t_del CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 10.00 [ms]	Max 99000.00 [ms]	Factory setting 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: Refer to: p9581, p9583

p9583 **SI Motion brake ramp monitoring time (Control Unit) / SI Mtn rp t_mon CU**

SERVO_COMBI, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.50 [s] 1000.00 [s] 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: Refer to: p9581, p9582

p9587 **SI Motion act val sensing encoderless filter time (Control Unit) / SI Mtn EL filt CU**

SERVO_COMBI, **Can be changed:** C2(95) **Calculated:** - **Access level:** 4
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.00 [ms] 100.00 [ms] 25.00 [ms]

Description: Sets the filter time for smoothing the actual value with encoderless actual value sensing.

Note: This parameter is only effective for encoderless actual value sensing (p9306/p9506 = 1).

p9588 **SI Motion min current act val sensing encoderless (Control Unit) / SI Mtn I_min EL CU**

SERVO_COMBI, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0.00 [%] 100.00 [%] 10.00 [%]

Description: Sets the minimum current for encoderless actual value sensing.
 - 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.

Dependency: Refer to: C01711

Notice: Reducing this percentage value can adversely affect actual value sensing.

Note: This parameter is only effective for encoderless actual value sensing (p9306/p9506 = 1).

p9589 **SI Motion voltage tolerance acceleration (Control Unit) / SI Mtn V tol CU**

SERVO_COMBI, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** FloatingPoint32 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
10.00 [%] 1000.00 [%] 100.00 [%]

Description: Sets the voltage tolerance for suppressing acceleration peaks.
 Increasing this percentage value means that voltage peaks will need to have a higher amplitude during acceleration procedures if they are not to affect actual value sensing.
 - The value must be increased if C01711 has occurred with message value 1043.
 - The value must be lowered if acceleration procedures have led to an excessive Safety actual velocity.

Dependency: Refer to: C01711

Note: This parameter is only effective for encoderless actual value sensing (p9306/p9506 = 1).

r9590[0...3] SI Motion version safety motion monitoring (Control Unit) / SI Mtn version

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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: Refer to: 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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the enable signals for safety functions on the Control Unit that are integrated in the drive.
 Not all of the settings listed below will be permissible, depending on the Control Unit and Motor Module or Power Module being used:

- p9601 = 0: Safety functions integrated in the drive disabled.
- p9601 = 1: STO/SS1 enabled via terminals. Permissible if r9771.0 = 1.
- p9601 = 4: Motion monitoring functions integrated in the drive enabled via Terminal Module 54F (TM54F) (SINAMICS S120) or via an integrated F-DI/F-DO (SINAMICS S110). Permissible if r9771.5 = 1.
- p9601 = 5: Motion monitoring functions integrated in the drive enabled via Terminal Module 54F (TM54F) and STO/SS1 via terminals (SINAMICS S120 only). Permissible if r9771.5 = 1.
- p9601 = 8: STO/SS1 enabled via PROFIsafe. Permissible if r9771.6 = 1.
- p9601 = 9: STO/SS1 enabled via PROFIsafe and STO/SS1 via terminals. Permissible if r9771.6 = 1.
- p9601 = 12: Motion monitoring functions integrated in the drive enabled via PROFIsafe. Permissible if r9771.4 = 1.
- p9601 = 13: Motion monitoring functions integrated in the drive enabled via PROFIsafe and STO/SS1 via terminals. Permissible if r9771.4 = 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO (SH) via terminals (Control Unit) enable	Enable	Inhibit	
	02	Motion monitoring functions integr. in the drive (Control Unit)	Enable	Inhibit	
	03	PROFIsafe (Control Unit) enable	Enable	Inhibit	

Dependency: Refer to: r9771, p9801

Note: CU: Control Unit.
 STO: Safe Torque Off/SH: Safe standstill.
 SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN 60204).
 SI: Safety Integrated.
 SMM: Safe Motion Monitoring.
 F-DI: Failsafe Digital Input.
 F-DO: Failsafe Digital Output.
 A change only becomes effective after a POWER ON.

p9602	SI enable Safe Brake Control (Control Unit) / SI enable SBC CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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:	Refer to: p9802		
Note:	<p>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).</p> <p>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.</p> <p>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.</p> <p>It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).</p> <p>CU: Control Unit SBC: Safe Brake Control SI: Safety Integrated</p>		

p9610	SI PROFIsafe address (Control Unit) / SI PROFIsafe CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFE hex	Factory setting 0000 hex
Description:	Sets the PROFIsafe address of the Control Unit.		
Dependency:	Refer to: p9810		

p9620[0...7]	BI: SI signal source for STO (SH)/SBC/SS1 (Control Unit) / SI S_srcSTO/SS1 CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting [0] 0 [1] 0 [2] 0 [3] 0 [4] 0 [5] 0 [6] 0 [7] 0
Description:	<p>Sets the signal source for the following functions on the Control Unit:</p> <p>STO: Safe Torque Off / SH: Safe standstill SBC: Safe Brake Control SS1: Safe Stop 1 (time monitored)</p>		

Dependency: Refer to: p9601
Note: The following signal sources are permitted:
 - fixed zero (standard setting).
 - digital inputs DI 0 to DI 7 on the Control Unit 320 (CU320).
 - digital inputs DI 0 to DI 3 on the Controller Extensions (CX32, NX10, NX15).
 - digital inputs DI 0 to DI 3 on the Control Unit 310 (CU310).
 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 signal source for SBA (Control Unit) / SI s_src SBA CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: An entry is added, specifying whether and/or via which digital CU input the SBA feedback signal (SBA_DIAG) is to be read in; the parameter can be interconnected as a BICO drain.
 0 : No SBC with SBA (default)
 Bico code: To be parameterized by the user
 SBA and no DQ CIM: p0722.x CU signal source for DIx where x = { 0,1,2...7 }
 SBA with DQ CIM: p9872.3 Signal source is permanently interconnected to bit 3

Dependency: Refer to: p9601
Note: No difference is tolerated for a data cross-check between p9621 and p9821.

p9622[0...1] SI SBA relay delay times (Control Unit) / SI SBA WT CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0.00 [ms]	1000.00 [ms]	[0] 100.00 [ms] [1] 65.00 [ms]

Description: The relay-specific minimum delay times (ms) for evaluating the feedback signal contacts have to be taken into account. They differ for the activation and de-activation of one and the same relay.

Index: [0] = Relay delay time activation
 [1] = Relay delay time de-activation

Dependency: Refer to: p9850

Note: For a data cross-check between p9622 and p9822, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle.
 The relay-specific minimum delay times (ms) for evaluating the feedback signal contacts are entered.
 Index 0 : for the ON time (default 100 ms)
 Index 1 : for the OFF time (default 65 ms)

p9650 SI SGE changeover tolerance time (Control Unit) / SI SGE_chg tol CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 2000.00 [ms]	Factory setting 500.00 [ms]

Description: Sets the tolerance 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 data cross-check during this tolerance time.

Dependency: Refer to: p9850

Note: For a data cross-check between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated.
The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle.
SGE: Safety-related input (e.g. STO terminals)

p9651 SI STO/SBC/SS1 debounce time (Control Unit) / SI STO t_debou CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 100.00 [ms]	Factory setting 0.00 [ms]

Description: Sets the CU DI debounce time used to control the SH terminal (see p9620).
The debounce time is accepted rounded to whole milliseconds. The debounce time indicates the maximum duration of a fault pulse on the F-DIs, so that there are no negative effects on the SGEs.

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.

p9652 SI Safe Stop 1 delay time (Control Unit) / SI Stop 1 t_del CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [s]	Max 300.00 [s]	Factory setting 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).

Dependency: Refer to: p1135, p9852

Note: For a data cross-check between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated.
The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle.
SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

p9658 SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A CU			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 30000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the transition period from STOP F to STOP A on the Control Unit.		
Dependency:	Refer to: r9795, p9858 Refer to: F01611		
Note:	For a data cross-check between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle. STOP F: Defect in a monitoring channel (error in the data cross-check) STOP A: Pulse suppression via the safety shutdown path		
p9659 SI forced checking procedure timer / SI FrcdCkProcTimer			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [h]	Max 9000.00 [h]	Factory setting 8.00 [h]
Description:	Sets the time interval for carrying out the forced checking procedure and testing the Safety shutdown 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:	Refer to: A01699		
Note:	STO: Safe Torque Off / SH: Safe standstill		
r9660 SI forced checking procedure remaining time / SI frc chk remain			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [h]	Max - [h]	Factory setting - [h]
Description:	Displays the time remaining before dynamization and testing of the safety shutdown paths (forced checking procedure).		
Dependency:	Refer to: A01699		
p9700 SI Motion copy function / SI Mtn copy fct			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95), U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00D0 hex	Factory setting 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 0.		

Value: 0: [00 hex] Copy function ended
 29: [1D hex] Start copy function node identifier
 87: [57 hex] Start copy function SI parameters
 208: [D0 hex] Start copy function SI basic parameters

Note: Re value = 57 hex and D0 hex:
 The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.
 Re value = D0 hex:
 The following parameters are copied after starting the copy function:
 p9601/p9801, p9602/p9802, p9610/9810, p9650/p9850, p9652/p9852, p9658/p9858

p9700 SI Motion copy function / SI Mtn copy fct

TM54F_MA	Can be changed: C2(95), U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 0057 hex	Factory setting 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 0.

Value: 0: [00 hex] Copy function ended
 29: [1D hex] Start copy function node identifier
 87: [57 hex] Start copy function SI parameters

Note: Re 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 / Ackn SI Mtn dat

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95), U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00EC hex	Factory setting 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 0.

Value: 0: [00 hex] Data unchanged
 172: [AC hex] Acknowledge data change complete
 220: [DC hex] Acknowledge SI basic parameter change
 236: [EC hex] Acknowledge hardware CRC

Dependency: Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899

Note: Re value = AC and DC hex:
 These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered.

p9701	Acknowledge SI Motion data / Ackn SI Mtn dat		
TM54F_MA, TM54F_SL	Can be changed: C2(95), U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max 00EC hex	Factory setting 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 0.		
Value:	0: [00 hex] Data unchanged 172: [AC hex] Acknowledge data change complete 236: [EC hex] Acknowledge hardware CRC		
Dependency:	Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899		
Note:	Re 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		

p9705	BI: SI Motion: Test stop signal source / SI Mtn test stop		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the test stop of the safety-relevant motion monitoring functions.		
Notice:	It is not permissible to use TM54F inputs to start the test stop.		

r9710[0...1]	SI Motion diagnostics result list 1 / SI Mtn res_list 1				
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays result list 1 that, for the data cross-check 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, SE1	Yes	No	
	03	Actual value > lower limit, SE1	Yes	No	
	04	Actual value > upper limit, SE2	Yes	No	
	05	Actual value > lower limit, SE2	Yes	No	

06	Actual value > upper limit, SG1	Yes	No
07	Actual value > lower limit, SG1	Yes	No
08	Actual value > upper limit, SG2	Yes	No
09	Actual value > lower limit, SG2	Yes	No
10	Actual value > upper limit, SG3	Yes	No
11	Actual value > lower limit, SG3	Yes	No
12	Actual value > upper limit, SG4	Yes	No
13	Actual value > lower limit, SG4	Yes	No
16	Actual value > upper limit, SBR	Yes	No
17	Actual value > lower limit, SBR	Yes	No

Dependency: Refer to: C01711

r9711[0...1] SI Motion diagnostics result list 2 / SI Mtn res_list 2

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays result list 2 that, for the data cross-check 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, SN1+	Yes	No	
	01	Actual value > lower limit, SN1+	Yes	No	
	02	Actual value > upper limit, SN1-	Yes	No	
	03	Actual value > lower limit, SN1-	Yes	No	
	04	Actual value > upper limit, SN2+	Yes	No	
	05	Actual value > lower limit, SN2+	Yes	No	
	06	Actual value > upper limit, SN2-	Yes	No	
	07	Actual value > lower limit, SN2-	Yes	No	
	08	Actual value > upper limit, SN3+	Yes	No	
	09	Actual value > lower limit, SN3+	Yes	No	
	10	Actual value > upper limit, SN3-	Yes	No	
	11	Actual value > lower limit, SN3-	Yes	No	
	12	Actual value > upper limit, SN4+	Yes	No	
	13	Actual value > lower limit, SN4+	Yes	No	
	14	Actual value > upper limit, SN4-	Yes	No	
	15	Actual value > lower limit, SN4-	Yes	No	
	16	Actual value > upper limit, n_x+	Yes	No	
	17	Actual value > lower limit, n_x+	Yes	No	
	18	Actual value > upper limit, n_x-	Yes	No	
	19	Actual value > lower limit, n_x-	Yes	No	
	20	Actual value > upper limit, modulo	Yes	No	
	21	Actual value > lower limit, modulo	Yes	No	

Dependency: Refer to: C01711

r9712 SI Motion diagnostics position actual value motor side / SI Mtn s_act mot

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the actual motor-side position actual value for the motion monitoring functions on the Control Unit.

r9713[0...3] SI Motion diagnostics position actual value load side / SI Mtn s_act load					
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the actual load-side actual values of both monitoring channels and their difference.				
Index:	[0] = Load-side actual value on the Control Unit [1] = Load-side actual value on the second channel [2] = Load-side actual value difference Control Unit - second channel [3] = Load-side max. actual value difference CU - 2nd channel				
Dependency:	Refer to: r9724				
Note:	Re index 0: The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle. Re index 1: The display of the load-side position actual value on the second channel is updated in the DCC clock cycle (r9724) and delayed by one DCC clock cycle. Re 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 DCC clock cycle (r9724) and delayed by one DCC clock cycle. Re 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. DCC: Data cross-check				
r9714[0...1] SI motion diagnostics velocity / SI Mtn diag v					
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Integer32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the current velocity actual values for the motion monitoring functions on the Control Unit.				
Index:	[0] = Load-side velocity actual value on the Control Unit [1] = Current SBR velocity limit on the Control Unit				
Note:	For a linear axis, the following units apply: Micrometers per monitoring clock cycle (p9500) For a rotary axis, the following units apply: Millidegrees per monitoring clock cycle (p9500)				
r9718.23 CO/BO: SI Motion control signals 1 / SI Mtn ctrl_sig 1					
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
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

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: -	Calculated: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	
P-Group: Safety Integrated	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min	Max	Factory setting
-	-	-

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	
	08	Gearbox selection, bit 0	Set	Not set	
	09	Gearbox selection, bit 1	Set	Not set	
	10	Gearbox selection, bit 2	Set	Not set	
	12	Select SLP (SE)	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: Re 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

r9720.0...10 CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW

SERVO_COMBI,
SERVO_SINUMERI
K828

Can be changed: -	Calculated: -	Access level: 3
Data type: Unsigned32	Dynamic index: -	
P-Group: Safety Integrated	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min	Max	Factory setting
-	-	-

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	
	07	Acknowledgement	Signal edge active	No	
	09	Select SLS bit 0	Set	Not set	
	10	Select SLS bit 1	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 / SI Mtn stat_sig		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	

Description: Status signal for safety-relevant motion monitoring functions.

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	Status signals valid	Yes	No	
	07	Safely referenced	Yes	No	
	12	STOP A or B active	Yes	No	
	13	STOP C active	Yes	No	
	14	STOP D active	Yes	No	
	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...15		CO/BO: SI Motion status signals integrated in the drive / SI Mtn integ stat		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	

Description: Status signal for safety-relevant motion monitoring functions integrated in the drive.

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	
	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	
	15	SSM (speed below limit value)	Yes	No	

Notice: Re 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.

Re bit 07:

An internal event is displayed if a STOP A ... F is active.

r9723.0...16 CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting

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	
	16	SBR active	Yes	No	

r9724 SI Motion crosswise comparison clock cycle / SI Mtn DCC clk cyc

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting

Description: Displays the crosswise comparison clock cycle.
The value indicates the clock cycle time with which each individual DCC value is compared between the two monitoring channels.

Dependency: Refer to: p9500

Note: Crosswise comparison clock cycle = monitoring clock cycle (p9500) * number of data to be crosswise compared
DCC: Data cross-check

r9725[0...2] SI Motion, diagnostics STOP F / SI Mtn Diag STOP F

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting

Description: Re 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 to 999:
Number of the incorrect date in the data cross-check between the monitoring channels.
Value >= 1000:
Additional diagnostic values of the drive.

Re index 1:
Displays the value of the Control Unit that resulted in the STOP F.
Re index 2:
Displays the value of the 2nd channel that resulted in the STOP F.

Index: [0] = DCC error number
[1] = Control Unit DCC act value
[2] = Components DCC act val

Dependency: Refer to: C01711

Note: The significance of the individual values is described in message C01711.

p9726	SI Motion, user agreement selection/de-selection / SI Mtn UserAgr sel		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T Data type: Integer16 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Scaling: - Max 00AC hex	Access level: 4 Unit selection: - Expert list: 1 Factory setting 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:	Refer to: r9727		
r9727	SI Motion user agreement, inside the drive / SI Mtn UserAgr int		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Integer16 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 4 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the internal state of the user agreement. Value = 0: User agreement is not set. Value = AC hex: User agreement is set.		
Dependency:	Refer to: p9726		
r9728[0...2]	SI Motion actual checksum, SI parameters / SI Mtn act CRC		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
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:	Refer to: p9729 Refer to: F01680		
p9729[0...2]	SI Motion reference checksum, SI parameters / SI Mtn ref CRC		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Scaling: - Max FFFF FFFF hex	Access level: 3 Unit selection: - Expert list: 1 Factory setting 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: Refer to: r9728
Refer to: F01680

r9730	SI Motion Safe maximum velocity / SI mtn safe v_Max		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mm/min]	Max - [mm/min]	Factory setting - [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. If safety is not enabled, the parameter has no significance and is set to "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_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [rpm]
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. If safety is not enabled, the parameter has no significance and is set to "0".		
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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [mm]	Max - [mm]	Factory setting - [mm]
Description:	Displays the safe position accuracy (on the load side) that can be achieved as a maximum for the safe motion monitoring functions as a result of the actual value sensing. If safety is not enabled, the parameter has no significance and is set to "0".		

r9731	SI Motion safe position accuracy / SI Mtn pos acc		
SERVO_COMBI (Safety rot), SERVO_SINUMERI K828 (Safety rot)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the safe position accuracy (on the load side) that can be achieved as a maximum for the safe motion monitoring functions as a result of the actual value sensing. If safety is not enabled, the parameter has no significance and is set to "0".		

r9733[0...1]	CO: SI Motion setpoint speed limit effective / SI Mtn setp_lim		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: 3_1	Unit selection: p0505
	Not for motor type: -	Scaling: p2000	Expert list: 1
	Min - [rpm]	Max - [rpm]	Factory setting - [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.		
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative		
Dependency:	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 Refer to: p9531, p9533		
Notice:	If p1051 = r9733[0] is interconnected, p1052 = r9733[1] must also be interconnected. If only the absolute value of the setpoint speed limit is required, r9733[0] is sufficient.		
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" 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.		
r9744	SI message buffer changes, counter / SI msg_buffer chng		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the changes of the safety message buffer. This counter is incremented every time that the safety message buffer changes.		
Recommend.:	This is used to check whether the safety message buffer has been read out consistently.		
Dependency:	Refer to: r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756		
r9745[0...63]	SI component number / SI comp_num		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the component number of the safety message which has occurred.		
Note:	Value = 0: Assignment to a component not possible.		

r9747[0...63]	SI message code / SI msg_code		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the numbers of safety messages that have occurred.		
Dependency:	Refer to: r9744, r9748, r9749, p9752, r9753, r9754, r9755, r9756		
Note:	The messages type "safety message" (Cxxxxx) 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message occurred.		
Dependency:	Refer to: r9744, r9747, r9749, p9752, r9753, r9754, r9755, r9756		

r9749[0...63]	SI message value / SI msg_value		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the additional information about the safety message that occurred (as integer number).		
Dependency:	Refer to: r9744, r9747, r9748, p9752, r9753, r9754, r9755, r9756		

r9750[0...63]	SI diagnostic attributes / SI diag_attr			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -		
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the diagnostic attributes of the safety messages that have occurred.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Hardware replacement recommended	Yes	No
				FP

p9752	SI message cases, counter / SI msg_cases count			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	0	65535	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. Refer to: r9744, r9747, r9748, r9749, r9753, r9754, r9755, r9756			
Note:	The parameter is reset to 0 at POWER ON.			

r9753[0...63]	SI message value for float values / SI msg_val float			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -		
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays additional information about the safety message that has occurred for float values.			
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9754, r9755, r9756			

r9754[0...63]	SI message time received in days / SI t_msg rcv days			
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -		
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -	Scaling: -	Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the relative system runtime in days when the safety message occurred.			
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9755, r9756			

r9755[0...63]	SI message time removed in milliseconds / SI t_msg rem ms		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message was removed.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9756		

r9756[0...63]	SI message time removed in days / SI t_msg rem days		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the relative system runtime in days when the safety message was removed.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755		

p9761	SI password input / SI password inp		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C1, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Enters the Safety Integrated password.		
Dependency:	Refer to: F01659		
Note:	It is not possible to change Safety Integrated parameters until the Safety Integrated password has been entered.		

p9762	SI password new / SI password new		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 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: Refer to: p9763		

p9763	SI password acknowledgement / SI ackn password		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95) Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min 0000 hex	Calculated: - Dynamic index: - Units group: - Scaling: - Max FFFF FFFF hex	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0000 hex
Description:	Acknowledges the new Safety Integrated password.		
Dependency:	Refer to: p9762		
Note:	The new password entered into p9762 must be re-entered in order to acknowledge. p9762 = p9763 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.		
r9765	SI Motion forced check procedure remaining time (Control Unit) / SI Mtn dyn remain		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: - Min - [h]	Calculated: - Dynamic index: - Units group: - Scaling: - Max - [h]	Access level: 3 Unit selection: - Expert list: 1 Factory setting - [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:	Refer to: p9705 Refer to: C01798		
r9770[0...3]	SI vers. safety fcts that run indep. in the drive (Control Unit) / SI version Drv CU		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the Safety Integrated version for the safety functions that run independently in the drive 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:	Refer to: 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		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Scaling: - Max -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the Safety Integrated monitoring functions supported on the Control Unit and Motor Module. The Control Unit determines this display.		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	
	01	SBC supported	Yes	No	
	02	SI Motion supported	Yes	No	
	03	SS1 supported	Yes	No	
	04	PROFIsafe supported for Extended Functions	Yes	No	
	05	Drive-based motion monitoring functions supported	Yes	No	
	06	PROFIsafe supported for Basic Functions	Yes	No	
	07	Encoderless motion monitoring supported	Yes	No	
	08	Safe Brake Adapter supported	Yes	No	
	09	PROFIsafe supported BasicFunctions for parall circuit connection	Yes	No	

Dependency: Refer to: r9871
Note: CU: Control Unit
 SBC: Safe Brake Control
 SI: Safety Integrated
 SS1: Safe Stop 1
 STO: Safe Torque Off / SH: Safe standstill

r9772.0...23 CO/BO: SI status (Control Unit) / SI status CU

SERVO_COMBI, SERVO_SINUMERIK828
Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned32 **Dynamic index:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Displays the Safety Integrated status on the Control Unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected on Control Unit	Yes	No	
	01	STO active on Control Unit	Yes	No	
	02	SS1 delay time active on the Control Unit	Yes	No	
	04	SBC requested	Yes	No	
	05	SS1 selected on the Control Unit (Basic Functions)	Yes	No	
	06	SS1 active on the Control Unit (Basic Functions)	Yes	No	
	09	STOP A cannot be acknowledged, active	Yes	No	
	10	STOP A active	Yes	No	
	15	STOP F active	Yes	No	
	16	STO cse: Safety comm. mode	Yes	No	
	17	STO cause selection via terminal (Basic Functions)	Yes	No	
	18	STO cause: selection via SMM	Yes	No	
	19	STO cause actual value missing	Yes	No	
	20	STO cause selection PROFIsafe (Basic Functions)	Yes	No	
	22	SS1 cause selection terminal (Basic Functions)	Yes	No	
	23	SS1 cause selection PROFIsafe (Basic Functions)	Yes	No	

Dependency: Refer to: r9872

Note: Re bit 00:
When STO is selected, the cause is displayed in bits 16 ... 20.
Re bit 05:
When SS1 is selected, the cause is displayed in bits 22 and 23.
Re bit 18:
When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).
Re 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.
SMM: Safe Motion Monitoring
Re 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 + Motor Module) / SI status CU+MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	01	STO active in drive	Yes	No	
	02	SS1 delay time active in the drive	Yes	No	
	04	SBC requested	Yes	No	
	05	SS1 selected in the drive (Basic Functions)	Yes	No	
	06	SS1 active in the drive (Basic Functions)	Yes	No	
	31	Shutdown paths must be tested	Yes	No	

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	01	STO active in group	Yes	No	
	02	SS1 delay time active in group	Yes	No	
	04	SBC requested in group	Yes	No	
	05	SS1 selected in group (Basic Functions)	Yes	No	
	06	SS1 active in group (Basic Functions)	Yes	No	
	31	Shutdown paths of the group must be tested	Yes	No	

Dependency: Refer to: 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 diagnostics

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	

Note: Re bit 00:
The bit indicates whether a change has been made to at least one Safety parameter which will only take effect after a POWER ON.

r9780 SI monitoring clock cycle (Control Unit) / SI monitor_clk CU

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Control Unit.

Dependency: Refer to: r9880

r9781[0...1] SI checksum to check changes (Control Unit) / SI chg chksm CU

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the checksum for tracking changes for Safety Integrated.
These are additional checksums that are created to track changes (fingerprint for the "safety logbook" functionality) to safety parameters (that are relevant for checksums).

Index: [0] = SI checksum to track functional changes
[1] = SI checksum to track hardware-specific changes

Dependency: Refer to: p9601, p9729, p9799
Refer to: F01690

r9782[0...1]	SI time stamps to check changes (Control Unit) / SI chg t CU		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [h]	Max - [h]	Factory setting - [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:	Refer to: p9601, p9729, p9799 Refer to: F01690		

r9794[0...19]	SI crosswise comparison list (Control Unit) / SI DCC_list CU		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of the data that are being presently compared crosswise on the Control Unit. Example: r9794[0] = 1 (monitoring clock cycle) r9794[1] = 2 (enable safety functions) r9794[2] = 3 (SGE changeover, tolerance time) r9794[3] = 4 (transition time, STOP F to STOP A) ... The content of the list of crosswise-compared data is dependent upon the particular application.		
Dependency:	Refer to: r9894		
Note:	A complete list of numbers for crosswise-compared data items appears in fault F01611.		

r9795	SI diagnostics STOP F (Control Unit) / SI diag STOP F CU		
SERVO_COMBI, SERVO_SINUMERIK828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of the cross-checked data which has caused STOP F on the Control Unit.		
Dependency:	Refer to: r9895 Refer to: F01611		
Note:	A complete list of numbers for crosswise-compared data items appears in fault F01611.		

r9798 **SI actual checksum SI parameters (Control Unit) / SI act_checksum CU**

SERVO_COMBI, **Can be changed:** - **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned32 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

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

Description: Displays the checksum over the checked Safety Integrated parameters on the Control Unit (actual checksum).
Dependency: Refer to: p9799, r9898

p9799 **SI reference checksum SI parameters (Control Unit) / SI set_checksum CU**

SERVO_COMBI, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned32 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
0000 hex FFFF FFFF hex 0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters on the Control Unit (reference checksum).
Dependency: Refer to: r9798, p9899

p9801 **SI enable, functions integrated in the drive (Motor Module) / SI enable fct MM**

SERVO_COMBI, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
SERVO_SINUMERI **Data type:** Unsigned16 **Dynamic index:** -
K828 **P-Group:** Safety Integrated **Units group:** - **Unit selection:** -
 Not for motor type: - **Scaling:** - **Expert list:** 1

Min **Max** **Factory setting**
- - 0000 bin

Description: Sets the enable signals for safety functions on the Motor Module that are integrated in the drive.
Not all of the settings listed below will be permissible, depending on the Control Unit and Motor Module or Power Module being used:

- p9801 = 0: Safety functions integrated in the drive disabled.
- p9801 = 1: STO/SS1 enabled via terminals. Permissible if r9871.0 = 1.
- p9801 = 4: Motion monitoring functions integrated in the drive enabled via Terminal Module 54F (TM54F) (SINAMICS S120) or via an integrated F-DI/F-DO (SINAMICS S110). Permissible if r9871.5 = 1.
- p9801 = 5: Motion monitoring functions integrated in the drive enabled via Terminal Module 54F (TM54F) and STO/SS1 via terminals (SINAMICS S120 only). Permissible if r9871.5 = 1.
- p9801 = 8: STO/SS1 enabled via PROFIsafe. Permissible if r9871.6 = 1.
- p9801 = 9: STO/SS1 enabled via PROFIsafe and STO/SS1 via terminals. Permissible if r9871.6 = 1.
- p9801 = 12: Motion monitoring functions integrated in the drive enabled via PROFIsafe. Permissible if r9871.4 = 1.
- p9801 = 13: Motion monitoring functions integrated in the drive enabled via PROFIsafe and STO/SS1 via terminals. Permissible if r9871.4 = 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO (SH) via terminals (Motor Module) enable	Enable	Inhibit	
	02	Motion monitoring functions integr. in the drive (Motor Module)	Enable	Inhibit	
	03	PROFIsafe (Motor Module) enable	Enable	Inhibit	

Dependency: Refer to: p9601, r9871

Note: 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 EN 60204).
 F-DI: Failsafe Digital Input.
 F-DO: Failsafe Digital Output.
 A change only becomes effective after a POWER ON.

p9802	SI enable Safe Brake Control (Motor Module) / SI enable SBC MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 0

Description: Sets the enable signal for the "Safe Brake Control" function (SBC) on the Motor Module.

0: Inhibit SBC

1: Enable SBC

Dependency: Refer to: p9602

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	SI PROFIsafe address (Motor Module) / SI PROFIsafe MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFE hex	Factory setting 0000 hex

Description: Sets the PROFIsafe address of the Motor Module.

p9821	BI: SI signal source for SBA (Motor Module) / SI s_src SBA MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0
Description:	An entry is added, specifying whether and/or via which digital CU input the SBA feedback signal (SBA_DIAG) is to be read in; the parameter can be interconnected as a BICO drain. 0 : No SBC with SBA (default) Bico code: To be parameterized by the user SBA and no DQ CIM: p0722.x CU signal source for DIx where x = { 0,1,2...7 } SBA with DQ CIM: p9872.3 Signal source is permanently interconnected to bit 3		
Dependency:	Refer to: p9601		
Note:	No difference is tolerated for a data cross-check between p9621 and p9821.		

p9822[0...1]	SI SBA relay delay times (Motor Module) / SI SBA t_wait MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 1000000.00 [µs]	Factory setting [0] 100000.00 [µs] [1] 65000.00 [µs]
Description:	Sets the delay times for activating and de-activating the relay. The relay-specific minimum delay times for evaluating the feedback signal contacts have to be set.		
Index:	[0] = Relay delay time activation [1] = Relay delay time de-activation		
Dependency:	Refer to: p9850		

p9850	SI SGE changeover tolerance time (Motor Module) / SI SGE_chg tol MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 2000000.00 [µs]	Factory setting 500000.00 [µs]
Description:	Sets the tolerance time to change over the safety-related inputs (SGE) on the Motor 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 data cross-check during this tolerance time.		
Dependency:	Refer to: p9650		
Note:	For a data cross-check between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SGE: Safety-related input (e.g. STO terminals)		

p9851	SI STO/SBC/SS1 debounce time (Motor Module) / SI STO t_debou MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 100000.00 [µs]	Factory setting 0.00 [µs]
Description:	Sets the debounce time for the EP terminal of the Motor Module. The debounce time is rounded to whole milliseconds. The debounce time indicates the maximum duration of a fault pulse on the F-DIs, so that there are no negative effects on the SGEs. 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.		
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.		
p9852	SI Safe Stop 1 delay time (Motor Module) / SI Stop 1 t_del MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [ms]	Max 300000.00 [ms]	Factory setting 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).		
Dependency:	Refer to: p1135, p9652		
Note:	For a data cross-check between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle. SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)		
p9858	SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A MM		
SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [µs]	Max 30000000.00 [µs]	Factory setting 0.00 [µs]
Description:	Sets the transition period from STOP F to STOP A on the Motor Module.		
Dependency:	Refer to: p9658, r9895 Refer to: F30611		
Note:	For a data cross-check between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is rounded internally to an integer multiple of the monitoring clock cycle. STOP F: Defect in a monitoring channel (error in the data cross-check) STOP A: Pulse suppression via the safety shutdown path		

r9870[0...3] SI version safety functions integrated in drive (Motor Module) / SI version MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated version for the safety functions integrated in the drive on the Motor Module.

Index:
 [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)
 [3] = Safety Version (hotfix)

Dependency: Refer to: 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)

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated monitoring functions supported on the Control Unit and Motor Module. The Motor Module determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	
	01	SBC supported	Yes	No	
	02	SI Motion supported	Yes	No	
	03	SS1 supported	Yes	No	
	04	PROFIsafe supported for Extended Functions	Yes	No	
	05	Drive-based motion monitoring functions supported	Yes	No	
	06	PROFIsafe supported for Basic Functions	Yes	No	
	07	Encoderless motion monitoring supported	Yes	No	
	08	Safe Brake Adapter supported	Yes	No	
	09	PROFIsafe supported BasicFunctions for parall circuit connection	Yes	No	

Dependency: Refer to: r9771

Note: MM: Motor Module
 SBC: Safe Brake Control
 SI: Safety Integrated
 SS1: Safe Stop 1
 STO: Safe Torque Off / SH: Safe standstill

r9872.0...23 CO/BO: SI status list (Motor Module) / SI status MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated status on the Motor Module.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO on Motor Module selected	Yes	No	
	01	STO on Motor Module active	Yes	No	
	02	SS1 delay time on Motor Module active	Yes	No	
	03	Safe Brake Adapter feedback signal	High	Low	
	04	SBC requested	Yes	No	
	05	SS1 selected on the Motor Module (Basic Functions)	Yes	No	
	06	SS1 active on the Motor Module (Basic Functions)	Yes	No	
	09	STOP A cannot be acknowledged, active	Yes	No	
	10	STOP A active	Yes	No	
	15	STOP F active	Yes	No	
	16	STO cse: 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 (Basic Functions)	Yes	No	
	22	SS1 cause selection terminal (Basic Functions)	Yes	No	
	23	SS1 cause selection PROFIsafe (Basic Functions)	Yes	No	

Dependency: Refer to: r9772

Notice: If communication between the Control Unit and the Motor Module is interrupted (e.g. by switching off the Motor Module), this display parameter is no longer updated. The last transferred status of the Motor Module is displayed.

Note: Re bit 00:

When STO is selected, the cause is displayed in bits 16 ... 18 and in bit 20.

Re bit 05:

When SS1 is selected, the cause is displayed in bits 22 and 23.

Re bit 18:

When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).

SMM: Safe Motion Monitoring

Re 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.

r9880 SI monitoring clock cycle (Motor Module) / SI monitor_clk MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Motor Module.

Dependency: Refer to: r9780

r9881[0...11] SI Motion Sensor Module Node Identifier second channel / SI Mtn SM Ident

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
-	-	-	

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

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
-	-	-	

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: Refer to: r9770, r9870

Note: Example:
 r9890[0] = 2, r9890[1] = 3, r9890[2] = 1 --> Safety-Version V02.03.01

r9894[0...19] SI crosswise comparison list (Motor Module) / SI DCC_list MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
-	-	-	

Description: Displays the number of the data that are being presently compared crosswise on the Motor Module.

Example:
 r9894[0] = 1 (monitoring clock cycle)
 r9894[1] = 2 (enable safety functions)
 r9894[2] = 3 (SGE changeover, tolerance time)
 r9894[3] = 4 (transition time, STOP F to STOP A)
 ...

The content of the list of crosswise-compared data is dependent upon the particular application.

Dependency: Refer to: r9794

Note: The complete list of numbers for data cross-check is listed in Fault F30611.

r9895 SI diagnostics STOP F (Motor Module) / SI diag STOP F MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
-	-	-	

Description: Displays the number of the cross-checked data which has caused STOP F on the Motor Module.

Dependency: Refer to: r9795
Refer to: F30611

Note: The complete list of numbers for data cross-check is listed in Fault F30611.

r9898 SI actual checksum SI parameters (Motor Module) / SI act_checksum MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the checksum for the checked Safety Integrated parameters on the Motor Module (actual checksum).

Dependency: Refer to: r9798, p9899

p9899 SI reference checksum SI parameters (Motor Module) / SI set_checksum MM

SERVO_COMBI, SERVO_SINUMERI K828	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the checksum for the checked Safety Integrated parameters on the Motor Module (reference checksum).

Dependency: Refer to: p9799, r9898

r9900 Actual topology number of indices / Act topo indices

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of indices of the actual topology.

Dependency: Refer to: r9901

Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning software.

r9901[0...n]	Actual topology / Act topo		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: r9900	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	<p>Displays the actual topology of the drive unit.</p> <p>The actual 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 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/linked port - etc. <p>Data on the next component:</p> <ul style="list-style-type: none"> - etc. 		
Dependency:	Refer to: r9900		
Note:	<p>Only for internal Siemens use.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p>		

p9902	Target topology number of indices / TargetTopo indices		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min	Max	Factory setting
	1	65535	1
Description:	Sets the number of target topology indices.		
Dependency:	Refer to: p9903		
Note:	<p>Only for internal Siemens use.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p>		

p9903[0...n]	Target topology / Target topology		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: p9902 Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0 Factory setting 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/linked port - etc. <p>Data on the next component:</p> <ul style="list-style-type: none"> - etc. 		
Dependency:	Refer to: p9902		
Note:	<p>The target topology can only be modified using the commissioning software.</p> <p>Only for internal Siemens use.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p> <p>Changes do not become effective until they have been accepted with p9428 = 1, or on change of status from p0009 = 101 to 0 or 111.</p>		

p9904 Topology comparison, acknowledge differences / Topo_compare ackn

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 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 acknowledgement of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).

p9905 Device specialization / Specialization

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 0

Description: With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started..

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.

With p9905 = 2, the serial numbers, the hardware versions and the order numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started..

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and order numbers.

Note: p9905 is automatically set to 0 at the end of the operation.
 In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).

p9906 Topology comparison, comparison stage of all components / Topo_cmpr tot comp

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Integer16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 99	

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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned8 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 199	

Description: Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed.

Dependency: Refer to: p9908

p9908 Topology comparison, comparison stage of a component / Topo_cmpr 1 comp

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Integer16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 99	

Description: Sets the type of comparison of a component in the target topology with the actual topology.
The comparison is started by setting the required value.

Value: 0: High: Compares the complete electronic rating plate
1: Average: Compares the component type and the Order number
2: Low: Compares the component type
3: Minimum: Compares the component class
99: Topology has different comparison stages

Dependency: Refer to: p9907
Note: The electronic rating plate comprises the following data:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")
- 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 Topology comparison, component replacement / Topo_cmpr replace

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 1

Description: For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion.
 For the components that have been replaced, the electronic rating plate must match as far as the following data is concerned:

- component type (e.g. "SMC20")
- Order No. (e.g. "6SL3055-0AA0-5BA0")

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

Dependency: Refer to: p9904, p9905

Note: The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).

Special case for Control Unit and option slot modules:

When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

p9910 Transfer additional components into the target topology / Transfer comp

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 6	Factory setting 0

Description: Transfer additional inserted DRIVE-CLiQ components into the target topology and add the appropriate drive objects 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...3]	Insert drive object / Drv_obj insert		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0	Max 4294967295	Factory setting 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: 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		
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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0	Max 62	Factory setting 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] Change drive object number / Change drv_obj_no			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0	Max 62	Factory setting 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] Change component number / Change comp_no			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 0
	Min 0	Max 199	Factory setting 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 / DLQ fault master		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0000 hex	Max 0007 07FF hex	Factory setting 0007 02FF hex
Description:	Only for internal Siemens service purposes.		
p9916	DRIVE-CLiQ data transfer error shutdown threshold slave / DLQ fault slave		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1
	Min 0000 hex	Max 0007 07FF hex	Factory setting 0007 02FF hex
Description:	Only for internal Siemens service purposes.		
p9917[0...1]	Delete component / Delete comp		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(30) Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0
	Min 0	Max 199	Factory setting 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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 2 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.		
Dependency:	Refer to: r9926 Refer to: A01016		
Note:	The directory and name of the file is displayed in the ASCII code.		

r9926 Firmware check status / FW check status			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the status when the firmware is checked when the system is booted.		
	0: Firmware not yet checked.		
	1: Check running.		
	2: Check successfully completed.		
	3: Check indicates an error.		
Dependency:	Refer to: r9925		
	Refer to: A01016		

p9930[0...8] System logbook activation / SYSLOG activation			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	255	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] = Reserved		
	[5] = Reserved		
	[6] = Reserved		
	[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...99] System logbook module selection / SYSLOG mod select.			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Only for service purposes.		

p9932 Save system logbook EEPROM / SYSLOG EEPROM save

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting 0
	Min 0	Max 255	

Description: Only for service purposes.

r9935.0 BO: POWER ON delay signal / POWER ON t_delay

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 1 Factory setting -
	Min -	Max -	

Description: 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	

p9941 Target topology feature delete all components / Feature delete

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 3 Unit selection: - Expert list: 0 Factory setting 0
	Min 0	Max 1	

Description: Writing the parameter to the value 1 deletes (sets to zero) the serial numbers of all components in the target topology. 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.

r9975[0...7] System utilization measured / Sys util meas

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: - Scaling: -	Access level: 4 Unit selection: - Expert list: 1 Factory setting - [%]
	Min - [%]	Max - [%]	

Description: Displays the measured system utilization. The higher the value displayed, the higher the system utilization.

Index:
[0] = Computing time utilization (min)
[1] = Computing time utilization (averaged)
[2] = Computing time utilization (max)
[3] = Largest total utilization (min)
[4] = Largest total utilization (averaged)
[5] = Largest total utilization (max)
[6] = Reserved
[7] = Reserved

Dependency: Refer to: r9976, r9979, r9980, r9981
Refer to: F01054, F01205

Note: Re index 3 ... 5: The total utilizations are determined using all sampling times used. The largest total utilizations are mapped here. The sampling time with the largest total utilization is displayed in r9979. Total utilization: Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9976[0...7] System utilization / Sys util

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the system utilization. If the utilization is greater than 100%, fault F01054 is output.

Index:
[0] = Reserved
[1] = Computing time utilization
[2] = Reserved
[3] = Reserved
[4] = Reserved
[5] = Largest total utilization
[6] = Reserved
[7] = Reserved

Dependency: Refer to: r9979, r9980
Refer to: F01054, F01205

Note: Re index 1:
The value shows the total computing time load of the system.
Re index 5:
The total utilization is determined using all sampling times used. The largest total utilization is mapped here. The sampling time with the largest total utilization is displayed in r9979.
Total utilization:
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9979 Sampling time with largest total utilization / t_sampl lg total

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [µs]

Description: Displays the sampling time with the largest total utilization.

Dependency: Refer to: r7901, r9976
Refer to: 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...101] Sampling times utilization calculated / t_sampl util calc

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the calculated utilizations for the active sampling times based on the existing target topology.

- Index:**
- [0] = Net utilization 0
 - [1] = Total utilization 0
 - [2] = Net utilization 1
 - [3] = Total utilization 1
 - [4] = Net utilization 2
 - [5] = Total utilization 2
 - [6] = Net utilization 3
 - [7] = Total utilization 3
 - [8] = Net utilization 4
 - [9] = Total utilization 4
 - [10] = Net utilization 5
 - [11] = Total utilization 5
 - [12] = Net utilization 6
 - [13] = Total utilization 6
 - [14] = Net utilization 7
 - [15] = Total utilization 7
 - [16] = Net utilization 8
 - [17] = Total utilization 8
 - [18] = Net utilization 9
 - [19] = Total utilization 9
 - [20] = Net utilization 10
 - [21] = Total utilization 10
 - [22] = Net utilization 11
 - [23] = Total utilization 11
 - [24] = Net utilization 12
 - [25] = Total utilization 12
 - [26] = Net utilization 13
 - [27] = Total utilization 13
 - [28] = Net utilization 14
 - [29] = Total utilization 14
 - [30] = Net utilization 15
 - [31] = Total utilization 15
 - [32] = Net utilization 16
 - [33] = Total utilization 16
 - [34] = Net utilization 17
 - [35] = Total utilization 17
 - [36] = Net utilization 18
 - [37] = Total utilization 18
 - [38] = Net utilization 19
 - [39] = Total utilization 19
 - [40] = Net utilization 20
 - [41] = Total utilization 20
 - [42] = Net utilization 21
 - [43] = Total utilization 21
 - [44] = Net utilization 22
 - [45] = Total utilization 22
 - [46] = Net utilization 23
 - [47] = Total utilization 23
 - [48] = Net utilization 24
 - [49] = Total utilization 24
 - [50] = Net utilization 25
 - [51] = Total utilization 25
 - [52] = Net utilization 26
 - [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

Dependency: Refer to: r7901, r9976, r9979
 Refer to: 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...101] Sampling times utilization measured / t_sampl util meas

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the utilizations measured for the active sampling times.

- Index:**
- [0] = Net utilization 0
 - [1] = Total utilization 0
 - [2] = Net utilization 1
 - [3] = Total utilization 1
 - [4] = Net utilization 2
 - [5] = Total utilization 2
 - [6] = Net utilization 3
 - [7] = Total utilization 3
 - [8] = Net utilization 4
 - [9] = Total utilization 4
 - [10] = Net utilization 5
 - [11] = Total utilization 5
 - [12] = Net utilization 6
 - [13] = Total utilization 6
 - [14] = Net utilization 7
 - [15] = Total utilization 7
 - [16] = Net utilization 8
 - [17] = Total utilization 8
 - [18] = Net utilization 9
 - [19] = Total utilization 9
 - [20] = Net utilization 10
 - [21] = Total utilization 10
 - [22] = Net utilization 11
 - [23] = Total utilization 11
 - [24] = Net utilization 12
 - [25] = Total utilization 12
 - [26] = Net utilization 13
 - [27] = Total utilization 13
 - [28] = Net utilization 14
 - [29] = Total utilization 14
 - [30] = Net utilization 15
 - [31] = Total utilization 15
 - [32] = Net utilization 16
 - [33] = Total utilization 16
 - [34] = Net utilization 17
 - [35] = Total utilization 17
 - [36] = Net utilization 18
 - [37] = Total utilization 18
 - [38] = Net utilization 19
 - [39] = Total utilization 19
 - [40] = Net utilization 20
 - [41] = Total utilization 20
 - [42] = Net utilization 21
 - [43] = Total utilization 21
 - [44] = Net utilization 22
 - [45] = Total utilization 22
 - [46] = Net utilization 23
 - [47] = Total utilization 23
 - [48] = Net utilization 24
 - [49] = Total utilization 24
 - [50] = Net utilization 25
 - [51] = Total utilization 25
 - [52] = Net utilization 26
 - [53] = Total utilization 26
 - [54] = Net utilization 27
 - [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

Dependency: Refer to: r7901, r9975, r9980
 Refer to: 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] Data memory utilization / Mem_util dat_mem			
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the calculated data memory utilization rates based on the existing target topology.

Index: [0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

Dependency: Refer to: F01068

r9983[0...4] Measured data memory utilization (actual load) / Mem_ut dat_mem ms

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the measured data memory utilization rates based on the existing target topology.

Index: [0] = Fast Memory 1
 [1] = Fast Memory 2
 [2] = Fast Memory 3
 [3] = Fast Memory 4
 [4] = Heap

Dependency: Refer to: F01068

r9986[0...7] DRIVE-CLiQ system load / DQ system load

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the calculated DRIVE-CLiQ system load based on the existing target topology.
 The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
 Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: Refer to: F01340

r9987[0...7] DRIVE-CLiQ bandwidth load / DQ bandw load

CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the calculated DRIVE-CLiQ bandwidth load based on the existing target topology.
 The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
 Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: Refer to: F01340

r9988[0...7]	DRIVE-CLiQ DPRAM load / DQ DPRAM load		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the calculated DRIVE-CLiQ DPRAM load based on the existing target topology. The values are not made available until the RUNUP READY (800) state is adopted (see p3988). Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.		
Dependency:	Refer to: F01340		

p9990	DO selection for memory usage actual value determination /		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 65535	Factory setting 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 the drive object ID. Memory usage of the complete system: Enter value 65535.		

r9991[0...4]	Memory usage actual values per DO /		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Index:	[0] = Fast Memory 1 [1] = Fast Memory 2 [2] = Fast Memory 3 [3] = Fast Memory 4 [4] = Heap		

r9992[0...4]	Memory usage setpoints per DO /		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Index:	[0] = Fast Memory 1 [1] = Fast Memory 2 [2] = Fast Memory 3 [3] = Fast Memory 4 [4] = Heap		

r9993[0...4]	OA memory usage /		
CU_I_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
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_COMBI, CU_I_SINUMERIK_8 28, CU_NX_828	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Diagnostics parameter to display additional information for internal software errors.		
Note:	Only for internal Siemens troubleshooting.		

p10000	SI sampling time / SI t_sample		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	1.00 [ms]	25.00 [ms]	12.00 [ms]
Description:	Sets the sampling time for the Terminal Module 54F (TM54F).		

p10001	SI delay time for test stop at DO 0 ... DO 3 / SI t_delay DO		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	2.00 [ms]	2000.00 [ms]	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 digital input DI 20 ... DI 23.		
Dependency:	Refer to: p10003, p10007, p10041, p10046		
Note:	The delay time must be set to a value greater than parameter p10017. The duration of the test stop is adapted to the debounce time set in p10017 automatically if the delay time in p10001 should be less than the debounce time.		

p10002	SI discrepancy monitoring time / SI discrep t_monit		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.00 [ms]	Max 2000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the monitoring time for the discrepancy for the digital inputs. The signal states at the two associated digital inputs (F-DI) must assume the same state within this monitoring time.		
Note:	F-DI: Failsafe Digital Input		
p10003	SI forced checking procedure timer / SI FrcdCkProcTimer		
TM54F_MA	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0.00 [h]	Max 8760.00 [h]	Factory setting 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 BI: p10007 = 0/1 signal.		
Dependency:	Refer to: p10001, p10007, p10046		
r10004[0...1]	SI actual checksum TM54F parameters / SI act CRC TM54F		
TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the actual checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).		
p10005[0...1]	SI reference checksum TM54F parameters / SI ref CRC TM54F		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Displays the reference checksum of the checksum-checked parameters for the Terminal Module 54F (TM54F).		

p10006 SI acknowledgement internal event input terminal / SI ackn int event

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 255	Factory setting 0

Description: Select a safety-relevant 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.

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

Note: Re value = 0:
No terminal assigned, acknowledge input has a static zero value.

p10007 BI: SI forced checking procedure F-DO 0 ... 3 signal source / SI frc_chF-DO s_sc

TM54F_MA	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source to trigger the test stop (e.g. digital input of the Control Unit or one of the other Terminal Modules).
The test stop is triggered on a 0/1 signal edge.
The TM54F must not be in commissioning mode at this point (p0010 = 0).

Dependency: Refer to: p10001, p10003, p10041, p10046

Notice: Digital inputs of the TM54F must not be used to trigger the test stop.

p10008 SI operating mode TM54F / SI op_mode TM54F

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 1	Factory setting 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.

p10010[0...5] SI drive object assignment / SI drv_obj assign			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 62	Factory setting 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		
Notice:	If, for a drive, Terminal Module 54F (TM54F) is activated (p9601 = 5), its drive object number must be set in an index.		
Note:	A change only becomes effective after a POWER ON.		
p10011[0...5] SI drive group assignment / SI drv_gr assign			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1	Max 4	Factory setting 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		
p10012[0...5] SI Motor Module Node Identifier Word 1 / SI MM Node ID 1			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the current Node Identifier (word 1, bit 0 ... 31) for the Motor Modules.		
Index:	[0] = Drive 1 [1] = Drive 2 [2] = Drive 3 [3] = Drive 4 [4] = Drive 5 [5] = Drive 6		
Dependency:	Refer to: p10013, p10014		

Note: The Node Identifier (96 bit) is represented in the following 3 parameters.
 p10012[0] word 1 (bit 0 ... 31) for Motor Module 1
 ...
 p10012[5] word 1 (bit 0 ... 31) for Motor Module 6
 p10013[0] word 2 (bit 32 ... 63) for Motor Module 1
 ...
 p10013[5] word 2 (bit 32 ... 63) for Motor Module 6
 p10014[0] word 3 (bit 64 ... 95) for Motor Module 1
 ...
 p10014[5] word 3 (bit 64 ... 95) for Motor Module 6

p10013[0...5]	SI Motor Module Node Identifier Word 2 / SI MM Node ID 2		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the current Node Identifier (word 2, bit 32 ... 63) for the Motor Modules.		
Index:	[0] = Drive 1 [1] = Drive 2 [2] = Drive 3 [3] = Drive 4 [4] = Drive 5 [5] = Drive 6		
Dependency:	Refer to: p10012, p10014		
Note:	The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.		

p10014[0...5]	SI Motor Module Node Identifier Word 3 / SI MM Node ID 3		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the current Node Identifier (word 3, bit 64 ... 95) for the Motor Modules.		
Index:	[0] = Drive 1 [1] = Drive 2 [2] = Drive 3 [3] = Drive 4 [4] = Drive 5 [5] = Drive 6		
Dependency:	Refer to: p10012, p10013		
Note:	The complete Node Identifier (96 bit) is represented in p10012, p10013 and p10014.		

p10017	SI digital inputs debounce time / SI DI t_debounce		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 1.00 [ms]	Max 100.00 [ms]	Factory setting 1.00 [ms]
Description:	Parameter setting for the debounce time of the F-DIs and single-channel DIs of the TM54F. The debounce time is rounded to whole mS. The debounce time indicates the maximum duration of a fault pulse on the FDIs, so that there are no negative effects on the SGEs. Example: Debounce time 1mS : Fault pulses of 1mS are filtered; only pulses longer than 2mS are processed. Debounce time 3mS : Fault pulses of 3mS are filtered; only pulses longer than 4mS are processed.		
p10020[0...3]	SI special operating mode selection / SI spec op sel		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 3	Factory setting 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:	Refer to: 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 Emergency Stop stop response / SI Emergency Stop		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 2	Factory setting 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: Refer to: p10008, p10038

Note: Parameter being prepared. For this firmware version, the function interface is not supported.

p10022[0...3] SI STO input terminal / SI STO DI

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Sets the input terminal for STO (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: Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.
 STO: Safe Torque Off

p10023[0...3] SI SS1 input terminal / SI SS1 DI

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Assignment of the input terminals for input SS1 (operating mode = control interface)
 Description, refer to P10022

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:	SS1: Safe Stop 1
	Re value = 0:
	No terminal assigned, safety function always active.
	Re value = 255:
	No terminal assigned, safety function always inactive.

p10024[0...3]	SI SS2 input terminal / SI SS2 DI		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Assignment of the input terminals for input SS2 (operating mode = control interface).
Description, refer to p10022

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:	SS2: Safe Stop 2
	Re value = 0:
	No terminal assigned, safety function always active.
	Re value = 255:
	No terminal assigned, safety function always inactive.

p10025[0...3] SI SOS input terminal / SI SOS DI			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Assignment of the input terminals for input SOS (operating mode = control interface) Description, refer to P10022		
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:	SOS: Safe Operating Stop Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10026[0...3] SI SLS input terminal / SI SLS DI			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Assignment of the input terminals for input SLS (operating mode = control interface) Description, refer to P10022		
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: Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.
 SLS: Safely-Limited Speed

p10027[0...3] SI SLS_Limit(1) input terminal / SI SLS_Limit(1) DI

TM54F_MA, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
 TM54F_SL **Data type:** Integer16 **Dynamic index:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
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 inact

Index: [0] = Drive group 1
 [1] = Drive group 2
 [2] = Drive group 3
 [3] = Drive group 4

Note: SLS: Safely-Limited Speed
 Re value = 0:
 No terminal assigned, selection bit remains statically at "0".
 Re value = 255:
 No terminal assigned, selection bit remains statically at "1".

p10028[0...3] SI SLS_Limit(2) input terminal / SI SLS_Limit(2) DI

TM54F_MA, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
 TM54F_SL **Data type:** Integer16 **Dynamic index:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
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:

SLS: Safely-Limited Speed

Re value = 0:
No terminal assigned, selection bit remains statically at "0".

Re value = 255:
No terminal assigned, selection bit remains statically at "1".

p10036[0...3] SI special operating mode input terminal / SI spec op DI

TM54F_MA,
TM54F_SL

Can be changed: C2(95)	Calculated: -	Access level: 4
Data type: Integer16	Dynamic index: -	
P-Group: Safety Integrated	Units group: -	Unit selection: -
Not for motor type: -	Scaling: -	Expert list: 1
Min	Max	Factory setting
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.

Re value = 0:
No terminal assigned, static special operation.

Re value = 255:
No terminal assigned, static normal operation.

p10037[0...3]	SI agreement input terminal / SI agreement DI		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 255	Factory setting 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. Re value = 0: No terminal assigned, no static agreement. Re value = 255: No terminal assigned, static agreement.		

p10038[0...3]	SI Emergency Stop input terminal / SI Emer Stop DI		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 255	Factory setting 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: Refer to: p10008, p10021
Note: Parameter being prepared. For this firmware version, the function interface is not supported.
 Re value = 0:
 No terminal assigned, "Emergency Stop" statically active.
 Re value = 255:
 No terminal assigned, no "Emergency Stop" statically active.

p10039[0...3] SI Safe State signal selection / SI Safe State Sel

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0001 bin

Description: Sets the signals for the drive group specific signal "Safe State".
 Bit 0 = Power_removed
 Bit 1 = SS1_active
 Bit 2 = SS2_active
 Bit 3 = SOS_active
 Bit 4 = SLS_active
 Bit 5 = Reserved

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	

Note: Bit = 0 signal --> not selected
 Bit = 1 signal --> selected
 The selected signals (high-active) are OR'ed The result of the logic operation results in the status "Safe State".

p10040 SI F-DI input mode / SI F-DI inp_mode

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the input mode for the safety-relevant input terminals of terminal series 2.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0, DI 1+ (X521.3)	NO contact	NC contact	
	01	F-DI 1, DI 3+ (X521.5)	NO contact	NC contact	
	02	F-DI 2, DI 5+ (X522.2)	NO contact	NC contact	
	03	F-DI 3, DI 7+ (X522.4)	NO contact	NC contact	
	04	F-DI 4, DI 9+ (X522.6)	NO contact	NC contact	
	05	F-DI 5, DI 11+ (X531.3)	NO contact	NC contact	
	06	F-DI 6, DI 13+ (X531.5)	NO contact	NC contact	
	07	F-DI 7, DI 15+ (X532.2)	NO contact	NC contact	
	08	F-DI 8, DI 17+ (X532.4)	NO contact	NC contact	
	09	F-DI 9, DI 19+ (X532.6)	NO contact	NC contact	

Note: Only an NC contact can be connected to terminals that are not listed in the selection.

p10041 SI F-DI enable for test / SI F-DI enab test

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting 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 F-DO 0 signal sources / SI F-DO 0 S_src

TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 779	Factory setting 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
 - 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
 - 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
 - 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

- 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 F-DO 1 signal sources / SI F-DO 1 S_src			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 779	Factory setting 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:	<ul style="list-style-type: none"> 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 1 257: 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 1 513: 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 1 769: 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 		

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 F-DO 2 signal sources / SI F-DO 2 S_src		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 779	Factory setting 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
	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
	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
	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
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 F-DO 3 signal sources / SI F-DO 3 S_src		
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0	Max 779	Factory setting 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
 - 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
 - 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
 - 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

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 test sensor feedback signal input DI 20 ... 23 / SI test sens FS**

TM54F_MA, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
 TM54F_SL **Data type:** Unsigned32 **Dynamic index:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the test of the feedback line for forced checking procedure.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Read back F-DO 0 in DI 20	Test active	No test	
	01	Read back F-DO 1 in DI 21	Test active	No test	
	02	Read back F-DO 2 in DI 22	Test active	No test	
	03	Read back F-DO 3 in DI 23	Test active	No test	

Note: F-DO: Failsafe Digital Output

p10047[0...3] **SI selection of test mode for test stop / SI test mode sel**

TM54F_MA, **Can be changed:** C2(95) **Calculated:** - **Access level:** 3
 TM54F_SL **Data type:** Integer16 **Dynamic index:** -
P-Group: Safety Integrated **Units group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min	Max	Factory setting
0001 bin	0011 bin	0010 bin

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: When test mode 1 is being used, too great a load resistance on the part 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 on an individual FDO does not exceed 10 Kohm.

r10051.0...9 CO/BO: SI digital inputs status / SI DI status

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the single-channel, logical, and debounced status of the safety digital inputs F-DI 0 .. 9 at Terminal Module 54F (TM54F).
 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.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 0	Logical 1	Logical 0	
	01	F-DI 1	Logical 1	Logical 0	
	02	F-DI 2	Logical 1	Logical 0	
	03	F-DI 3	Logical 1	Logical 0	
	04	F-DI 4	Logical 1	Logical 0	
	05	F-DI 5	Logical 1	Logical 0	
	06	F-DI 6	Logical 1	Logical 0	
	07	F-DI 7	Logical 1	Logical 0	
	08	F-DI 8	Logical 1	Logical 0	
	09	F-DI 9	Logical 1	Logical 0	

Dependency: Refer to: p10017, p10040
Note: F-DI: Failsafe Digital Input

r10052.0...3 CO/BO: SI digital outputs status / SI DO status

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status of the digital outputs at the Terminal Module 54F (TM54F).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0	High	Low	
	01	DO 1	High	Low	
	02	DO 2	High	Low	
	03	DO 3	High	Low	

Note: F-DO: Failsafe Digital Output

r10053.0...3 CO/BO: SI digital inputs 20 ... 23 status / SI DI 20...23 stat

TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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	
	01	DI 21	High	Low	
	02	DI 22	High	Low	
	03	DI 23	High	Low	

r10054 SI TM54F failsafe events active / SI failsafe act

TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

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.

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.
- all other causes: remove the cause of the error and carry out a safety-relevant acknowledgement (p10006).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Commissioning mode active (p0010 = 95)	Yes	No	
	01	Checksum error of the safety parameters	Yes	No	
	02	Internal synchronization problem within RM54F	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 data cross-check within TM54F	Yes	No	
	08	Overvoltage in the TM54F	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	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the communication status of the individual drives with the 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 Status / SI stat			
TM54F_MA	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays 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 password input TM54F / SI password inp			
TM54F_MA, TM54F_SL	Can be changed: T	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	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 password new TM54F / SI password new			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -			
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -	Scaling: -	Expert list: 1		
	Min	Max	Factory setting		
	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: Refer to: p10063				

p10063 SI password acknowledgement TM54F / SI ackn password			
TM54F_MA, TM54F_SL	Can be changed: C2(95)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Acknowledgement of the new Safety Integrated password for the Terminal Module 54F (TM54F).		
Dependency:	Refer to: 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.		
r10090[0...3] SI TM54F version / SI TM54F version			
TM54F_MA, TM54F_SL	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -	Scaling: -	Expert list: 1
	Min -	Max -	Factory setting -
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:	Refer to: 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		

Parameters for data sets

3.1 Parameters for drive data sets (DDS)

Note

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

The following list contains the parameters that are dependent on drive data sets.

Product: 828D COMBI, Version: 4302800, Language: eng, Type: DDS

p0186[0...n]	Motor Data Sets (MDS) number / MDS number
p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number
p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number
p0189[0...n]	Encoder 3 encoder data set number / Enc 3 EDS number
p0340[0...n]	Automatic calculation, motor/control parameters / Calc auto par
p0572[0...n]	Activate inhibit list / Act inhib list
p0578[0...n]	Calculate technology-dependent parameters / Calc tec par
p0640[0...n]	Current limit / Current limit
p0642[0...n]	Encoderless operation current reduction / Encoderl op I_red
p1082[0...n]	Maximum speed / n_Max
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
p1086[0...n]	CO: Speed limit in negative direction of rotation / n_limit neg
p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time
p1135[0...n]	OFF3 ramp-down time / OFF3 t_RD
p1189[0...n]	Speed setpoint configuration / n_ctrl config
p1192[0...n]	DSC enc selection / DSC enc selection
p1193[0...n]	DSC encoder adaptation factor / DSC encodAdaptFact
p1226[0...n]	Threshold for zero speed detection / n_standst n_thresh
p1240[0...n]	Vdc controller or Vdc monitoring configuration / Vdc_ctrl config
p1244[0...n]	DC link voltage threshold upper / Vdc upper thresh
p1248[0...n]	DC link voltage threshold lower / Vdc lower thresh
p1250[0...n]	Vdc controller proportional gain / Vdc_ctrl Kp
p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode
p1317[0...n]	V/f control activation / Vf act
p1318[0...n]	V/f control ramp-up/ramp-down time / Vf t_rmp-up_rmp-dn
p1319[0...n]	V/f control voltage at zero frequency / Vf V at f=0 Hz
p1326[0...n]	V/f control programmable characteristic frequency 4 / Vf char f4
p1327[0...n]	V/f control programmable characteristic voltage 4 / Vf char U4
p1338[0...n]	V/f mode resonance damping gain / Vf Res_damp gain
p1339[0...n]	V/f mode resonance damping filter time constant / Vf Res_damp T
p1345[0...n]	DC brake proportional gain / DCBRK Kp
p1346[0...n]	DC brake integral time / DCBRK Tn
p1349[0...n]	V/f mode resonance damping maximum frequency / Vf res_damp F_max
p1400[0...n]	Speed control configuration / n_ctrl config
p1402[0...n]	Closed-loop current control and motor model configuration / I_ctrl config
p1404[0...n]	Encoderless operation changeover speed / Encoderl op n_chg
p1413[0...n]	Speed actual value filter activation / n_act_filt act
p1414[0...n]	Speed setpoint filter activation / n_set_filt act
p1415[0...n]	Speed setpoint filter 1 type / n_set_filt 1 typ
p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T
p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d

3.1 Parameters for drive data sets (DDS)

p1418[0...n]	Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d
p1419[0...n]	Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n
p1420[0...n]	Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n
p1421[0...n]	Speed setpoint filter 2 type / n_set_filt 2 typ
p1422[0...n]	Speed setpoint filter 2 time constant / n_set_filt 2 T
p1423[0...n]	Speed setpoint filter 2 denominator natural frequency / n_set_filt 2 fn_d
p1424[0...n]	Speed setpoint filter 2 denominator damping / n_set_filt 2 D_d
p1425[0...n]	Speed setpoint filter 2 numerator natural frequency / n_set_filt 2 fn_n
p1426[0...n]	Speed setpoint filter 2 numerator damping / n_set_filt 2 D_n
p1428[0...n]	Speed pre-control balancing dead time / n_prectrBal t_dead
p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T
p1433[0...n]	Speed controller reference model natural frequency / n_ctrl RefMod fn
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D
p1435[0...n]	Speed controller reference model dead time / n_ctrRefMod t_dead
p1441[0...n]	Actual speed smoothing time / n_ist T_smooth
p1446[0...n]	Speed actual value filter type / n_act_filt type
p1447[0...n]	Speed actual value filter denominator natural frequency / n_act_filt fn_d
p1448[0...n]	Speed actual value filter denominator damping / n_act_filt D_d
p1449[0...n]	Speed actual value filter numerator natural frequency / n_act_filt fn_n
p1450[0...n]	Speed actual value filter numerator damping / n_act_filt D_n
p1451[0...n]	Speed actual value smoothing time sensorless / n_act t_sm SL
p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up
p1458[0...n]	Adaptation factor, lower / Adapt_factor lower
p1459[0...n]	Adaptation factor, upper / Adapt_factor upper
p1460[0...n]	Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper
p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower
p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower
p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper
p1470[0...n]	Speed controller encoderless operation P-gain / n_ctrl SLVC Kp
p1472[0...n]	Speed controller encoderless operation integral time / n_ctrl SLVC Tn
p1494[0...n]	Speed controller integrator feedback time constant / n_ctr integ_fdbk T
p1498[0...n]	Load moment of inertia / Load mom of inert
p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth
p1520[0...n]	CO: Torque limit upper/motoring / M_max upper/mot
p1521[0...n]	CO: Torque limit lower/regenerative / M_max lower/regen
p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal
p1525[0...n]	CO: Torque limit lower/regenerative scaling / M_max low/gen scal
p1530[0...n]	Power limit motoring / P_max mot
p1531[0...n]	Power limit regenerative / P_max gen
p1532[0...n]	CO: Torque limit offset / M_max offset
p1578[0...n]	Flux reduction flux decrease smoothing time / Flux red dec t_sm
p1579[0...n]	Flux reduction flux build-up smoothing time / Flux red up t_sm
p1581[0...n]	Flux reduction factor / Flux red factor
p1585[0...n]	Flux actual value, smoothing time / Flux actVal T_smth
p1590[0...n]	Flux controller P gain / Flux controller Kp
p1592[0...n]	Flux controller integral time / Flux controller Tn
p1612[0...n]	Current setpoint, open-loop control, encoderless / I_setCtrEncoderl
p1656[0...n]	Activates current setpoint filter / I_setp_filt act
p1657[0...n]	Current setpoint filter 1 type / I_set_filt 1 Typ
p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_n

p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_n
p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_z
p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_z
p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 Typ
p1663[0...n]	Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_n
p1664[0...n]	Current setpoint filter 2 denominator damping / I_set_filt 2 D_n
p1665[0...n]	Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_z
p1666[0...n]	Current setpoint filter 2 numerator damping / I_set_filt 2 D_z
p1667[0...n]	Current setpoint filter 3 type / I_set_filt 3 Typ
p1668[0...n]	Current setpoint filter 3 denominator natural frequency / I_set_filt 3 fn_n
p1669[0...n]	Current setpoint filter 3 denominator damping / I_set_filt 3 D_n
p1670[0...n]	Current setpoint filter 3 numerator natural frequency / I_set_filt 3 fn_z
p1671[0...n]	Current setpoint filter 3 numerator damping / I_set_filt 3 D_z
p1672[0...n]	Current setpoint filter 4 type / I_set_filt 4 Typ
p1673[0...n]	Current setpoint filter 4 denominator natural frequency / I_set_filt 4 fn_n
p1674[0...n]	Current setpoint filter 4 denominator damping / I_set_filt 4 D_n
p1675[0...n]	Current setpoint filter 4 numerator natural frequency / I_set_filt 4 fn_z
p1676[0...n]	Current setpoint filter 4 numerator damping / I_set_filt 4 D_z
p1701[0...n]	Current controller reference model dead time / I_ctrRefMod t_dead
p1715[0...n]	Current controller P gain / I_ctrl Kp
p1717[0...n]	Current controller integral-action time / I_ctrl Tn
p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc
p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorl
p1780[0...n]	Motor model adaptation configuration / MotMod adapt conf
p1821[0...n]	Dir of rot / Dir of rot
p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2
p2141[0...n]	Speed threshold 1 / n_thresh val 1
p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1
p2149[0...n]	Monitoring configuration / Monit config
p2150[0...n]	Hysteresis speed 3 / n_hysteresis 3
p2153[0...n]	Speed actual value filter time constant / n_act_filt T
p2155[0...n]	Speed threshold 2 / n_thresh val 2
p2156[0...n]	On delay, comparison value reached / t_on cmpr val rchd
p2161[0...n]	Speed threshold 3 / n_thresh val 3
p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max
p2163[0...n]	Speed threshold 4 / n_thresh val 4
p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4
p2166[0...n]	Off delay n_act = n_set / t_del_off n_i=n_so
p2167[0...n]	Switch-on delay n_act = n_set / t_on n_act=n_set
p2174[0...n]	Torque threshold value 1 / M_thresh val 1
p2175[0...n]	Motor locked speed threshold / Mot lock n_thresh
p2177[0...n]	Motor locked delay time / Mot lock t_del
p2194[0...n]	Torque threshold value 2 / M_thresh val 2
p2195[0...n]	Torque utilization switch-off delay / M_util t_off
p2196[0...n]	Torque utilization scaling / M_util scal
p2720[0...n]	Load gear configuration / Load gear config
p2721[0...n]	Load gear, rotary absolute gearbox, revolutions, virtual / Abs rot rev
p2722[0...n]	Load gear, position tracking tolerance window / Pos track tol
r2723[0...n]	CO: Load gear absolute value / Load gear abs_val
r2724[0...n]	CO: Load gear position difference / Load gear pos diff
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]
p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]

3.1 Parameters for drive data sets (DDS)

p3820[0...n]	Friction characteristic, value n0 / Friction n0
p3821[0...n]	Friction characteristic, value n1 / Friction n1
p3822[0...n]	Friction characteristic, value n2 / Friction n2
p3823[0...n]	Friction characteristic, value n3 / Friction n3
p3824[0...n]	Friction characteristic, value n4 / Friction n4
p3825[0...n]	Friction characteristic, value n5 / Friction n5
p3826[0...n]	Friction characteristic, value n6 / Friction n6
p3827[0...n]	Friction characteristic, value n7 / Friction n7
p3828[0...n]	Friction characteristic, value n8 / Friction n8
p3829[0...n]	Friction characteristic, value n9 / Friction n9
p3830[0...n]	Friction characteristic, value M0 / Friction M0
p3831[0...n]	Friction characteristic, value M1 / Friction M1
p3832[0...n]	Friction characteristic, value M2 / Friction M2
p3833[0...n]	Friction characteristic, value M3 / Friction M3
p3834[0...n]	Friction characteristic, value M4 / Friction M4
p3835[0...n]	Friction characteristic, value M5 / Friction M5
p3836[0...n]	Friction characteristic, value M6 / Friction M6
p3837[0...n]	Friction characteristic, value M7 / Friction M7
p3838[0...n]	Friction characteristic, value M8 / Friction M8
p3839[0...n]	Friction characteristic, value M9 / Friction M9
p3846[0...n]	Friction characteristic record ramp-up/ramp-down time / Frict rec t_RFG
p3847[0...n]	Friction characteristic record warm-up time / Frict rec t_warm
r3925[0...n]	Identification final display / Ident final_disp
r3927[0...n]	Motor data identification induction motor data determined / MotID ASM dat det
r3928[0...n]	Motor data identification synchronous motor data determined / MotID PEM dat det
r3998[0...n]	First drive commissioning / First drv_comm

3.2 What parameters are dependent on encoder data sets (EDS)

Note

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

The following list contains the parameters that are dependent on encoder data sets.

Product: 828D COMBI, Version: 4302800, Language: eng, Type: EDS

p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no
p0142[0...n]	Encoder component number / Encoder comp_no
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact
r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact
r0147[0...n]	Sensor Module EEPROM data version / SM EEPROM version
r0148[0...n]	Sensor Module firmware version / SM FW version
p0400[0...n]	Encoder type selection / Enc_typ sel
p0401[0...n]	Encoder type, OEM selection / Enc type OEM sel
p0402[0...n]	Gearbox type selection / Gearbox type sel
p0404[0...n]	Encoder configuration effective / Enc_config eff
p0405[0...n]	Square-wave encoder track A/B / Sq-wave enc A/B
p0407[0...n]	Linear encoder grid division / Enc grid div
p0408[0...n]	Rotary encoder pulse No. / Rot enc pulse No.
p0410[0...n]	Encoder inversion actual value / Enc inv act value
p0411[0...n]	Measuring gear, configuration / Meas gear config
p0412[0...n]	Measuring gear, absolute encoder, rotary, revolutions, virtual / Abs rot rev
p0413[0...n]	Measuring gear, position tracking tolerance window / Pos track window
p0414[0...n]	Redundant coarse position value relevant bits (identified) / Relevant bits
p0415[0...n]	Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB
p0418[0...n]	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1
p0419[0...n]	Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2
p0420[0...n]	Encoder connection / Enc_connection
p0421[0...n]	Absolute encoder rotary multiturn resolution / Enc abs multiturn
p0422[0...n]	Absolute encoder linear measuring step resolution / Enc abs meas step
p0423[0...n]	Absolute encoder rotary singleturn resolution / Enc abs singleturn
p0424[0...n]	Encoder, linear zero mark distance / Enc lin ZM_dist
p0425[0...n]	Encoder, rotary zero mark distance / Enc rot dist ZM
p0426[0...n]	Encoder zero mark differential distance / Enc ZM Dif_dist
p0430[0...n]	Sensor Module configuration / SM config
p0431[0...n]	Angular commutation offset / Ang_com offset
p0432[0...n]	Gearbox factor, encoder revolutions / Grbx_fact enc_rev
p0433[0...n]	Gearbox factor, motor/load revolutions / Grbx_fact mot_rev
p0435[0...n]	Encoder SSI alarm bit / Enc SSI alarm bit
p0437[0...n]	Sensor Module configuration extended / SM config ext
p0438[0...n]	Squarewave encoder filter time / Enc t_filt
p0439[0...n]	Encoder ramp-up time / Enc ramp-up time
p0440[0...n]	Copy encoder serial number / Copy enc ser_no
p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1
p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2
p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3
p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4
p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5
p0453[0...n]	Pulse encoder evaluation zero speed measuring time / Enc_ev z 0 t_meas
p0493[0...n]	Zero mark selection, input terminal / ZM_sel inp_term
p4600[0...n]	Motor temperature sensor 1 sensor type / Temp_sens 1 type

3.2 What parameters are dependent on encoder data sets (EDS)

p4601[0...n]	Motor temperature sensor 2 sensor type / Temp_sens 2 type
p4602[0...n]	Motor temperature sensor 3 sensor type / Temp_sens 3 type
p4603[0...n]	Motor temperature sensor 4 sensor type / Temp_sens 4 type
p4670[0...n]	Analog sensor configuration / Ana_sens config
p4671[0...n]	Analog sensor input / Ana_sens inp
p4672[0...n]	Analog sensor channel A voltage at actual value zero / Ana_sens A U at 0
p4673[0...n]	Analog sensor channel A voltage per encoder period / Ana_sens A U/per
p4674[0...n]	Analog sensor channel B voltage at actual value zero / Ana_sens B U at 0
p4675[0...n]	Analog sensor channel B voltage per encoder period / Ana_sens B U/per
p4676[0...n]	Analog sensor range limit threshold / Ana_sens lim thr
p4677[0...n]	Analog sensor LVDT configuration / Ana_sens LVDT conf
p4680[0...n]	Zero mark monitoring tolerance permissible / ZM_monit tol perm
p4681[0...n]	Zero mark monitoring, tolerance window limit 1 positive / ZM tol lim 1 pos
p4682[0...n]	Zero mark monitoring, tolerance window limit 1 negative / ZM tol lim 1 neg
p4683[0...n]	Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos
p4684[0...n]	Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg
p4685[0...n]	Speed actual value mean value generation / n_act mean val
p4686[0...n]	Zero mark minimum length / ZM min length

3.3 Parameters for motor data sets (MDS)

Note

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

The following list contains the parameters that are dependent on motor data sets.

Product: 828D COMBI, Version: 4302800, Language: eng, Type: MDS

p0131[0...n]	Motor component number / Mot comp_no
p0300[0...n]	Motor type selection / Mot type sel
p0301[0...n]	Motor code number selection / Mot code No. sel
r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Motor code Mot DLQ
r0303[0...n]	Motor with DRIVE-CLiQ status word / Motor w DLQ ZSW
p0304[0...n]	Rated motor voltage / Mot V_rated
p0305[0...n]	Rated motor current / Mot I_rated
p0306[0...n]	Number of motors connected in parallel / Motor qty
p0307[0...n]	Rated motor power / Mot P_rated
p0308[0...n]	Rated motor power factor / Mot cos_phi_rated
p0310[0...n]	Rated motor frequency / Mot f_rated
p0311[0...n]	Rated motor speed / Mot n_rated
p0312[0...n]	Rated motor torque / Mot M_rated
r0313[0...n]	Motor pole pair number, actual (or calculated) / Mot PolePairNo act
p0314[0...n]	Motor pole pair number / Mot pole pair No.
p0316[0...n]	Motor torque constant / Mot kT
p0317[0...n]	Motor voltage constant / Mot kE
p0318[0...n]	Motor stall current / Mot I_standstill
p0319[0...n]	Motor stall torque / Mot M_standstill
p0320[0...n]	Motor rated magnetizing current/short-circuit current / Mot I_mag_rated
p0322[0...n]	Maximum motor speed / Mot n_max
p0323[0...n]	Maximum motor current / Mot I_max
p0324[0...n]	Winding maximum speed / Winding n_max
p0325[0...n]	Motor pole position identification current, 1st phase / Mot PolID I 1st ph
p0326[0...n]	Motor stall torque correction factor / Mot M_stall_corr
p0327[0...n]	Optimum motor load angle / Mot phi_load opt
p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance
p0329[0...n]	Motor pole position identification current / Mot PolID current
r0330[0...n]	Rated motor slip / Mot slip_rated
r0331[0...n]	Actual motor magnetizing current/short-circuit current / Mot I_mag_rtd act
r0332[0...n]	Rated motor power factor / Mot cos_phi_rated
r0333[0...n]	Rated motor torque / Mot M_rated
r0334[0...n]	Actual motor-torque constant / Mot kT act
p0335[0...n]	Motor cooling type / Motor cooling type
r0336[0...n]	Actual rated motor frequency / Mot f_rated act
r0337[0...n]	Rated motor EMF / Mot EMF_rated
p0338[0...n]	Motor limit current / Mot I_limit
r0339[0...n]	Rated motor voltage / Mot V_rated
p0341[0...n]	Motor moment of inertia / Mot M_mom of inert
p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio
p0344[0...n]	Motor weight (for the thermal motor model) / Mot weight th mod
p0347[0...n]	Motor de-excitation time / Mot t_de-excitat.
p0348[0...n]	Speed at the start of field weakening Vdc = 600 V / Mot n_field weaken
p0350[0...n]	Motor stator resistance, cold / Mot R_stator cold
p0352[0...n]	Cable resistance / Mot R_cable cold
p0353[0...n]	Motor series inductance / Mot L_series

3.3 Parameters for motor data sets (MDS)

p0354[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd
p0356[0...n]	Motor stator leakage inductance / Mot L_stator leak.
p0358[0...n]	Motor rotor leakage inductance / damping inductance, d axis / Mot L_r leak / LDd
p0360[0...n]	Motor magnetizing inductance/magn. inductance, d axis saturated / Mot Lh/Lh d sat
r0370[0...n]	Motor stator resistance, cold / Mot R_stator cold
r0373[0...n]	Motor rated stator resistance / Mot R_stator rated
r0374[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd
r0376[0...n]	Rated motor rotor resistance / Mot R_rotor rated
r0377[0...n]	Motor leakage inductance, total / Mot L_leak total
r0382[0...n]	Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd
r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak
p0391[0...n]	Current controller adaptation, starting point KP / I_adapt pt KP
p0392[0...n]	Current controller adaptation, starting point KP adapted / I_adapt pt KP adap
p0393[0...n]	Current controller adaptation p gain adaptation / I_adapt Kp adapt
r0395[0...n]	Actual stator resistance / R_stator act
r0396[0...n]	Actual rotor resistance / R_rotor act
p0530[0...n]	Bearing type selection / Bearing type sel
p0531[0...n]	Bearing code number selection / Bear. code num sel
p0532[0...n]	Bearing maximum speed / Bearing n_max
p0600[0...n]	Motor temperature sensor for monitoring / Mot temp_sensor
p0601[0...n]	Motor temperature sensor type / Mot_temp_sens type
p0604[0...n]	Motor temperature alarm threshold / Mot_temp al thr
p0605[0...n]	Motor temperature fault threshold / Mot_temp flt thr
p0606[0...n]	Motor temperature timer / Mot_temp timer
p0607[0...n]	Temperature sensor fault timer / Sensor fault time
p0611[0...n]	I2t motor model thermal time constant / I2t mot_mod T
p0612[0...n]	Thermal motor model configuration / Therm Mot_mod conf
p0615[0...n]	I2t motor model fault threshold / I2t mot_mod thresh
p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R
p0624[0...n]	Motor Temperature Offset PT100 / Mot T_offset PT100
p0625[0...n]	Motor ambient temperature / Mot T_ambient
p0626[0...n]	Motor overtemperature, stator core / Mot T_over core
p0627[0...n]	Motor overtemperature, stator winding / Mot T_over stator
p0628[0...n]	Motor overtemperature rotor winding / Mot T_over rotor
r0630[0...n]	Motor temperature model ambient temperature / MotTMod T_amb.
r0631[0...n]	Motor temperature model, stator core temperature / MotTMod T_core
r0632[0...n]	Motor temperature model, stator winding temperature / MotTMod T_copper
r0633[0...n]	Motor temperature model, rotor temperature / MotTMod T_rotor
p0643[0...n]	Overvoltage protection for synchronous motors / Overvolt_protect
p0650[0...n]	Actual motor operating hours / Mot t_oper act
p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint
p0826[0...n]	Motor changeover, motor number / Mot_chng mot No.
p0827[0...n]	Motor changeover status word bit number / Mot_chg ZSW bitNo.
p1231[0...n]	Armature short-circuit / DC brake configuration / ASC config
p1232[0...n]	DC braking, braking current / DCBRK I_brake
p1233[0...n]	DC braking time / DCBRK time
p1234[0...n]	Speed at the start of DC braking / DCBRK n_start
p1236[0...n]	Ext. armature short-cct., contactor feedback signal monit. time / ASC ext t_monit
p1237[0...n]	External armature short-circuit, delay time when opening / ASC ext t_wait
p1909[0...n]	Motor data identification control word / MotID STW
p1958[0...n]	Rotating measurement ramp-up/ramp-down time / Rot meas t_r up/dn

p1959[0...n]	Rotating measurement configuration / Rot meas config
p1980[0...n]	Pole position identification technique / PolID technique
p1981[0...n]	Pole position identification maximum distance / PolID distance max
p1982[0...n]	Pole position identification selection / PolID selection
p1991[0...n]	Motor changeover, angular commutation correction / Ang_com corr
p1993[0...n]	Pole position identification current, motion-based / PolID I mot_bas
p1994[0...n]	Pole position identification rise time motion-based / PolID T mot_bas
p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas
p1996[0...n]	Pole position identification, integral time motion-based / PolID Tn mot_bas
p1997[0...n]	Pole position identification, smoothing time motion-based / PolID t_sm mot_bas
p3049[0...n]	MotId Speed at start of field weakening identified / ident
p3050[0...n]	MotId stator resistance identified / R_stator ident
p3054[0...n]	MotId rotor resistance identified / R_rotor ident
p3056[0...n]	MotId stator leakage inductance identified / L_stator leak
p3058[0...n]	MotId rotor leakage inductance identified / L_rotor leak
p3060[0...n]	MotId magnetizing inductance identified / MotId Lh ident
p4610[0...n]	Motor temperature sensor 1 sensor type MDS / Temp sens1 typ MDS
p4611[0...n]	Motor temperature sensor 2 sensor type MDS / Temp sens2 typ MDS
p4612[0...n]	Motor temperature sensor 3 sensor type MDS / Temp sens3 typ MDS
p4613[0...n]	Motor temperature sensor 4 sensor type MDS / Temp sens4 typ MDS

Appendix

A.1 Feedback on the documentation

This document will be continuously improved with regard to its quality and ease of use. Please help us with this task by sending your comments and suggestions for improvement via e-mail or fax to:

E-mail: <mailto:docu.motioncontrol@siemens.com>

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Suggestions and/or corrections

A.2 Documentation overview

Documentation overview, SINUMERIK 828D

General documentation



Sales brochure



EMC directives

User documentation



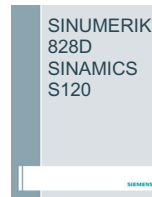
Operating Manual
- Turning
- Milling



Programming Manual
- Basic information
- Production planning
- Easy Screen



Programming Manual
- ISO turning
- ISO milling



Diagnostics Manual

Manufacturer/service documentation



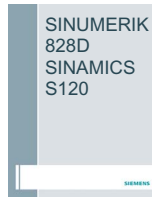
Manual
Commissioning Manual
Service Manual



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