

ASCII Object Reference SERVOSTAR™ 400/600

Revision 2.7

Previous versions

Description	Edition	
	REV 1.0	07.06.00
	REV 1.1	13.06.00
First English Edition	REV 1.2	01.08.00
Expansion up to Firmware 3.50	REV 1.3	27.11.00
Expansion up to Firmware 4.40	REV 1.4	10.05.01
Expansion up to Firmware 4.80	REV 1.5	23.11.01
Expansion up to Firmware 4.95	REV 1.6	15.02.02
Expansion up to Firmware 4.99, Change to HTML	REV 1.7	24.05.02
New Design and some Changes	REV 1.8	14.08.02
Expansion to Firmware 5.41	REV 1.9	04.11.02
Expansion to Firmware 6.02	REV 2.0	11.8.03
Expansion greater Firmware 6.02	REV 2.1	19.4.04
New commands and some changes	REV 2.2	08.03.05
New commands and some changes	REV 2.3	11.10.05
New commands and some changes	REV 2.4	02.02.06
New commands and some changes	REV 2.5	11.09.06
New commands and some changes	REV 2.6	27.10.2006
New commands and some changes	REV 2.7	19.4.2007

ASCII -Command	\
Syntax Transmit	
Syntax Receive	
Type	
Format	
DIM	
Range	
Default	
Opmode	
Drive Status	
Start Firmware	
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	0

Data Type BUS/DPR	
Weighting 10^3	

Last Change of this Object	-
EEPROM	

Short Description	Selection of Remote Address
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Description

For a CAN network with several amplifiers, there is an option for using a serial connection to one of the devices (master) to communicate with all the other amplifiers. To do this, the |SCAN| command is initiated on the master device, which performs an automatic detection of all the drives that are connected. The response to the |SCAN| command contains a list of the addresses of all the drives devices that have been detected.

Typing the backslash character followed by a drive address (\ addr) in the range of 0 to 63 selects the addressed drive for communications. Further commands sent via the serial interface are ignored by the master device, and passed on directly across the CAN bus to the activated device. The response that this device outputs to the CAN bus is diverted to the serial interface. The command, \ 0, deselects the slave device and re-activate the master.

ASCII -Command	ACC
Syntax Transmit	ACC [Data]
Syntax Receive	ACC <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767, VLIM * 4480 (5.41)
Default	10
Opmode	0, 1, 8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	136
CAN Object No:	3501
PROFIBUS PNU:	
DPR Objekt Nr:	1

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Acceleration Ramp
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Description
 This variable defines the acceleration ramp for the velocity control loop (in msec), in reference to the maximum velocity (the larger value of |VLIM| and |VLIMN|). The acceleration ramp is only used for command changes resulting in a velocity increase (acceleration). |DEC| is used for braking (deceleration). For a command step from 0 to |VLIM| or |VLIMN|, the ramp generator generates a stepped ramp (with steps of 250 microseconds) that is completed within the set ACC time.

From firmware 3.41 the ramp can be set by different units. Details are shown at parameter |ACCUNIT| .

REV 2.3:
 Put ACC to the minimum delay if a P-position (|EXTPOS| = 1,3,4) controller is used.

ASCII -Command	ACCR
Syntax Transmit	ACCR [Data]
Syntax Receive	ACCR <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767
Default	10
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	42
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	2

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Acceleration Ramp for homing/jog modes
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Description

This variable defines the acceleration ramp used for jogging and homing with the internal position control loop. The entry is made in msec and is in reference to the final limit velocity for the selected mode (|VJOG| for jogging or |VREF| for homing). When starting the homing or jog mode, the ACCR acceleration ramp can (in some circumstances) be limited by the minimum acceleration time |PTMIN|.

From firmware 3.41 the ramp can be set by different units. Details are shown at parameter |ACCUNIT| .

ASCII -Command	ACCUNIT
Syntax Transmit	ACCUNIT [Data]
Syntax Receive	ACCUNIT <Data>
Type	Variable rw
Format	Integer32
DIM	Disabled + Reset (Coldstart)
Range	0, 1, .. , 5
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.41
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	160
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	345

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.7
EEPROM	Yes	

Short Description	Type of acceleration command for the system
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Description

Using this command, the systemwide acceleration type is defined. This function is used for ramps of the trajectory generator (internal motion tasks |OPMODE| 8) and also for the ramps of the speed controller.

- ACCUNIT = 0 Acceleration is defined as acc time in msec to |VLIM|/|VCMD|
- ACCUNIT = 1 Acceleration is defined in rad/sec²
- ACCUNIT = 2 Acceleration is defined in rpm/sec
- ACCUNIT = 3 Acceleration is defined in |PUNIT|/sec² (starting Version 4.00)
- ACCUNIT = 4 Acceleration is defined in 1000*|PUNIT|/sec² (starting Version 4.00)
- ACCUNIT = 5 Acceleration is defined 1000000*|PUNIT|/sec² (starting Version 4.00)

If ACCUNIT=1 is selected, this Bit is ignored, this means the ramps are calculated in rad/sec².

If ACCUNIT is changed, all acc/dec parameters are calculated in a different way to get the right unit. Affected are |ACC|, |ACCR|, |DEC|, |DECR|, |DECSTOP|, |DECDIS|.

The motion tasks are not affected. So, before defining a motion task ACCUNIT has to be set in right manner. If ACCUNIT is changed later, all motion tasks have to be proofed or changed !!!!

The accdec-ramps of the motion tasks are limited bei |PTMIN|. This setting is done with ACCUNIT starting with Firmware version 4.02. Before that, the ramps were calculated in msec.

Attention!

High acceleration corresponds to small values of |PTMIN| at ACCUNIT=0. If ACCUNIT is > 0, |PTMIN| is small if the acceleration is high.

ASCII -Command	ACTFAULT
Syntax Transmit	ACTFAULT [Data]
Syntax Receive	ACTFAULT <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	1
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	3

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.4
EEPROM	Yes	

Short Description	Active Fault Mode
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Description

The ACTFAULT command is used to specify the response of the drive if a fault occurs.
 ACTFAULT=0: If a fault occurs, the output stage is immediately inhibited, the drive coasts down.
 ACTFAULT=1: If a fault occurs, an Emergency Stop procedure is initiated, that consists of the following steps.

1. Switch over the controller mode to velocity control (|OPMODE|=0)
2. Change the braking ramp for the velocity control loop (|DEC|) to the emergency stop ramp (|DECSTOP|)
3. Set the internal velocity command to 0 (before the ramp generator).
4. Start a timer (with time-out = 5 seconds)

As soon as the internal velocity command (after the ramp generator) has reached 0, the output stage is inhibited and the original controller mode is re-activated. This will also happen if the time-out occurs before the velocity command has reached 0.

ASCII -Command	ACTIVE
Syntax Transmit	ACTIVE
Syntax Receive	ACTIVE <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	4

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Output stage active/inhibited
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Description

The ACTIVE command returns the present status of the output stage.
 ACTIVE=1 output stage is active/enabled
 ACTIVE=0 output stage is inhibited/disabled

The following conditions must be met to enable the output stage, depending on the controller configuration:

1. Standard configuration (no active MainsBTB function)
 - software enable set
 - hardware enable set
 - BTB is present
2. With active MainsBTB function (|O1MODE| or |O2MODE|=3)
 - Software enable set
 - hardware enable set
 - BTB is present
 - MainsBTB (Mains supply BTB) is present
 - DC-link (DC-bus) voltage > undervoltage threshold

ASCII -Command	ACTRS232
Syntax Transmit	ACTRS232 [Data]
Syntax Receive	ACTRS232 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	2.40
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	341

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Activate RS232 Watchdog
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Description

The ACTRS232 command activates or deactivates the monitoring of the serial interface (RS232-watchdog).

ACTRS232=0 no monitoring of serial communication

ACTRS232=1 the RS232-watchdog is activated. The watchdog timer can be set in msec through the [RS232T] command. The watchdog must be triggered by every serial command. When the timer runs out, all movement is stopped and the warning n04 is displayed. The warning must be cancelled by the "Acknowledge fault" function.

ACTRS232=2 the RS232-watchdog is activated. The watchdog timer can be set in msec through the [RS232T] command. The watchdog must be triggered by every serial command. When the timer runs out, the present movement is stopped and ACTRS232 is set to 0. No warning is given out.

After switching on the amplifier, the RS232-watchdog is always deactivated (ACTRS232=0). When a service function is initiated via the serial interface, the PC program (or external controls) should ensure that the monitoring of the serial interface is switched on. In this way, you can be sure that if communication is interrupted or the PC crashes, the service function will be automatically terminated.

ASCII -Command	ADDR
Syntax Transmit	ADDR [Data]
Syntax Receive	ADDR <Data>
Type	Variable rw
Format	Unsigned8
DIM	-
Range	0 .. 127
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	96
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	5

Data Type BUS/DPR	Unsigned8
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	Yes	

Short Description	Multidrop Address
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Description

This variable defines the station address (0 to 63) for the amplifier. This address is required by the fieldbus (CANBUS, PROFIBUS, SERCOS, etc.) and for the parameter setting of the servo amplifier in a multi-axis system for an unambiguous identification of the servo amplifier within the system. You can use the keys on the front panel of the servo panel to set the station address (refer to the Installation Manual). After changing the address, all parameters should be stored in the EEPROM (see |SAVE|) and the amplifier should be switched off and on again.

If |MDRV| = 0, the address range is changed to 0 .. 127.

With drive 400, the address of the master has to be set, that the first slave address is >=1.

Example: master with four slaves, minimal value for ADDR of the master is 5.

Using |ADDRFB| gives the possibility to select the fieldbus address different from ADDR.

ASCII -Command	ADDRFB
Syntax Transmit	ADDRFB [Data]
Syntax Receive	ADDRFB <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0 .. 63
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.91
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	412

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Fieldbus address at Drive 400 Slave
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Description

ADDRFB defines the fieldbus address of the SERVOSTAR 400 for CAN/PROFIBUS and Sercos. After changing the parameter, a parameter save (|SAVE|) has to be initiated and the drive has to be reset. This address is used only for the external Bus communication. The serial communication uses still the address given by |ADDR|.

If ADDRFB = 0, the internal address |ADDR| is used.

ASCII -Command	AENA
Syntax Transmit	AENA [Data]
Syntax Receive	AENA <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0,1
Default	1
Opmode	0, 2, 4, 5, 8
Drive Status	-
Start Firmware	1.37
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	6

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Software Auto-Enable
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Description

This variable defines the state of the software enable when the amplifier is switched on. In order to enable the output stage, both the hardware enable and the software enable must be set (series AND configuration). The software enable gives an external control the option of enabling or disabling the output stage by software control, via a bus interface (CANBUS, PROFIBUS, SERCOS, RS232) or an expansion card in a slot.

- 0 = inactive
- 1 = active

When using an analog command (|OPMODE|=1, 3), the software enable is automatically set when the amplifier is switched on, so that these instruments are instantly ready for operation (provided that the hardware enable is already present). When using a digital command (|OPMODE|=0, 2, 4 through 8), the software enable is set to the same state as AENA at power-on.

For faults that can be reset in software after the fault has been cleared (digital input 1 or |CLRFAULT|), the software enable is set to the state of AENA. In this way, the response of the amplifier to a software reset is analogous to the power-on behavior.

ASCII -Command	ALIAS
Syntax Transmit	ALIAS [Data]
Syntax Receive	ALIAS <Data>
Type	Variable rw
Format	String
DIM	-
Range	max 8 ASCII Characters
Default	DRIVE0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	142
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Drive Name
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Description

The ALIAS command is used to assign a symbolic name to an amplifier. If the PC setup software is used, this name appears in the title bar of all open parameter windows.

In Multi-Drive mode (parameterizing several amplifiers that are grouped through the CAN bus) the ALIAS name can be used to give a clear assignment of the parameter window to the corresponding amplifier.

ASCII -Command	AN10TX
Syntax Transmit	AN10TX [Data]
Syntax Receive	AN10TX <Data>
Type	rw
Format	Decimal16
DIM	counts
Range	1000 ... 30000
Default	5000
Opmode	2
Drive Status	-
Start Firmware	4.91
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Decimal16
Weighting 10 ^{^3}	

Last Change of this Object	2.0
EEPROM	-

Short Description	
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Description
 With Servostar FW greater then 4.91 it will be possible to have an additional torque/ current loop in the drive with |ANCNFG| = 10. The drive will read the analog input 1 and use it as a torque/ current feedback to adjust the digital current command give by MMI command or fieldbus. With the parameter AN10TX it is possible to tune this additional torque loop. A higher value in this paramter will increase the dynamic of this loop and can cause ringing of this loop. A smaller value decrease the dynamic of this loop an cause higher response time.

- ANCNFG 10
- OPMODE 2
- ISCALE in A/Volt according the analog torque feedback
- AN10TX x x=Time constant of this new loop (default = 5000; Min = 1000; Max = 30000)

ASCII -Command	AN11NR
Syntax Transmit	AN11NR [Data]
Syntax Receive	AN11NR <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3, 4
Default	0
Opmode	All
Drive Status	Disable
Start Firmware	4.78
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	409

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	No. Of INxTRIG variable, that is changed analog
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Description

The parameter AN11NR defines the number (x) of the auxiliary variable |IN1TRIG|, |IN2TRIG|, |IN3TRIG| or |IN4TRIG|, which can be changed by the analog input 2: This parameter has effect only with |ANCNFG|=11 and |ANCNFG|=12.

ASCII -Command	AN11RANGE
Syntax Transmit	AN11RANGE [Data]
Syntax Receive	AN11RANGE <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-262144 .. 262143
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.78
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	410

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Range of the analog change of INxTRIG
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Description

The parameter AN11RANGE gives the change of |IN1TRIG|, |IN2TRIG|, |IN3TRIG| or |IN4TRIG|, that is caused by an analog input 2 step from 0V to 10V. The function is supported using |ANCNFG|=11 and |ANCNFG|=12.

Example:

```
|ANCNFG|=11
|AN11NR|=1
|IN1TRIG|=1000
AN11RANGE=500
```

```
at Analog input2 = 0V |IN1TRIG| = 1000
at Analog input2 = 10V |IN1TRIG| = 1500
at Analog input2 = -10V |IN1TRIG| = 500
```

ASCII -Command	AN1TRIG
Syntax Transmit	AN1TRIG [Data]
Syntax Receive	AN1TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	Long Int
Default	100
Opmode	All
Drive Status	-
Start Firmware	4.93
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	417

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Scaling of the analog output 1
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Description
 AN1TRIG scales the analog output. The scaling is done in %.

Example:

- |ANOUT1| = 1 Actual velocity
- AN1TRIG = 100 10V at the output at actual velocity=|VLIM|
- AN1TRIG = 50 5V at the output at actual velocity=|VLIM|
- AN1TRIG = 200 10V at the output at actual velocity=|VLIM|/2

If |ANOUT1|=8 is selected (constant voltage), AN1TRIG gives the voltage in mV.

ASCII -Command	AN2TRIG
Syntax Transmit	AN2TRIG [Data]
Syntax Receive	AN2TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	Long Int
Default	100
Opmode	All
Drive Status	-
Start Firmware	4.93
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	418

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	Yes

Short Description	Scaling of the analog output 2
-------------------	--------------------------------

Description
 AN2TRIG scales the analog output. The scaling is done in %.

Example:
 |ANOUT2| = 1 Actual velocity
 AN2TRIG = 100 10V at the output at actual velocity=|VLIM|
 AN2TRIG = 50 5V at the output at actual velocity=|VLIM|
 AN2TRIG = 200 10V at the output at actual velocity=|VLIM|/2

If |ANOUT2|=8 is selected (constant voltage), AN2TRIG gives the voltage in mV.

ASCII -Command	ANCNFG
Syntax Transmit	ANCNFG [Data]
Syntax Receive	ANCNFG <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 14
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Analog I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	7

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Configuration of Analog Input
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Description

The ANCNFG command configure the analog inputs.

To change ANCNFG the drive must be software disabled. After changing |SAVE| and |COLDSTART| is required.

Xcmd can be velocity or current command depending on the drive |OPMODE|.

Zustand		Description
ANCNFG=0	Xcmd=An In 1	Analog input 1 is used as velocity command or current command depending on the status of OPMODE (velocity in OPMODE =1; current in OPMODE =3). If one of the digital inputs is selected for IN1TRIG , IN2TRIG , IN3TRIG or IN4TRIG =8 (switch-over between analog input 1 and analog input2), analog input1 (input=low) or analog input 2 (input=high) have the functionality. Scaling : analog input1 velocity Command VSCALE1 (OPMODE =1) analog input1 Current Command ISCALE1 (OPMODE =3) setpoint 2 velocity command VSCALE2 (OPMODE =1) setpoint 2 Current command ISCALE2 (OPMODE =3)
ANCNFG=1	Vcmd=AnIn1, Icmd=AnIn2	analog input1 is used as velocity command if OPMODE = 1 (scaling factor VSCALE1) analog input2 is used as current command if OPMODE = 3 (scaling factor ISCALE2)
ANCNFG=2	Vcmd=AnIn1, Ifdf=AnIn2	analog input1 velocity setpoint analog input2 current feedforward (OPMODE =0,1) scaling factor ISCALE2

ANCNFG=3	Xcmd=AnIn1 Ipeak=AnIn2	<p>analog input 1 is used as velocity command or current command depending on the status of OPMODE (velocity in OPMODE =1; current in OPMODE =3).</p> <p>The absolute of analog input 2 limits the current of the drive</p> <p>10V = 100% of IPEAK 5V = 50% of IPEAK </p>
ANCNFG=4	Xcmd=An In 1+An In 2	<p>This current limit has effect to all used OPMODE </p> <p>The sum of analog input 1 and analog input 2 is used for velocity or current setpoint, depending on OPMODE .</p>
ANCNFG=5	Xcmd=An In 1*An In 2	<p>The multiplication of analog input 1 and analog input 2 is used for velocity or current setpoint, depending on OPMODE .</p>
ANCNFG=6	analog Gearing	<p>analog input 1 VSCALE1 / ISCALE1 analog input 2 10V means 100% -10V means -100%</p> <p>Analog input 1 is used as velocity or current command, depending on OPMODE analog input 2 is used as scaling factor for electronic gearing (OPMODE =4). VSCALE2 is used to define a correction factor in %.</p> <p>e.g. VSCALE2 =20 (means 20%) analog input 2= +10V GEAROeff= GEARO * 1.2 analog input 2= -10V GEAROeff= GEARO * 0.8 SW2= 0V GEAROeff= GEARO </p>
ANCNFG=7	Icmd=AnIn1 & Nmax = AnIn2	<p>analog input 1 is used as current command(ISCALE1) (OPMODE has to be set to 3).</p> <p>analog input 2 limits the velocity of the motor analog input 2=10V, Nmax=(VSCALE2)</p>
ANCNFG=8	Pcmd=An In 1	<p>If the velocity of the motor is greater than Nmax, the velocity is limited.</p> <p>analog input 1 is used as a analog position command (only available in OPMODE =5). The working distance is defined by SRND and ERND .</p> <p>analog input 1 = 0V Position = SRND analog input 1 = +/-10V Position = ERND </p>
ANCNFG=9	Xcmd=AnIn1 & Ferraris = AnIn2	<p>When the drive is switched on, the reference point is not set and the drive does not move. The OPMODE can be set to 5. The a reference move can be started by digital input. After that, when the homing move is finished, the input can be set to zero again and then the drive moves automatically to the given analog position.</p>
ANCNFG=10	Torque loop	<p> POSCNFG has to be "0" (linear axes type).</p> <p>Analog input 1: velocity or current command (same as ANCNFG=0)</p> <p>Analog input 2: Ferraris sensor see AN10TX </p>

ANCNFG=11	Change INXTRIG 1	Change of an IN1TRIG , IN2TRIG , IN3TRIG or IN4TRIG variable via the analog input 2. The corresponding Number (x) of the trigger variable is set by AN11NR . The range of the parameter change is defined by AN11RANGE . The change of the analog in 2 acts directly (update time 1 to 10ms), see also AN11NR and AN11RANGE .
ANCNFG=12	Change INXTRIG 2	Internal change of an IN1TRIG , IN2TRIG , IN3TRIG or IN4TRIG variable via the analog input 2. The corresponding number (x) of the trigger variable is set by AN11NR . The range of the parameter change is defined by AN11RANGE . The change of the analog in 2 acts after a rising edge at digital inputx, see also AN11NR and AN11RANGE .
ANCNFG=13	see 3*	<p>Analog input 1 is used as velocity command or current command depending on the status of OPMODE (velocity in OPMODE =1; current in OPMODE =3).</p> <p>The absolute of analog input 2 limits the positive current of the drive</p> <p>10V = 100% of IPEAK 5V = 50% of IPEAK </p> <p>The negative current is not effected.</p> <p>In the positive direction, the acceleration current is limited and in the negative direction the deceleration current.</p> <p>This current limit has effect to all used OPMODE </p>
ANCNFG=14	see 3**	<p>Analog input 1 is used as velocity command or current command depending on the status of OPMODE (velocity in OPMODE =1; current in OPMODE =3).</p> <p>The absolute value of analog input 2 limits the negative current of the drive</p> <p>10V = 100% of IPEAK 5V = 50% of IPEAK </p> <p>The positive current is not effected.</p> <p>In the negative direction, the acceleration current is limited and in positive direction the deceleration current.</p> <p>This current limit has effect to all used OPMODE </p>

ASCII -Command	ANDB
Syntax Transmit	ANDB [Data]
Syntax Receive	ANDB <Data>
Type	Variable rw
Format	Float
DIM	Millivolts
Range	0.0 .. 10000.0
Default	0
Opmode	1, 3
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	8

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Dead Band of the Analog Velocity Input Signal
-------------------	---

Description

This variable suppresses small analog input signals by setting a dead band zone in which signals are ignored. This function is useful with |OPMODE|=1 (without higher-level position control). Depending on the operating mode, this parameter applies to analog input1 or analog input 2 (depending on which command input is used as the source for the velocity value). See |ANCNFG| for additional information.

ASCII -Command	ANIN1
Syntax Transmit	ANIN1
Syntax Receive	ANIN1 <Data>
Type	Variable ro
Format	Integer32
DIM	Millivolts
Range	-10000 .. 10000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3034
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	9

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Voltage at Analog Input 1
-------------------	---------------------------

Description
 The ANIN1 command returns the present value of the voltage at the analog input 1.

ASCII -Command	ANIN2
Syntax Transmit	ANIN2
Syntax Receive	ANIN2 <Data>
Type	Variable ro
Format	Integer32
DIM	Millivolts
Range	-10000 .. 10000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3035
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	10

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Voltage at Analog Input SW2
-------------------	-----------------------------

Description

The ANIN2 command returns the present value of the voltage at the analog input SW2.

ASCII -Command	ANOFF1
Syntax Transmit	ANOFF1 [Data]
Syntax Receive	ANOFF1 <Data>
Type	Variable rw
Format	Integer16
DIM	Millivolts
Range	-10000 .. 10000
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	11

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Analog Offset for input 1
-------------------	---------------------------

Description

This variable compensates for the offset voltages of CNC controls and the analog input, |ANIN1| (1). It can also correct an analog offset from external controls.

ASCII -Command	ANOFF2
Syntax Transmit	ANOFF2 [Data]
Syntax Receive	ANOFF2 <Data>
Type	Variable rw
Format	Integer16
DIM	Millivolts
Range	-10000 .. 10000
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	12

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Analog Offset for input SW2
-------------------	-----------------------------

Description

This variable compensates for the offset voltages of CNC controls and the analog input, [ANIN2] (SW2). It can also correct an analog offset from external controls.

ASCII -Command	ANOUT1
Syntax Transmit	ANOUT1 [Data]
Syntax Receive	ANOUT1 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 8
Default	1
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Analog I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	13

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Configuration of the Analog Output 1
-------------------	--------------------------------------

Description

Configuration of analog output 1. The actual value is read via [MONITOR1]. The output provides various analog command values or actual values, depending on the selection in the operator software. Output resistor 2.2kOhm. Resolution 10 bit.

ANOUT1=9	>= Version 4.93 analoge Output of I2T 10V = 100 %
Zustand	Description
ANOUT1=0	No output voltage at Analog Output 1.
ANOUT1=1	Outputs the actual velocity (10V = VLIM).
ANOUT1=2	Outputs the actual current (10V = IPEAK).
ANOUT1=3	Outputs the velocity setpoint (10V = VLIM).
ANOUT1=4	Outputs the current setpoint (10V = IPEAK).
ANOUT1=5	Outputs the actual contouring error (10V = PEMAX).
ANOUT1=6	Outputs a value given by a option DPR-slotboard. If a Device-Net option board is plugged in the drive, this setting enables access of Device-Net to analog output 1
ANOUT1=7	The actual position is at the analog output. The scaling is referred to the Modulo axes defined by SRND and ERND . This output makes sense, using the modulo axes type (POSCNFG =2).
ANOUT1=8	The analog output gives a constant voltage. The voltage can be set by using the help variable AN1TRIG in mV (starting with firmware 4.91)

ASCII -Command	ANOUT2
Syntax Transmit	ANOUT2 [Data]
Syntax Receive	ANOUT2 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 8
Default	2
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Analog I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	14

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	Yes	

Short Description	Source of the Analog Output 2
-------------------	-------------------------------

Description

Configuration of analog output 2. The actual value is read via [MONITOR2]. The output provides various analog command values or actual values, depending on the selection in the operator software. Output resistor 2.2kOhm. Resolution 10 bit.

Zustand	Description
ANOUT2=0	No output voltage at Analog Output 2.
ANOUT2=1	Outputs the actual velocity (10V = VLIM).
ANOUT2=2	Outputs the actual current (10V = IPEAK).
ANOUT2=3	Outputs the velocity setpoint (10V = VLIM).
ANOUT2=4	Outputs the current setpoint (10V = IPEAK).
ANOUT2=5	Outputs the actual contouring error (10V = PEMAX).
ANOUT2=6	Outputs a value given by a option DPR-slotboard. If a Device-Net option board is plugged in the drive, this setting enables access of Device-Net to analog output 2
ANOUT2=7	The actual position is at the analog output. The scaling is referred to the Modulo axes defined by SRND and ERND . This output makes sense, using the modulo axes type (POSCNFG =2).
ANOUT2=8	The analog output gives a constant voltage. The voltage can be set by using the help variable AN2TRIG in mV (starting with firmware 4.91)

ASCII -Command	ANZERO1
Syntax Transmit	ANZERO1
Syntax Receive	ANZERO1
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	15

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Zero Analog Input 1
-------------------	---------------------

Description

This command can be used to start the automatic offset correction for the analog input 1. The command at analog input 1 should be short-circuited before using this command. After the command has been carried out, the offset value that was determined is available in the |ANOFF1| parameter. To save this value permanently in the EEPROM, you should use the |SAVE| (save to EEPROM) command.

ASCII -Command	ANZERO2
Syntax Transmit	ANZERO2
Syntax Receive	ANZERO2
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	16

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Zero Analog Input SW2
-------------------	-----------------------

Description

This command can be used to start the automatic offset correction for the analog input 2. The command at analog input 2 should be short-circuited before using this command. After the command has been carried out, the offset value that was determined is available in the |ANOFF2| parameter. To save this value permanently in the EEPROM, you should use the |SAVE| (save to EEPROM) command.

ASCII -Command	AUTOHOME
Syntax Transmit	AUTOHOME [Data]
Syntax Receive	AUTOHOME <Data>
Type	rw
Format	Integer8
DIM	
Range	0,1
Default	0
Opmode	8
Drive Status	Disable
Start Firmware	5.53
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	471

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	
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Description

AUTOHOME=0 no automatic homing procedure is started

AUTOHOME=1 After the drive is enabled the homing procedure [MH] is automatically started .

AUTOHOME=2 After the drive is enabled the homing procedure [MH] is automatically started if the homing wasn't executed before. (FW >= 6.39).

note:

To start automatic a motion task see command [NREFMT]

ASCII -Command	AVZ1
Syntax Transmit	AVZ1 [Data]
Syntax Receive	AVZ1 <Data>
Type	Variable rw
Format	Float
DIM	Milliseconds
Range	0.2 .. 100.0
Default	1
Opmode	1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	17

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Filter Time Constant Input 1
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Description
 Filter time constant for analog input 1. (250µs Update Rate)

ASCII -Command	BCC
Syntax Transmit	BCC
Syntax Receive	BCC <Data>
Type	Variable ro
Format	Integer16
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	314

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	EEPROM check sum
-------------------	------------------

Description

The BCC variable returns a checksum for the parameter area of the serial EEPROM. When a |SAVE| command is carried out, all the internal parameters of the amplifier are saved in this area, in ASCII format. The checksum is obtained by summing all the stored bytes, and is recalculated with every |LOAD| or |SAVE| command. It is only intended for the detection of EEPROM errors. But it can also be used to detect whether the data set that is present in the controls matches the data set that is stored in the servo amplifier.

ASCII -Command	BOOT
Syntax Transmit	BOOT [Data]
Syntax Receive	BOOT <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	350

Data Type BUS/DPR	Integer8
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Type of Boot Initialization
-------------------	-----------------------------

Description

The BOOT command selects the type of drive start up.

BOOT = 0 The internal drive settings are compiled every time the drive is switched on (24V auxillary supply). This takes about 30 seconds and depends only on the selected software configuration.

BOOT = 1 The internal drive settings are only compiled if the software configuration has changed. The first boot initialization takes about 30seconds, the next times, the initialization time is reduced to 5 seconds.

The reduced boot initialization is available form hardware version 4.

In case S400 drives are used, the Boot settings should be the same to all drives, otherwise the master may not detect the slaves.

ASCII -Command	BQDC
Syntax Transmit	BQDC [Data]
Syntax Receive	BQDC <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.2 .. 1
Default	0.3
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	354

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.7
EEPROM	Yes

Short Description	Defines the Center Damping of the Bi-quad Filter
-------------------	--

Description

The BQDC defines the center damping of the Bi-quad filter, which can be normally set to the default value.
 To Use BQDC set |BQMODE| = 2.

ASCII -Command	BQDR
Syntax Transmit	BQDR [Data]
Syntax Receive	BQDR <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.25 .. 5
Default	2.0
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	355

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.7
EEPROM	Yes

Short Description	Defines the Damping Ratio of the Bi-quad Filter
-------------------	---

Description
 The BQDR defines the damping ratio of the Bi-quad filter, which can be normally set to the default value. To Use BQDR set |BQMODE| = 2.

ASCII -Command	BQFC
Syntax Transmit	BQFC [Data]
Syntax Receive	BQFC <Data>
Type	Variable rw
Format	Float
DIM	Hz
Range	20 .. 1000
Default	200
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	356

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.4
EEPROM	Yes

Short Description	Center Frequency of the Bi-Quad Filter
-------------------	--

Description

The BQFC defines the center frequency of the Bi-quad filter, which can be calculated according to the following equation:

$$BQFC = \text{SQRT}(\text{OmegaAR} * \text{OmegaR}) \text{ [Hz]}$$

Here, the anti-resonance frequency OmegaAR and the resonance frequency OmegaR can be respectively read from the bode plot of the velocity control loop.

How to make the bode plot and to set Bi-quad filter please reference the application note “Suppression of Torsional Oscillations”.

ASCII -Command	BQFR
Syntax Transmit	BQFR [Data]
Syntax Receive	BQFR <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.1 .. 10
Default	2.5
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	357

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.4
EEPROM	Yes

Short Description	Frequency Ratio of the Bi-quad Filter
-------------------	---------------------------------------

Description

The BQFR defines the frequency ratio of the Bi-quad filter, which is the ratio between the resonance frequency Ω_{R} and the anti-resonance frequency Ω_{AR} . That is: .

Here, the anti-resonance frequency Ω_{AR} and the resonance frequency Ω_{R} can be respectively read from the bode plot of the velocity control loop.

How to make the bode plot and to set Bi-quad filter please reference the application note “Suppression of Torsional Oscillations”.

ASCII -Command	BQMODE
Syntax Transmit	BQMODE [Data]
Syntax Receive	BQMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	358

Data Type BUS/DPR	Integer8
Weighting 10 ³	

Last Change of this Object	1.4
EEPROM	Yes

Short Description	Select Compensation Filter Mode for the Velocity Control
-------------------	--

Description

The BQMODE is used to set the compensation filter mode for the velocity control. There are following three possible settings:

- BQMODE = 0 : without any filter after the PI velocity controller
- BQMODE = 1 : using PID-T2 compensation filter
- BQMODE = 2 : using Bi-quad filter
- BQMODE = 3 : reserved

By default, the BQMODE is set to PID-T2 filter mode to reduce the high-frequency noise included in the torque current, which are determined by parameters |GVFILT| and |GVT2|.

If the two-mass servo drive system has mechanical resonance (torsional oscillation) in the frequency range between 100 Hz and 500 Hz, Bi-quad filter can be used to suppress this kind of resonance and to enhance the bandwidth of the velocity control loop (See |BQFC|, |BQFR|, |BQDC| and |BQDR|).

ASCII -Command	CALCCOG
Syntax Transmit	CALCCOG [Data]
Syntax Receive	CALCCOG
Type	Command
Format	-
DIM	rpm
Range	0 .. 5
Default	2
Opmode	0
Drive Status	Enabled
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI CAN-Bus

PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.9
EEPROM	-

Short Description	Determining the Cogging Table
-------------------	-------------------------------

Description

CALCCOG starts the automatic determination of the cogging table (see also |COGGING|). To do this, the output stage must be enabled and the motor must be able to move freely, ideally without any mechanical coupling. The gain of the velocity controller |GV| should be tuned as high as possible.

While this command is being executed, the motor makes two full turns at the predefined speed. During the first turn, the cogging table values is coarsely identified. The second turn makes a fine identification for the cogging table values.

After this function has been completed, the 24 V power supply must be switched off and on to copy the determined table to the FLASH.

Until now, The CALCCOG function is reasonable when a Resolver, Hiperface- or an EnDAT-feedback device has been selected as the feedback device (|FBTYPE|=0, 2 or 4).

Before starting this processing, the parameter |COGGING| must be firstly set to one. Please reference to the ASCII command |COGGING|.

ASCII -Command	CALCHP
Syntax Transmit	CALCHP [Data] , [Data]
Syntax Receive	CALCHP
Type	Command
Format	-
DIM	rpm
Range	0 .. 200
Default	5
Opmode	All
Drive Status	Enabled
Start Firmware	1.34
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	18

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.9
EEPROM	-

Short Description	Determining the Hiperface Parameters
-------------------	--------------------------------------

Description

This command can be used to start the automatic determination of the Hiperface parameters. To do this, the output stage must be enabled and the drive must be able to move freely. While this command is being carried out, the motor makes a full turn at the predefined velocity. During this phase, the offset parameters (|HISOFFS|/|HICOFFS|) and the sine/cosine gain factor (|HIFACT1|) are calculated. After this function has been completed, the newly determined parameters can be stored in the encoder, using the |HSAVE| command for |FBTYPE| = 2 or 4 or using the command |SAVE| for |FBTYPE| = 7. The CALCHP function is only available when a Hiperface- or an EnDAT-Encoder or sine encoder has been selected as the feedback device (|FBTYPE|=2 or 4 or 7).

Starting with firmware 5.41, the command allows also two parameters. The first is to select a certain speed in rpm and the second the angle of the motor that should be moved.

E.g.: CALCHP 5 10, start CALCHP with 5 rpm and move the motor 10 degrees.

ASCII -Command	CALCRK
Syntax Transmit	CALCRK [Data]
Syntax Receive	CALCRK
Type	Command
Format	-
DIM	rpm
Range	0 .. 200
Default	5
Opmode	All
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	19

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Calculate resolver parameters
-------------------	-------------------------------

Description

This command can be used to start the automatic determination of the resolver parameter |RK| (sine/cosine gain factor). To do this, the output stage must be enabled and the drive must be able to move freely. While this command is being carried out, the motor makes a full turn at the given velocity. If CALCRK is started without parameter, the default value is used. After this function has been completed, the newly determined |RK| parameter can be stored in the EEPROM, using the |SAVE| command. This command can be used to reduce the current ripple of the motor at high velocity. It can only be used with resolver feedback.

ASCII -Command	CALCRP
Syntax Transmit	CALCRP
Syntax Receive	CALCRP
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	20

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Calculate resolver phase
-------------------	--------------------------

Description

This command can be used to start the automatic determination of the resolver parameter RESPHASE (resolver phase shift).

Before starting this command in the hyper Terminal, switch off the power and disable the drive. At the same time, set MSG = 2. After starting this command, the value of |RESPHASE| will be then automatically identified. If the process finishes, in the Hyper Terminal shows the value of |RESPHASE| and the information "ERR 4 feedback !". This is normal and you can ignore it. Now, type SAVE to store the value of |RESPHASE| permanently and execute the COLDSTART.

ASCII -Command	CBAUD
Syntax Transmit	CBAUD [Data]
Syntax Receive	CBAUD <Data>
Type	Variable rw
Format	Integer16
DIM	kBaud
Range	10,20,50,100,125,250,333,500,666,800,1000
Default	500
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	21

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Baud Rate CAN Bus
-------------------	-------------------

Description

The transmission rate is required by the fieldbus (CANopen) and for the parameter setting of the servo amplifier in multi-axis systems (see the Installation Manual). You can also use the keys on the front panel of the servo amplifier to set the baud rate (see the Installation Manual).

ASCII -Command	CDUMP
Syntax Transmit	CDUMP
Syntax Receive	CDUMP
Type	Multi-line Return Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	23

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Current Loop Parameter Dump
-------------------	-----------------------------

Description
 Outputs the current control loop parameters as a listing in several lines.

ASCII -Command	CLRFAULT
Syntax Transmit	CLRFAULT
Syntax Receive	CLRFAULT
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	24

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Clear Drive Fault
-------------------	-------------------

Description

The CLRFAULT command cancels the fault status of an amplifier. A hardware or software reset of the amplifier is carried out, depending on the type of fault that is present. After a software reset the amplifier is immediately ready for operation, after a hardware reset the complete initialization phase must be gone through first (as for power-on). As well as amplifier faults (display Fxx), the following warnings are also deleted.

- contouring/following error
- threshold monitoring

With the selection |CLRWARN|=1 (separate cancellation of warnings) this command will delete all warnings that are present. A listing of all possible fault/error messages, with information on the hardware/software reset required, can be found in the description of the |ERRCODE| command.

The CLRFAULT command can either be implemented through the ASCII channel (CLRFAULT command) or via the CAN/PROFIBUS (with the “cancel fault” bit in the control word), or through a digital input (“Controller reset” function).

ASCII -Command	CLRHR
Syntax Transmit	CLRHR
Syntax Receive	CLRHR
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.27
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	25

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Bit 5 of status register STAT is cleared
-------------------	--

Description

After every start-up or hardware reset of the drive, BIT 5 (0x20) of the |STAT| register is set to high. This bit is cleared by CLRHR. Possible usage:
 The Software User Interface uploads all the data stored in the drive, if the hardware reset Bit5 in the |STAT| register is set too high. When the parameter are completely uploaded, the Bit5 is set to low using the command CLRHR. The |STAT| register is monitored form the Software User Interface all the time and is checked, if it is low. When it becomes high again (drive had a reset) the Software User Interface uploads the data again.

ASCII -Command	CLRORDER
Syntax Transmit	CLRORDER [Data]
Syntax Receive	-
Type	Command
Format	Integer16
DIM	-
Range	0;1 ..180; 192 .. 255
Default	-
Opmode	All
Drive Status	Enabled (only RAM) / Disabled
Start Firmware	2.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	26

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Deleting a Motion Task
-------------------	------------------------

Description

The command CLRORDER is used to delete a motion task given by the variable (e.g. CLRORDER 10, means: motion task 10 is deleted).

ASCII -Command	CLRWARN
Syntax Transmit	CLRWARN [Data]
Syntax Receive	CLRWARN <Data>
Type	Variable rw
Format	Unsigned8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.71
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	27

Data Type BUS/DPR	Unsigned8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Warning mode
-------------------	--------------

Description

The CLRWARN configuration variable can be used to control the response of the drive if a warning occurs.

CLRWARN=0 Warnings will be displayed until the cause of the warning has been removed.

Warnings cannot be cancelled (exceptions: - contouring/following error, threshold detection).

CLRWARN=1 A warning is only displayed at the moment when it occurs (transition).

All warnings can be cancelled by the [CLRFAULT] command, or through the digital input ("Controller reset" function).

The listing of the possible warnings can be found in the description of the [STATCODE *] command.

ASCII -Command	CMDDLY
Syntax Transmit	CMDDLY [Data]
Syntax Receive	CMDDLY <Data>
Type	Variable rw
Format	Integer16
DIM	ms
Range	0 .. 200
Default	15
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	368

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Command Delay Time for RS232
-------------------	------------------------------

Description

The parameter CMDDLY defines a minimum delay time for answers from the drive via RS232 (ASCII). This enables the possibility for slower controller to communicate with the Drive.
 The delay time CMDDLY defines the time between the last character of a ASCII string send to the drive to the first character of the answer.
 The time between the characters cannot be changed, they are defined by the baud rate and the internal calculation times.
 This time defines only the minimum delay time between the ASCII strings. The time can be longer, depending on the internal calculation time.

ASCII -Command	COGGING
Syntax Transmit	COGGING [Data]
Syntax Receive	COGGING <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disable + Restet (Coldstart)
Start Firmware	5.41
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	463

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Enable of Cogging Compensation
-------------------	--------------------------------

Description

COGGING enables a cogging compensation function, which adds a cogging current to the current controller in function of the angle of the motor.

Before identifying the cogging parameter of the motor by |CALCCOG|, the parameter COGGING must be firstly set to "1".

When COGGING = 1, the cogging effect of the PM motor will be online compensated, if the corresponding table was created by |CALCCOG|. If COGGING = 0, the cogging compensation will be switched off and the table is erased.

The cogging-compensation works only in |FBTYPE| = 0, 2 and 4.

ASCII -Command	COLDSTART
Syntax Transmit	COLDSTART
Syntax Receive	COLDSTART
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	306

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Drive Reset
-------------------	-------------

Description
 Software reset of the servo amplifier. The servo amplifier must be software disabled. The current faults are cancelled, the servo amplifier software is reinitialized and communication is re-established. This command has the same effect as turning the drive power off and then back on.

ASCII -Command	CONTINUE
Syntax Transmit	CONTINUE
Syntax Receive	CONTINUE
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	8
Drive Status	Enabled
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	29

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Continue last position order
-------------------	------------------------------

Description

The CONTINUE command can be used to continue (and complete) a motion block that was previously interrupted by the |STOP| command. This is especially important for a motion block with relative paths.

ASCII -Command	CPHASE
Syntax Transmit	CPHASE [Data]
Syntax Receive	CPHASE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	1
Opmode	All
Drive Status	Disable + Reset (Coldstart)
Start Firmware	5.41
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Deactivate Motor Connection Detection
-------------------	---------------------------------------

Description

The motor connection detection trips, if a cable is broken or not connected. CPHASE = 0 disables this function

ASCII -Command	CTUNE
Syntax Transmit	CTUNE [Data]
Syntax Receive	CTUNE
Type	Command
Format	-
DIM	Hz
Range	400 .. 3000
Default	1200
Opmode	All
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	30

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Calculate current parameters
-------------------	------------------------------

Description

This command calculates current parameters. Set the |OPMODE| = 2 before starting.

ASCII -Command	CUPDATE
Syntax Transmit	CUPDATE
Syntax Receive	CUPDATE
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	31

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Program Update (CAN Bus)
-------------------	--------------------------

Description

The CUPDATE command activates a function that can receive data through a CAN bus interface and save them in the program memory of the amplifier. After this function has been activated, no more commands will be accepted through the serial interface. The program PRGDOWN.EXE should be used for downloading data on the PC side. This program operates with the hardware in a handshaking procedure, and prepares the data for CAN transmission.

ASCII -Command	DAOFFSET1
Syntax Transmit	DAOFFSET1 [Data]
Syntax Receive	DAOFFSET1 <Data>
Type	Variable rw
Format	Integer16
DIM	Counts
Range	0 .. 2500
Default	1290
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	32

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object		1.8
EEPROM	Yes	

Short Description	Analog Offset Output 1
-------------------	------------------------

Description

This is an offset that is applied to the D/A converter for analog output 1. The offset value is given in internal units (counts). Scaling is as follows:

- DAOFFSET1 = 2058 -10V
- DAOFFSET1 = 1250 0V
- DAOFFSET1 = 442 10V

ASCII -Command	DAOFFSET2
Syntax Transmit	DAOFFSET2 [Data]
Syntax Receive	DAOFFSET2 <Data>
Type	Variable rw
Format	Integer16
DIM	Counts
Range	0 .. 2500
Default	1290
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	33

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Analog Offset Output 2
-------------------	------------------------

Description

This is an offset that is applied to the D/A converter for analog output 2. The offset value is given in internal units (counts). Scaling is as follows:

- DAOFFSET2 = 2058 -10V
- DAOFFSET2 = 1250 0V
- DAOFFSET2 = 442 10V

ASCII -Command	DEC
Syntax Transmit	DEC [Data]
Syntax Receive	DEC <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767, VLIM * 4480 (5.41)
Default	10
Opmode	0, 1, 8 (bei EXTPOS=1,4)
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	137
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	34

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Deceleration Rate
-------------------	-------------------

Description

The DEC command defines the deceleration ramp for the velocity control loop (in msec) referred to the maximum velocity (the larger value of |VLIM| and |VLIMN|). The DEC deceleration/braking ramp is only used for command step changes that result in a velocity decrease (braking). The |ACC| parameter is used for acceleration.
 For a command step from |VLIM|/|VLIMN| to 0, the ramp generator generates a stepped ramp (with steps of 250 microseconds) that is completed within the set DEC time.

The DEC braking ramp applies to all command changes, whether they are provided in analog or digital form. Separate braking ramps (|DECSTOP|/|DECDIS|) are used for command changes that are generated internally in emergency stop situations (e.g. amplifier fault, or removal of the amplifier enable).

From firmware 3.41 the ramp can be set by different units. Details are shown at parameter |ACCUNIT| .

REV 2.3:

Put DEC to the minimum delay if a P-position (|EXTPOS| = 1,3,4) controller is used.

ASCII -Command	DECDIS
Syntax Transmit	DECDIS [Data]
Syntax Receive	DECDIS <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767, VLIM * 4480 (5.41)
Default	10
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	35

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Deceleration used on Disable Output Stage
-------------------	---

Description

When the output stage is disabled (removal of the hardware or software enable), the internal velocity command is set to 0, using the preset DECDIS ramp. The output stage is only disabled when the actual velocity has fallen below the standstill threshold (|VEL0). The DECDIS ramp only has an effect for motors with a configured brake (|MBRAKE|=1) or with the selection |STOPMODE|=1. With |STOPMODE|=0 the output stage is immediately disabled, and the drive coasts down.

ASCII -Command	DECR
Syntax Transmit	DECR [Data]
Syntax Receive	DECR <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767
Default	10
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	42
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	36

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Deceleration Ramp for homing/jog modes
-------------------	--

Description

The DECR command defines the braking ramp for jog mode or homing with the internal position control loop. The entry is made in msec and is referred to the final limit velocity for the corresponding operating mode: |VJOG| for jog operation, or |VREF| for homing.

When starting the homing/jog mode, the DECR deceleration ramp can, in some circumstances, be limited by the minimum acceleration time |PTMIN| (see description of the |PTMIN| parameter).

From firmware 3.41 the ramp can be set by different units. Details are shown at parameter |ACCUNIT| .

ASCII -Command	DECSTOP
Syntax Transmit	DECSTOP [Data]
Syntax Receive	DECSTOP <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767, VLIM * 4480 (5.41)
Default	10
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3022
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	37

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Quick Stop – braking ramp for emergency situations
-------------------	--

Description

In emergency stop situations, the internal command goes to 0 using the preset DECSTOP ramp. The output stage is only disabled when the actual velocity has fallen below the standstill threshold (|VELO|).

An emergency stop situation exists in the following cases:

- amplifier fault (with |ACTFAULT|=1)
- contouring/following error
- threshold monitoring (fieldbus devices)
- hardware/software limit switch activated
- emergency stop function through the digital input (|INxMODE|=27)
- emergency stop function through the fieldbus (control word)

ASCII -Command	DENA
Syntax Transmit	DENA [Data]
Syntax Receive	DENA <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	2.08
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	301

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	DPR software disable reset mode
-------------------	---------------------------------

Description

With external DPR-SLOT cards, it is possible to cancel existing instrument faults by removing the DPR software enable. This function can be activated or inhibited by using the DENA variable.

DENA=0 Removing the software enable causes a hardware/software reset of the amplifier. The reset only takes place when a fault occurs, or the warning “contouring error” or “threshold monitoring activated” is present. (customer-specific protocol: Beckhoff).

DENA=1 Removing the software enable causes a hardware/software reset of the amplifier. The reset only takes place when a fault occurs, or the warning “contouring error” or “threshold monitoring activated” is present.

DENA=2 No reset if the software enable is removed.

ASCII -Command	DEVICE
Syntax Transmit	DEVICE
Syntax Receive	DEVICE <Data>
Type	Variable ro
Format	String
DIM	-
Range	max 50 ASCII Characters
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	38

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Device ID
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Description

The command returns the amplifier ID in the following format:
 Drive 6xx @ yyyV whereby xx = current rating
 yyy = DC bus voltage

e.g. Drive 601 @ 700V

ASCII -Command	DICONT
Syntax Transmit	DICONT
Syntax Receive	DICONT <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	1.5 .. 20.0
Default	Hardware Defined
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	112
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	39

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	Drive Continuous Current
-------------------	--------------------------

Description

The continuous current rating of the drive. DICONT is depending on |VBUSBAL| for drive 403 und 406. The drive 614 shows 20A, because the same power module as 620 is used.

ASCII -Command	DIFVAR
Syntax Transmit	DIFVAR
Syntax Receive	DIFVAR <Data>
Type	Multi-line Return Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.46
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	40

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	List Variables with Values
-------------------	----------------------------

Description

This command produces a list of parameters with settings that differ from the default values. The list contains entries in the following form:

PARAMETER Value (Default) PARAMETER = Parameter name
 Value = the actual parameter setting
 Default = the default value for the parameter

ASCII -Command	DILIM
Syntax Transmit	DILIM [Data]
Syntax Receive	DILIM <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	2.08
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	300

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	DPR current limit
-------------------	-------------------

Description

With external DPR-SLOT cards it is possible to limit the drive current through the DPR (RAM interface to the SLOT card). This function must be enabled through the DILIM configuration variable.

ASCII -Command	DIPEAK
Syntax Transmit	DIPEAK
Syntax Receive	DIPEAK <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	3.0 .. 70.0
Default	Hardware Defined
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	110
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	41

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	Drive Peak Rated Current
-------------------	--------------------------

Description

The peak rated current of the drive. DIPEAK is depending on |VBUSBAL| for drive 403, 406, 614 and 670.

ASCII -Command	DIR
Syntax Transmit	DIR [Data]
Syntax Receive	DIR <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	1
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	velocity

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	43 + 55
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	42

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Count Direction
-------------------	-----------------

Description

The DIR variable defines the count direction for evaluation and entries of position information.

DIR = 0 negative count direction – positive velocity and current entries cause the motor shaft to rotate in an anti-clockwise (CCW) direction.

DIR = 1 positive count direction – positive velocity and current entries cause the motor shaft to rotate in a clockwise (CW) direction.

The definition of the count direction affects all controller modes ((OPMODE)).

ASCII -Command	DIR0
Syntax Transmit	DIR0 [Data]
Syntax Receive	DIR0 <Data>
Type	rw
Format	Integer8
DIM	-
Range	0 ... 2
Default	0
Opmode	All
Drive Status	Disable
Start Firmware	5.82
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	479

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	count direction for the sine/cosine encoder for position loop (EXTPOS=1)
-------------------	--

Description

The DIR0 variable defines the count direction for evaluation and entries of position information for the external loop control (EXTPOS=1).

- DIR0 = 0 no swap of sine/cosine signals, no invert of the absolute encoder position
- DIR0 = 1 invert of the absolute encoder position, no swap of the sine/cosine signals
- DIR0 = 2 invert of the absolute encoder position, swap of the sine/cosine signals

ASCII -Command	DIROUT
Syntax Transmit	DIROUT [Data]
Syntax Receive	DIROUT <Data>
Type	rw
Format	Integer8
DIM	-
Range	0...3
Default	0
Opmode	All
Drive Status	Disable + Reset(Coldstart)
Start Firmware	6.57, 7.21
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	863

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.5
EEPROM	Yes

Short Description	
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Description

Defines the polarity of the digital outputs

- 0: output1 high activ output2 high activ
- 1: output1 low activ output2 high activ
- 2: output1 high activ output2 low activ
- 3: output1 low activ output2 low activ

ASCII -Command	DIS
Syntax Transmit	DIS
Syntax Receive	DIS
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Amplifier

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	43

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Software-Disable
-------------------	------------------

Description

The DIS command sets the software enable for the output stage to 0. Depending on the configuration (see [MBRAKE], [STOPMODE]), the drive will coast down, or be run down under control.

ASCII -Command	DISDPR
Syntax Transmit	DISDPR [Data]
Syntax Receive	DISDPR <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disable
Start Firmware	3.51
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	371

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	-

Short Description	Disable DPR access
-------------------	--------------------

Description
 DISDPR=1 disables the write access of e.g. Lightbus option boards to the drive. Read access is still possible. This enables the service functionality via PC even if the Bus is running.

DISDPR=0 Full access from the controller side.
 DISDPR=1 Only read access.

This parameter is not stored in the EEPROM.

ASCII -Command	DNBAUD
Syntax Transmit	DNBAUD [Data]
Syntax Receive	DNBAUD <Data>
Type	rw
Format	Integer8
DIM	kbaud
Range	125,250,500
Default	125
Opmode	All
Drive Status	-
Start Firmware	5.56
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	415

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	DeviceNet baud rate
-------------------	---------------------

Description
 The baud rate switch on the DeviceNet option card may be set to 0 (125 Kbaud), 1 (250 Kbaud) or 2 (500 Kbaud). If the switch is set to a value greater than 2, the baud rate is configurable through the terminal parameter DNBAUD and through DeviceNet. If the switch is set from 0 to 2, the baud rate cannot be controlled with DNBAUD or DeviceNet.

ASCII -Command	DNDUMP
Syntax Transmit	DNDUMP [Data]
Syntax Receive	DNDUMP <Data>
Type	
Format	-
DIM	-
Range	
Default	
Opmode	All
Drive Status	-
Start Firmware	4.40
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	Debugging Information DeviceNet
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Description

DNDUMP prints out debugging information with the status of the DeviceNet connection.

ASCII -Command	DNMACID
Syntax Transmit	DNMACID [Data]
Syntax Receive	DNMACID <Data>
Type	rw
Format	Integer8
DIM	-
Range	0..63
Default	0
Opmode	All
Drive Status	-
Start Firmware	5.56
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	416

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	-

Short Description	
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Description

The MACID (address) switches on the DeviceNet option card may be set to a valid address from 0 to 63. If the switches are set to a value greater than 63, the MACID is configurable through the terminal parameter DNMACID and through DeviceNet. If the switches are set from 0 to 63, the MACID cannot be controlled with DNMACID or DeviceNet.

ASCII -Command	DOVRIDE
Syntax Transmit	DOVRIDE [Data]
Syntax Receive	DOVRIDE <Data>
Type	Variable rw
Format	Int16
DIM	-
Range	0 .. 8192
Default	0
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	438

Data Type BUS/DPR	Int16
Weighting 10^3	

Last Change of this Object		1.7
EEPROM	Yes	

Short Description	Digital Override Factor
-------------------	-------------------------

Description

If the digital Override function is selected (see |OVERRIDE|=3), DOVRIDE gives the possibility to change the digital scaling.

The scaling is:

- DOVRIDE=0 Motion task speed is 0 %
- DOVRIDE=8192 Motion task speed is 100 %

ASCII -Command	DPRILIMIT
Syntax Transmit	DPRILIMIT [Data]
Syntax Receive	DPRILIMIT <Data>
Type	Variable rw
Format	Int16
DIM	-
Range	0 .. 3280
Default	3280
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	344

Data Type BUS/DPR	Int16
Weighting 10^3	

Last Change of this Object		1.7
EEPROM	No	

Short Description	Digital Limiting of the peak Current via DPR
-------------------	--

Description
 Digital Limiting of the peak current via DPR.

The scaling is:
 DPRILIMIT=3280 Current limited to DIPEAK
 DPRILIMIT=0 Current limited to 0 A

If the drive is switched on, DPRILIMIT is set to 3280 (no current limit). DPRILIMIT is not stored in EEPROM. So to enable the limit, write the data to the variable via fieldbus, RS232 or I/O command buffer.

To enable this function, DILIM has to be set to "1".

ASCII -Command	DPWM
Syntax Transmit	DPWM [Data]
Syntax Receive	DPWM <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.02
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	374

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Output Frequency of the Power Stage
-------------------	-------------------------------------

Description

The switching frequency of drive is most usually set to 8 kHz. For some special cases, the switching frequency can be increased to 16 kHz. Amplifier Type 601 ... 620 only.

The change of the switching frequency is only possible for the 230 power supply ($|VBUSBAL| = 0$).

The set parameter is the variable DPWM.

- DPWM = 0: 8kHz
- DPWM = 1: 16 kHz
- DPWM = 2: 8 kHz without power loss reduction (starting 4.32)

Starting with firmware 4.94 the 16kHz mode can also be used at 400 and 480V.
The restrictions (lower currents) are:

- 601 $|IPEAK|$ and $|ICONT|$ have the maximum rating
- 603-614 400V ($|VBUSBAL| = 1$): $|IPEAK| = 55\%$ peak current of the drive, $|ICONT| = 55\%$ of rated current of the drive
- 603-614 480V ($|VBUSBAL| = 2$): $|IPEAK| = 45\%$ peak current of the drive, $|ICONT| = 45\%$ of rated current of the drive
- 620 400V ($|VBUSBAL| = 1$): $|IPEAK|$ max = 26A and $|ICONT|$ max = 14A
- 480V ($|VBUSBAL| = 2$): $|IPEAK|$ max = 22A and $|ICONT|$ max = 12A

DPWM can be used on a S400 drive with FW ≥ 5.96 .

If SERCOS is used in combination with DPWM $\neq 0$ Error F32 can occur.

ASCII -Command	DR_TYPE
Syntax Transmit	DR_TYPE
Syntax Receive	DR_TYPE <Data>
Type	Variable ro
Format	Integer16
DIM	-
Range	1 .. 8
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.27
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	46

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	No	

Short Description	Gives the Output Stage Identification
-------------------	---------------------------------------

Description

This command can be used to read the drive type.

DR_TYPE	Drive
1	SR601
2	SR603
3	SR606
4	SR610
5	SR614
6	SR620
7	SR640
8	SR670
9	SR610/30
18	SR403
19	SR406

ASCII -Command	DREF
Syntax Transmit	DREF [Data]
Syntax Receive	DREF <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	44

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Direction for Homing
-------------------	----------------------

Description

The DREF parameter can be used to define the direction of motion for a homing operation and for positioning with a modulo-axes (POSCNFG|=2).

Zustand	Shortdescription	Description
DREF = 0	Negative movement	<p>A homing move is always started in the negative direction (- VREF).</p> <p>In case NREF = 4 and NSTOP limit switch is active (low level) the moving direction is positive.</p> <p>Using a modulo axes type a position is always searched in negative direction (is DIR =1, the target position is searched in the positive direction).</p>
DREF = 1	Positive movement	<p>A homing move is always started in the positive direction (+ VREF).</p> <p>In case NREF = 4 and PSTOP limit switch is active (low level) the moving direction is negative.</p> <p>Using a modulo axes type a position is always searched in positive direction (is DIR =1, the target position is searched in the negative direction).</p>
DREF = 2	Optimized movement	<p>The shortest distance between the starting position and the zero pulse of the resolver is executed in Homing Mode No. 5 (NREF =5). When a modulo axis type is used the drive always moves in the direction of the shortest distance.</p>
DREF = 4	negative movement without reversing	<p>>= version 6.43</p> <p>DREF =4 homing direction negativ (like DREF=0),no positive movement on reference switch or limit switch</p> <p>This setting is only usefull for NREF =1,3.</p>

DREF = 5

positive movement without reversing

>= version 6.43

DREF =5 homing direction positive (like DREF=0),no negative movement on reference switch or limit switch

This setting is only usefull for |NREF|=1,3.

ASCII -Command	DRIVE
Syntax Transmit	DRIVE [Data]
Syntax Receive	DRIVE <Data>
Type	r
Format	Integer32
DIM	-
Range	32Bit
Default	-
Opmode	All
Drive Status	-
Start Firmware	6.35
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.1
EEPROM	No

Short Description	type of the servo drive (drive family)
-------------------	--

Description
 The variable DRIVE returns the type of the servo drive (drive family).

ASCII -Command	DRVCNFG
Syntax Transmit	DRVCNFG [Data]
Syntax Receive	DRVCNFG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.03
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	370

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Configuration parameter for compatible behaviour
-------------------	--

Description

The configuration parameter offers the possibility to change/correct the behaviour of the servo amplifier via setting of configuration bits. A resetted bit results in the default or old behaviour of the drive.

The chosen bit combination has to be given as decimal number.

Example: If bit 2 and 5 are set the number is $2^2+2^5 = 4 + 32 = 36$

Bit	Description
Bit 0 (0x1)	= 1 CANopen bootup-message on emergency-identifier without data bytes = 0 CANopen bootup-message on emergency-identifier with eight data bytes
Bit 1 (0x2)	= 1 CANopen state machine is influenced by the internal state of the power stage, i.e. HW-enable or separate SW-Enable switches the state machine = 0 CANopen state machine is controlled mainly by CANopen control word
Bit 2 (0x4)	= 1 SDO length check. If SDO is send with a wrong data length, the answer will be an abort SDO telegram = 0 no SDO length check
Bit 3 (0x8)	= 1 PDO mapping and communication parameters, SDO parameters 6093, 6094 are saved with the other drive parameters to EEPROM after a SAVE command = 0 no saving of above CANopen specific parameters
Bit 4 (0x10)	= 1 reserved = 0 reserved

- Bit 5 (0x20) = 1 The bit "reference set" (see TRJSTAT) will have a delay of minimum the value of INPT (in ms) after starting a homing. This configuration can be used to guarantee a high/low and low/high flank when doing fast homing types like "Setting the reference" (NREF 0) or "homing within one revolution" (NREF 5), where the time can be very short, especially when the reference had been set before

- Bit 6 (0x40) = 0 No delay of the "reference set"-bit.
 = 1 No overvoltage surveillance of sine/cosine feedback voltage at X1 (S600) or X2 (S400)

- Bit 7 (0x80) = 0 Overvoltage surveillance of sine/cosine feedback voltage at X1 (S600) or X2 (S400)
 = 1 Overflow-surveillance of multi-turn-encoders switched off

- Bit 8 (0x100) = 0 Overflow-surveillance of multi-turn-encoders switched on
 A single turn absolute sine encoder is executed as a multi turn encoder.
 On power up the absolute position of the single turn absolute encoder is read and stored in |PFB|. Homing is not required. Firmware > 4.94 is required.

- Bit 9 (0x200) = 1 Default value for the maximum motor temperature is 1000 Ohm
 = 0 Default value for the maximum motor temperature is 291 Ohm

- Bit 10 (0x400) = 1 NMT command 0x82 does the same as NMT command 0x2
 = 0 NMT command 0x82 works correctly (ver >)

- Bit 11 (0x800) = 1 The PDO-mapping is deleted only by writing 0 to subindex 0 of the mapping SDO. Writing the right number of mapped data is accepted, otherwise abort SDO reaction.
 = 0 The PDO-mapping is deleted by writing any value to subindex 0 of the mapping SDO.

- Bit 12 (0x1000) = 1 Scaling of velocity in profile velocity mode (CANopen) in rpm
 = 0 Scaling of velocity in profile velocity mode (CANopen) according to SDO 6094 sub 1/2

- Bit 13 (0x2000) = 1 Configuration for following tasks: At start of the following task it's checked if the planed moving distance is smaller than the deceleration distance. In case the result is positive the deceleration ramp of the active motion task is used.
- = 0 The following task is always started. The braking ramp can be very fast.
- Bit 14 (0x4000) = 1 The CANopen ramp parameters SDO 6083 / 6084 are checked against their limits. If the values are outside, an abort SDO will be send, but the limits will be set as values.
- = 0 If the values are outside the limits, an abort SDO will be generated and the values won't be changed
- Bit 15 (0x8000) = 1 Endat-position will be read only once
- = 0 Endat-position will be read multiple times (up to 5). THE absolute position will be taken only if value is equal all the time
- Bit 16 (0x10000) = 1 With following tasks the acceleration ramp of it will be taken always
- = 0 One of the following ramps is taken:
 - Is the velocity of the following task greater and in the same direction, the acceleration ramp of the following task is taken
 - Is the velocity of the following task less and in the same direction, the braking ramp of the former task is taken
 - Is the velocity of the following task is in the opposite direction, the braking ramp of the first is taken and the acceleration ramp of the following task
- Bit 17 (0x20000) Reserved
- Bit 18 (0x40000) = 1 The priority of the RS232-channel is never increased above the CAN-priority
- = 0 The priority of the RS232-channel is increased above the CAN-priority for some functions like scope-functions
- Bit 19 (0x80000) = 1 The external position PFB0 won't be reset at end of homing
- = 0 The external position PFB0 will be set to ROFFS at end of homing

- Bit 20 (0x100000) = 1 Some changes according to CANopen-profile DSP 402:
 - bit 11 of CANopen status word (movement limited) is supported with the following warnings: nodeguarding, SW- or HW-limit switches, "no reference point set"
 - bootup-message on nodeguard-identifier (0x700 + CAN-node-address) - nodeguarding-surveillance independent of powerstage-enable, on nodeguarding-error a nodeguarding- emergency-object is generated (error code 8130)
 - SPSET-function expanded (with negative manufacturer specific values)

= 0 old behaviour
- Bit 21 (0x200000) = 1 no checksum-calculation with EQI-feedback-systems

= 0 checksum-calculation with EQI-feedback-systems
- Bit 22 (0x400000) = 1 no encoder-pulses with disabled power stage

= 0 encoder-pulses also with disabled power stage
- Bit 23 (0x800000) = 1 special function for SW-switches SWE5/SWE5N: Warning n08 is given when trying to start a motion task beyond the position limits. If the position is touched by movements within the range, no warning message is sent.

= 0 default function for SWE5/SWE5N
- Bit 24 (0x1000000) = 1 If bit 13 is set, the drive moves back to its target position

= 0 No return
- Bit 25 (0x2000000) = 1 If Tx-PDO 1 is configured as event-triggered, it is checked every 2 milliseconds.

= 0 If Tx-PDO 1 is configured as event-triggered, it is checked every 4 milliseconds.
- Bit 26 (0x4000000) = 1 Fixed minimum response time of 3 ms to a new setpoint in profile position mode (DSP 402)

= 0 Variable response time (depends on drive load, greater jitter time in response time)
- Bit 27 (0x8000000) =1 Bit 8 of DS 402 status word (toggle bit) changes after every start of a motion task.

= 0 Bit 8 of DS 402 status word (toggle bit) changes when the motion task trajectory is at its target position.
- Bit 28 (0x10000000) = 1 PFBO is resetted with the homing move (to ROFFS)

= 0 PFBO is not resetted during the homing move

- Bit 29 (0x20000000) = 1 Reading of the absolute EnDat /
Hiperface position at disabled power stage
- = 0 Reading of the absolute EnDat /
Hiperface position only at power-on
- Bit 30 (0x40000000) = 1 Fault message F04 at position
difference (if bit 29 = 1)
- = 0 If there is a position difference, it will
be corrected (if bit 29 = 1)
- Bit 31 (0x80000000) = 1 reserved
- = 0 reserved

ASCII -Command	DRVCNFG2
Syntax Transmit	DRVCNFG2 [Data]
Syntax Receive	DRVCNFG2 <Data>
Type	rw
Format	Integer32
DIM	-
Range	
Default	0
Opmode	All
Drive Status	Disable+Reset (Coldstart)
Start Firmware	6.35
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	484

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.3
EEPROM	Yes

Short Description

Description

Bit	Description
Bit 0	<p>0 = The motion task acts independent of the general motion task. It acts like relative type.</p> <p>1= On overlaid motion tasks the executed motion profile is a combination of both motions. The compensating motion task acts like an absolute one.</p>
Bit 1	<p>0 = Latchfunction at digital input 1 is always activ</p> <p>1 = Latchfunction at digital input 1 has to be enabled by the controller</p>
Bit 2	<p>0 = Latchfunction at digital input 1 is always activ</p> <p>1 = Latchfunction at digital input 1 has to be enabled by the controller</p>
Bit 3	<p>1 = current feed forward from external slopt card (DPR) is active.</p> <p>0 = current feed forward from external slopt card (DPR) is switched off..</p>
Bit 4	<p>= 1 convert the latch-position (INxMODE=26) to the modulo range (SRND and ERNND)</p> <p>see also POSCNFG </p> <p>= 0 no conversion of thje latched position to the modulo range</p>

Bit 5		= 1 In case of Quickstop via CAN the OPMODE is switched back to the original one after the stop procedure
		= 0 In case of quickstop via CAN the OPMODE will be kept.
Bit 6	Off	
Bit 7		= 1 The 32-Bit-position for the external slot-card is interpolated wird zum Zeitpunkt des Slot-Interrupts interpoliert
		= 0 Die 32-Bit-Position für die externe Slot-Karte wurde beim letzten 250 µsec Tick ermittelt.
Bit 8		= 1 The ROFFS – value from the feedback is used
		= 0 The ROFFS – value saved in the drive EEPROM is used
Bit 9		AUTO-CLR HIPERFACE
		= 1 If a missing or wrong DHR format is detected in case of power on the memory area will be formatted and the default data saved. Then a COLDSTART is executed.
		IMPORTANT !
		If the default data don't fit to the motor adjustment it can speed up uncontrolled. MPHASE has to be checked and save to the feedback memory via HSAVE
		= 0 AUTO-CLR Function is switched off
Bit 10	Off	
Bit 11	Off	
Bit 12	Off	
Bit 13	Off	
Bit 14	Off	
Bit 15	No Drift	FW > 6.46
		Drive operates in OPMODE 4
		=0 No drift function on master slave applications inactive
		=1 No drift function is active
		Warning ! In case of emergency stop situations(hardware or software limit switch) reset on enabled drives the the motor can speed up automatic to maximum.
Bit 16	Off	
Bit 17	Off	
Bit 18	Off	
Bit 19	Off	
Bit 20	Off	
Bit 21	Off	
Bit 22	Off	
Bit 23	Off	
Bit 24	Off	
Bit 25	Off	

Bit 26	Off	
Bit 27	Off	
Bit 28	Off	
Bit 29	Off	
Bit 30	Off	
Bit 31	external RS232 Communication on S400 slaves	Bit31 = 0 external RS232-Communication on S400-slaves is activ Bit31 = 1 external RS232-communication on S400-slaves is off. ASCII-commands „K“ and „S“ are without effect. The function can be used to eliminate emc problems.

ASCII -Command	DRVSTAT
Syntax Transmit	DRVSTAT
Syntax Receive	DRVSTAT <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	0 .. 0xFFFFFFFF
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.77
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	45

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	No

Short Description	internal Status information
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Description

The DRVSTAT command returns the internal status information in the form of a bit-variable.

Bit/Display/Level	Bit combination	Description
0 / n01 / 0	0x00000001	=1 I2T threshold exceed. Is high, if I2T is greater than the adjusted threshold for I2TLIM , otherwise low.
1 / n02 / 0	0x00000002	=1 Regen message. Is high, if the actual regen power exceeds the adjusted threshold PBALMAX , otherwise low.
2 / n03 / 1	0x00000004	=1 following error. Is set, if the distance between the actual position and the target position of the trajectory generator is greater than the contouring error window PEMAX . Is cleared by the command CLRFAULT or by an digital input with INxMODE =14.
<p>Note:</p> <p>Running the position modes (OPMODE = 4 or 8) a position following error will cause "n03".</p>		
<p>If you run the drive with an external trajectory, i.e. OPMODE = 5 or 6 a "Contouring Error" "F03" will occur and means that the step caused by the trajectory causes a speed above VLIM or VLIMN.</p>		
3 / n04 / 1	0x00000008	=1 Node guarding (watch dog). Is set, if the Bus (PROFIBUS or CAN) or the Slotcard has no communication to the master for the adjusted time EXTWD . Is cleared by the command CLRFAULT or by an digital input with INxMODE =14.
4 / n05 / 0	0x00000010	=1 Line phase missing. Is high, if one or all of the three input line phase are lost, otherwise low.

5 / n06 / 1	0x00000020	=1 Software limit switch 1 (SWE1) underrun. Is set if: - the position is lower than SWE1 - a motion task is started which has a target position lower than SWE1 . At the same time the bit "faulty motion task" is set. the bit is cleared if: - the actual position overruns SWE1 and a positive velocity is given - a motion task is started which has a target position greater than SWE1 .
6 / n07 / 1	0x00000040	=1 Software limit switch 2 (SWE2) overrun. Is set if: - the position is higher than SWE2 - a motion task is started which has a target position higher than SWE2 . At the same time the bit "faulty motion task" is set. the bit is cleared if: - the actual position underruns SWE2 and a negative velocity is given - a motion task is started which has a target position smaller than SWE2 .
7 / n08 / 0	0x00000080	=1 Faulty motion task was started Is set, if a faulty motion task (wrong checksum) is started. Is cleared, if a valid motion task is started.
8 / n09 / 0	0x00000100	=1 No reference point. Is set, is a motion task is started without starting a reference move before. Is cleared, if a reference move is started.
9 / n10 / 1	0x00000200	= 1 PSTOP active. Is high, if the hardware limit switch PSTOP is active, otherwise low.
10 / n11 / 1	0x00000400	= 1 NSTOP active. Is high, if the hardware limit switch NSTOP is active, otherwise low.
11 / n12 / 0	0x00000800	=1 Default motor data loaded. Is set, if the motor number stored in the EEPROM of the drive is not the same as the motor number stored in the feedback system (EnDAT or Hiperface). By saving the drive parameter (SAVE) and restart the drive, the warning disappears.
12 / n13 / 1	0x00001000	=1 Slot warning (I/-expansion board). Is high, if the external 24V supply of the I/O expansion board is missing, otherwise low.
13 / n14 / 0	0x00002000	=1 Scanning for MPHASE (FBTYPE =7) Is set while start-up of the drive and is cleared after the drive was enabled and MPHASE was determined.
14 / n15 / 0	0x00004000	=1 Faulty VCT entry was selected. Is set, if INxMODE =35 is selected, and a faulty VCT entry is started.
15 / n16 / 0	0x00008000	Is active, if one or more of the warnings n17...n31 are active.
16	0x00010000	=1 Motion task active. Is set, if a motion task is started (motion task, jog or homing move). Is cleared, if the action is finished or a STOP - command is executed.
17	0x00020000	=1 Reference point is set. Is set, if the homing move was done or a absolute encoder feedback device is used. Is cleared if a homing move is started.

18	0x00040000	=1 Home switch. Is high, if the homing switch is closed, otherwise low.
19	0x00080000	=1 In-Position. Is high, if the distance between the target position and the actual position is smaller than PEINPOS , otherwise low. When several motion tasks are tied together, only the last motion task enables this bit.
20	0x00100000	=1 Position latch occurred (positive edge). Is set, if a positive edge at the latch input (Input2 with IN2MODE =26) was detected. Is cleared, if the latched position was read (LATCH16 / LATCH32).
21	0x00200000	=1 Position register 0. Is high, if the configured condition (SWCNFG2 , SWE0 , SWE0N) is true, otherwise low (See SWCNFG2).
22	0x00400000	=1 Position register 1. Is high, if the configured condition (SWCNFG , SWE1 , SWE1N) is true, otherwise low (See SWCNFG).
23	0x00800000	=1 Position register 2. Is high, if the configured condition (SWCNFG , SWE2 , SWE2N) is true, otherwise low (See SWCNFG).
24	0x01000000	=1 Position register 3. Is high, if the configured condition (SWCNFG , SWE3 , SWE3N) is true, otherwise low (See SWCNFG).
25	0x02000000	=1 Position register 4. Is high, if the configured condition (SWCNFG , SWE4 , SWE4N) is true, otherwise low (See SWCNFG).
26	0x04000000	=1 Initialization phase finished. Is set, if the initialization phase of the drive is finished (takes about 15s).
27	0x08000000	=1 Position register 5. Is high, if the configured condition (SWCNFG2 , SWE5 , SWE5N) is true, otherwise low (See SWCNFG2).
28	0x10000000	=1 Motor stand still message. Is high, if the actual motor velocity is lower than the threshold VEL0 , otherwise low.
29	0x20000000	=1 Safety relays selected. Is high, if the safety relay of the option -AS- is switched on, otherwise low.
30	0x40000000	= Output stage enabled. Is high, if the soft- and the hardware enable is present, otherwise low.
31	0x80000000	=1 Drive has an error state. Is set, if the drive has a fault (output stage is disabled, error number is displayed). The command ERRCODE gives the error in plain text. The bit is cleared, if the drive is reset or the command CLRFAULT is send.

ASCII -Command	DUMP
Syntax Transmit	DUMP
Syntax Receive	DUMP <Data>
Type	Multi-line Return Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	47

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	List All EEPROM Variables with Values
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Description

This command produces a list of all the parameters that are stored in the EEPROM, together with their present values. All the amplifier-specific parameters (e.g. A/D-offset values) start with a “;”(semicolon).

ASCII -Command	DUMPDIF
Syntax Transmit	DUMPDIF
Syntax Receive	DUMPDIF <Data>
Type	Multi-line Return Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.9
EEPROM	-

Short Description	List of Parameter unequal default setting
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Description

The command DUMPDIF displays a list of parameter, which have not the default value, stored in the firmware. In contrast to the command |DIFVAR|, DUMPDIF gives the list in the right order and format. The output of this command, gives the possibility to set the servo drive in combination with the default settings. The order of the commands is in that way, that interdependances are taken into account.

If |RSTVAR| and then the stored DUMPDIF - list is send to the drive, the full setting of the drive is complete.

ASCII -Command	EMRGTO
Syntax Transmit	EMRGTO [Data]
Syntax Receive	EMRGTO <Data>
Type	rw
Format	Integer16
DIM	-
Range	10 ... 32767
Default	5000
Opmode	All
Drive Status	-
Start Firmware	5.70
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	476

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	
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Description

EMRGTO defines the emergency time out for the |ACTFAULT|=1 and |STOPMODE|=1 operations.

After the ACTFAULT (drive error) or STOPMODE (power stage enable) conditions the drive tries to reduce the velocity to zero. If this fails, the power stage will be disabled after the EMRGTO time at the latest.

ASCII -Command	EN
Syntax Transmit	EN
Syntax Receive	EN
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Amplifier

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	48

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Software-Enable
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Description

The EN command sets the software enable for the output stage.
 If the software enable and the hardware enable are set and no fault is present (the BTB contact is closed), then the output stage is enabled.
 If the MAINS BTB function is activated (|OxMODE|=3), then the output stage will only be enabled when the supply power has been switched on and the charging circuit has charged up the DC bus. If the supply power is removed from an enabled instrument, then it remains enabled until the DC bus voltage has fallen below the undervoltage limit (VBUSMIN).

ASCII -Command	ENCCAPT
Syntax Transmit	ENCCAPT [Data]
Syntax Receive	ENCCAPT <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	49

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	no function
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Description

This command has been implemented for compatibility reasons.

ASCII -Command	ENCIN
Syntax Transmit	ENCIN [Data]
Syntax Receive	ENCIN <Data>
Type	Variable rw
Format	Integer32
DIM	Pulse/Umdr.
Range	256,512,... ,65536
Default	4096
Opmode	4
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Gearing

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	50

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Encoder Pulse Input
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Description

In master/slave applications (|OPMODE|=4) this parameter can be used to set the number of EEO (digital encoder) pulses per turn of the encoder. For pulse numbers that cannot be represented as a binary power, a “nearby” pulse number must be entered. The difference in the resolution can then be adjusted by using the gearing factor, e.g.

Number of pulses = 500
 |ENCIN|=512
 |GEARI|=500
 |GEARO|=512

ASCII -Command	ENCLINES
Syntax Transmit	ENCLINES [Data]
Syntax Receive	ENCLINES <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0 .. 32767, 32768 (5.41), 65535 (6.00)
Default	1000
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.71
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	51

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	SinCos Encoder Resolution
-------------------	---------------------------

Description

ENCLINES sets the resolution (number of lines) of the sine encoder input channel (connector X1 S600 / X2 S400). In case of rotary Motors it is the number of lines per revolution, in case of linear motors it is the number of lines per pole pitch. With an ENDAT or Hiperface Encoder ENCLINES is read automatically during the initialization process.

Starting with firmware 5.41, the range of ENCLINES is extended to 32767.

Starting with firmware 6.00, the range of ENCLINES is extended to 65535.

In general the input frequency is limited with 250KHz electrical frequency. So e.g for a linear encoder with 4mm per sinwave the speed is limited by $250\text{KHz} \cdot 4\text{mm} = 1\text{m/s}$.

Starting with FW 5.80 the internal position resolution is increased. For older FW versions the resolution was limited to 20 Bits, if ENCLINES is unequal to 2x. Now since FW 5.80, if ENCLINES could be divide by 2 (4,8 and 16) without rest and the division is greater then 512 the internal resolution in the position loop increase to 21 (22, 23 and 24) Bit. Therefore it could make sense to use a higher resolution in the position loop with e.g. |PRBASE| 24.

ASCII -Command	ENCMODE
Syntax Transmit	ENCMODE [Data]
Syntax Receive	ENCMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3
Default	1
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3011
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	52

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Selection of Encoder Emulation
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Description

Selection of the digital encoder channel (connector S 600 X5 / S 400 X4)

ENCMODE=0 input

ENCMODE=1 EEO (digital encoder) output
 output resolutions = |ENCOUT| per motor revolution (rotary motor).
 output resolutions = |ENCOUT| per motor pole pitch (linear motor).

ENCMODE=2 SSI output also used for SSI input
 see also |GEARMODE| = 7

ENCMODE=3 EEO (digital encoder) interpolation mode
 This mode is available with high resolution feedback device (|FBTYPE|>0).
 output resolutions = |ENCOUT| * |ENCLINES| lines per motor rev. (rotary motor).
 output resolutions = |ENCOUT| * |ENCLINES| per motor pole pitch (linear motor).
 Following settings are possible: 4,8,16,32,64,128

If |REFMODE| = 5 the zero signal from the SinCos - Feedback (data pins) is transmitted to the digital encoder output.

ASCII -Command	ENCOUT
Syntax Transmit	ENCOUT [Data]
Syntax Receive	ENCOUT <Data>
Type	Variable rw
Format	Integer32
DIM	CPR
Range	see Description
Default	1024
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	53

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Resolution Encoder Emulation EEO (ROD)
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Description

The resolution of the digital encoder output emulation (ROD)(connector X5 S 600 / X4 S 400)

ENCOUT defines the number of lines that are given out by the EEO (digital encoder) interface for one turn of a rotary motor or one pole pitch for a linear motor.

For resolver feedback (|FBTYPE|=0) all lines per rev (or pole pitch) from 256 to 4096 with all integer numbers between are possible (256,257,258..... 4095,4096)

For sine encoder feedback (|FBTYPE|=2,4,7,11) all lines per rev (or pole pitch) from 256 to 524288, but only degrees of 2 (256, 512, 1024, .. , 262144, 524288).

Starting with firmware 4.94 all integer numbers between 256 and 4096 are also available (256,257,258..... 4095,4096)

Additional values have been added in version 4.32.

Starting with firmware 4.94 all integer numbers between 256 and 4096 are enabled also for |FBTYPE|= 2 and 4.

If multispeed resolver are used there is more than one zero pulse within 360°. There is a zero pulse to each resolver pole pair.
Example. 6 pole resolver >> 3 zero pulses

See |REFMODE| for information about the zero pulse signal.

ASCII -Command	ENCZERO
Syntax Transmit	ENCZERO [Data]
Syntax Receive	ENCZERO <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0 .. ENCOUT-1
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	55

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Zero Pulse Offset EEO (ROD)
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Description

The ENCZERO command can be used to shift the output of the EEO (digital encoder) zero pulse over the range of one turn. The shift is made in the clockwise direction, e.g.

|ENCOUT| 1024

ENCZERO 256

The zero pulse is given out at the 90° position.

This is also effective for SSI outputs.

ASCII -Command	ENGAGE
Syntax Transmit	ENGAGE [Data]
Syntax Receive	ENGAGE <Data>
Type	rw
Format	Integer8
DIM	
Range	0 ... 8
Default	0
Opmode	4
Drive Status	Disable
Start Firmware	6.42
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	461

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.3
EEPROM	Yes

Short Description	Synchronisation mode
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Description

ASCII -Command	ERND
Syntax Transmit	ERND [Data]
Syntax Receive	ERND <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	2^31-1
Opmode	-
Drive Status	-
Start Firmware	2.45
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	103
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	312

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	End position of modulo axes
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Description

The ERND parameter is used to define the end of the range of movement for a modulo axes (|POSCNFG|=2). The start of the range can be set by the |SRND| command. All positioning operations are made in the positioning range <|SRND|...ERND-1>. The entry for ERND is made in SI units (taking account of |PGEARI|, |PGEARO|).

The data are used after a reset of the drive.

ASCII -Command	ERRCODE
Syntax Transmit	ERRCODE
Syntax Receive	ERRCODE <Data>
Type	Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	129
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	861

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Activated Fault Messages
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Description

The ERRCODE command returns the clear text information about any existing faults.

ASCII -Command	ERRCODE *
Syntax Transmit	ERRCODE *
Syntax Receive	ERRCODE <Data>
Type	Command
Format	Integer32
DIM	-
Range	0 .. 0xFFFFFFFF
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Output Error Register
-------------------	-----------------------

Description

The ERRCODE* command returns the internal status information in the form of a bit-variable. A bit is set for as long as the corresponding error/fault is detected. The bit is deleted by the hardware reset of the amplifier. Faults that are designated by the SW label can also be deleted by a software reset (function |CLRFAULT| – clear fault).

Level gives an information about the error handling in the drive.

Level 2:

A fault causes an emergency stop. The stop of the motor is done in velocity control using the emergency stop ramp (|DECSTOP|). When the motor reaches the zero velocity level (|VEL0|) (limited by max. 5 sec), the power stage is disabled. The Ready-to-Operate relay is switched off. The drive has to be reset before it can be enabled again. The fault is displayed.

Level 3:

(starting with firmware 4.01)

A fault causes an emergency stop. The stop of the motor is done without feedback device (sensorless). When the motor has stopped, the power stage is disabled. The Ready-to-Operate relay is switched off. The drive has to be reset before it can be enabled again. The fault is displayed.

Level 4:

A fault causes an directly disable of the power stage. The motor has no torque (coast). The Ready-to-Operate relay is switched off. The drive has to be reset before it can be enabled again. The fault is displayed.

Faults, that have different levels (2/3 and 4), the behavior is controlled by |ACTFAULT| and |MBRAKE| or |STOPMODE|

|ACTFAULT|=1 or |MBRAKE|=1 LEVEL 2 or 3 (Default-Setting)

|ACTFAULT|=0 and |MBRAKE|=0 LEVEL 4

Bit/Displ./Reset/Level	Bit	Description
00/F01/SW/2,4	0x00000001	=1 Heatsink overtemperature is set, if the heatsink temperature TEMPH exceeds the max allowed threshold MAXTEMPH.
01/F02/SW/2,4	0x00000002	=1 DC-link overvoltage Is set, if the DC-link voltage exceeds the max threshold selected by VBUSBAL .

02/F03/SW/2	0x00000004	<p>=1 Contouring error of the external trajectory (OPMODE =6/SERCOS or =5 external trajectory) Is set, if the target speed which is given by the external trajectory is higher than VLIM / VLIMN .</p> <p>Note:</p> <p>"F03" will only occur if you run the drive with an external trajectory, i.e. OPMODE = 5 or 6. It's called "Contouring Error" and means that the step caused by the trajectory causes a speed above VLIM or VLIMN. Running the other position modes (OPMODE = 4 or 8) a position following error will cause "n03". >> DRVSTAT </p>
03/F04/HW/3,4	0x00000008	<p>=1 Feedback error Is set, if a feedback error was detected.</p>
04/F05/SW/2,4	0x00000010	<p>The drive decelerates by current controller. =1 Undervoltage protection Is set, if the DC-link voltage is lower than VBUSMIN (only if the drive is enabled).</p>
05/F06/HW/2,4	0x00000020	<p>=1 Motor overtemperature is set, if the heatsink temperature TEMPM exceeds the max allowed threshold MAXTEMPM .</p>
06/F07/HW/2,4	0x00000040	<p>=1 if the internal electronic supply is faulty.</p>
07/F08/SW/3,4	0x00000080	<p>=1 Overspeed Is set, if the velocity of the motor exceeds the overspeed threshold (VOSPD).</p>
08/F09/HW/4	0x00000100	<p>The drive decelerates by current controller. =1 EEPROM Checksum error Is set, if the data read/written from the EEPROM is not valid. There are two possibilities, that can cause this error. First is a defect EEPROM and the second is a wrong checksum in the EEPROM. In the second case, a SAVE can solve the problem.</p>
09/F10/HW	0x00000200	<p>Reserved</p>
10/F11/HW/2,4	0x00000400	<p>=1 Brake error Is set, if the brake switch detects a fault (e.g. Brake is selected, but no brake is connected).</p>
11/F12/HW	0x00000800	<p>=1 Missing motor connection. This error occurs, if a motor connection (not feedback device) is missing. The error can be disabled by CPHASE = 0.</p>
12/F13/SW/2,4	0x00001000	<p>=1 Ambient overtemperature is set, if the ambient temperature TEMPE exceeds the max allowed threshold MAXTEMPE .</p>
13/F14/HW/2,4	0x00002000	<p>=1 Output stage fault This fault can be caused by: Earth short circuit of the motor Short circuit of the motor phases Short circuit of the regen.</p>
14/F15/SW/2,4	0x00004000	<p>=1 I²tmax override Is set, if I²t exceeds 105% of ICONT (FOLDMODE =2).</p>
15/F16/SW/2,4	0x00008000	<p>=1 Mains BTB</p>
16/F17/HW/2,4	0x00010000	<p>=1 A/D converter error</p>
17/F18/HW/2,4	0x00020000	<p>=1 Regen error destroyed regen transistor regen resistor extern selected, but the internal one is used.</p>
18/F19/SW/2,4	0x00040000	<p>=1 line phase missing (PMODE =2)</p>

19/F20/HW/2,4	0x00080000	<p>=1 Slot error Error depends on the type of Slot board: 1. I/O expansion board The error is caused by a missing 24V supply at the I/O board. 2. DPR Slot board (Beckhoff, L&B, Sigmatek) The error is generated, if the DPR interrupt fails to appear. The watch-dog time can be selected by EXTWD . 3. PROFIBUS Error in the initialization time.</p>
20/F21/HW/2,4	0x00100000	<p>=1 PROFIBUS handling error If the OPMODE is changed by another communication channel than PROFIBUS, when the drive is under control of the PROFIBUS, this error is generated. Exception: Working mode -126 for PROFIBUS. This is the safe opmode when the drive is switched on.</p>
21/F22/HW/2,4	0x00200000	<p>=1 Earth short circuit The earth short circuit supervisor of the 40/70 A units.</p>
22/F23/HW/2,4	0x00400000	<p>=1 CANopen Bus-Off Fault in CAN communication. The communication fault BUSOFF is generated by layer 2 (CAN controller). This fault can have several reasons. Some examples are: Drive tries to establish communication, but there is no other node. CAN nodes have different baud rates, Bus cable defect, reflections because of missing or wrong bus terminations, etc.</p> <p>A BUSOFF is displayed by the drive, if another CAN node is connected and minimum one errorfree object is generated. If the BUSOFF is generated and the drive is moving the motor, the motor is stopped using the emergency ramp and then the drive is disabled.</p>
23/F24/SW/2,4	0x00800000	<p>Warning generates a error message (defined by WMASK)</p>
24/F25/HW/3,4	0x01000000	<p>Commutation Error (Run-away of the motor) The drive decelerates by current controller.</p>
25/F26/SW/2,4	0x02000000	<p>See also VCOMM Hardware limit switch error at homing move (defined by REFLS)</p>
26/F27/HW/4	0x04000000	<p>=1 "-AS-Option" error If the ENABLE signal of the drive is high and the -AS-option is activated, this error is generated (starting Version 3.44).</p>
27/F28/SW/2	0x08000000	<p>=1 error "external trajectory" is generated, if an external position profile generator creates a step, that exceeds the maximum value.</p> <p>=1 EtherCAT: The error message "Synchronisation" is generated if the synchronisation during the phase startup process is not successful or if the controller EtherCAT status „Operational“ is running out of synchronisation.</p>

28/F29/SW/2	0x10000000	<p>=1 Slot card error (example SERCOS)</p> <p>is generated if the drive is running out of communication or if a software enable is set via slot card without hardware enable set.</p> <p>=1 DPR-Card (for example EtherCAT) is generated, if the communicationphase on an enabled drive is switched to lower levels or a not supported mapping for cyclic data is select or the drive gets a SW disable via slotcard without set HW enable</p>
29/F30/SW	0x20000000	Emergency stop time out
30/F31/SW	0x40000000	<p>=1 MACRO MACRO program error</p>
31/F32/HW/4	0x80000000	<p>=1 System error Is set, if an error occurred in the system check of the initialization phase or a watch-dog error in the working phase. Following reasons are possible:</p> <ol style="list-style-type: none"> 1. Wrong program data in the FLASH (e.g. interrupted program download) 2. Macro error (the macros could not be compiled) 3. Software watch-dog activated 4. Error with the EEPROM (read or write). 5. FPGA error (FPGA could not be loaded correctly) 6. Macro RAM (the compilation of the MACROs detect too less RAM) <p>When the drive is switched on, a detailed message is send vis RS232.</p> <p>In case of F32 error try a SAVE command. When this procedure is finnished reset the drive.</p>

ASCII -Command	ESPEED
Syntax Transmit	-
Syntax Receive	ESPEED <Data>
Type	Variable r
Format	Float
DIM	rpm
Range	0 .. 16000
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.02
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	373

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.4
EEPROM	-

Short Description	Maximum velocity corresponding to the Feedback Type
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Description

The command ESPEED gives the maximum velocity of the motor corresponding to the selected feedback type (FBTYPE).

ASCII -Command	EXTBRAKE
Syntax Transmit	EXTBRAKE [Data]
Syntax Receive	EXTBRAKE <Data>
Type	rw
Format	Integer8
DIM	
Range	
Default	0
Opmode	All
Drive Status	Disable+Reset (Coldstart)
Start Firmware	6.55
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	860

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.5
EEPROM	Yes

Short Description	
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Description
 With EXTBRAKE=1 a software brake control is switched on.
 The brake control is linked to the internal macro variable EXTBRAKEC and can be used by fieldbus or ASCII channel in the case, that the power stage is disabled.

EXTBRAKEC=1 brake open
 EXTBRAKEC=0 brake closed

ASCII -Command	EXTLATCH
Syntax Transmit	EXTLATCH [Data]
Syntax Receive	EXTLATCH <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 2
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.61
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3018
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	385

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Selection of the Source of the Latch Inputs
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Description

The configuration variable EXTLATCH defines the source for the position information using the Latch functions of the digital inputs (|IN1MODE|=26 and/or |IN2MODE|=26). If more than one inputs (1 or 2) are configured as Latch input, EXTLATCH defines the different sources. If only one input is configured as Latch input, both different sources are stored at the same time.

Zustand	Latch with Input 1	Latch with Input 2
EXTLATCH=0	Resolver/EnDAT/Hiperface depends on FBTYPE	Resolver/EnDAT/Hiperface depends on FBTYPE
EXTLATCH=1	external encoder	Resolver/EnDAT/Hiperface depends on FBTYPE
EXTLATCH=2	external encoder	external encoder

ASCII -Command	EXTMUL
Syntax Transmit	EXTMUL [Data]
Syntax Receive	EXTMUL <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-32768 .. 32767
Default	256
Opmode	All
Drive Status	-
Start Firmware	1.62
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	257
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	56

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	ext. Encoder multiplier
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Description
 The EXTMUL parameter can be used to adjust the resolution of the external digital encoder (ROD) to match the resolution of the internal position control loop. (connector X5 S 600 / X4 S 400) EXTMUL can be calculated according to the following formula:

$$EXTMUL = 2^{|PRBASE|} / (NN \times 4) \quad \text{NN is the resolution of the external encoder, in pulses/turn}$$

ASCII -Command	EXTPOS
Syntax Transmit	EXTPOS [Data]
Syntax Receive	EXTPOS <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3, 4
Default	4
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.62
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	57

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Position Feedback + Control Type
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Description

The EXTPOS command defines the feedback source for the drive position control loop. Also the type of position control (P or PI) is selected.

Parameters for the PI position / P speed control

The PI position control can be set up by using the following parameters:

- |GP|: proportional gain (position)
- |GPTN|: rest time (position), integral-action time
- |GPFV|: feed-forward (position)
- |GPV|: proportional gain (speed)

Parameters for the P position / PI speed control

The P position control can be set up by using the following parameters:

- |GP|: proportional gain (position)
- |GPFV|: feed-forward (position)

The usual velocity-control loop parameters can be used for the following speed control loop.

See also |VEXTRES|

Zustand	Position Control used/ Type of Position Controller	Reading of an external Encoder (PFB0)
EXTPOS=0	Feedback system select by FBTYPE , PI-type Position Controller, P-type Speed Controller	-
EXTPOS=1	secondary feedback source selected by GEARMODE , P-type Position Controller, PI-type Speed Controller FBTYPE defines the commutation and speed feedback The position signal comes from the secondary feedback source.	Yes
EXTPOS=2	Feedback system select by FBTYPE , PI-type Position Controller, P-type Speed Controller	Yes -selected by GEARMODE

REV 2.3:
The values |ACC| and |DEC| should be set to minimum to prevent motor oscillation.

EXTPOS=3	Feedback system select by FBTYPE , P-type Position Controller, PI-type Speed Controller	Yes -selected by GEARMODE
	REV 2.3: The values ACC and DEC should be set to minimum to prevent motor oscillation.	
EXTPOS=4	Feedback system select by FBTYPE , P-type Position Controller, PI-type Speed Controller	-
	REV 2.3: The values ACC and DEC should be set to minimum to prevent motor oscillation.	

ASCII -Command	EXTWD
Syntax Transmit	EXTWD [Data]
Syntax Receive	EXTWD <Data>
Type	Variable rw
Format	Integer32
DIM	Milliseconds
Range	1 .. 32000
Default	100
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	58

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	external watch dog (Fieldbus)
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Description

The EXTWD parameter can be used to define the monitoring time (watchdog timer) for the fieldbus/slot communication. The monitoring is only active if the EXTWD parameter has a value greater than zero (EXTWD=0 means monitoring is switched off) and the output stage is enabled. If the preset time runs out, without the timer being retriggered, then the warning n04 (threshold monitoring) is generated and the drive is stopped. The amplifier remains ready for operation, and the output stage is still enabled. This warning must be cancelled (function |CLRFAULT| or |INxMODE|=14) before a new motion command (command) can be accepted.

For DeviceNet, set to 1 to enable n04 and 0 to disable. (Watchdog time is set by DeviceNet controller.)

ASCII -Command	FB_LTF
Syntax Transmit	FB_LTF [Data]
Syntax Receive	FB_LTF <Data>
Type	rw
Format	Insigned8
DIM	-
Range	0 ... 255
Default	
Opmode	All
Drive Status	
Start Firmware	5.70
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Insigned8
Weighting 10 ³	

Last Change of this Object	2.0
EEPROM	

Short Description	
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Description

FB_LTF sets the CANopen specific Life Time Factor. It can be stored to the EEPROM, if bit 3 of the parameter |DRVCNFG| is set to 1.

The product of FB_LTF and |FB_TGUARD| gives the guarding time for life time guarding of the CAN bus.

ASCII -Command	FB_TGUARD
Syntax Transmit	FB_TGUARD [Data]
Syntax Receive	FB_TGUARD <Data>
Type	rw
Format	Unsigned16
DIM	ms
Range	0 ... 65535
Default	0
Opmode	All
Drive Status	
Start Firmware	
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Unsigned16
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	
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Description

FB_TGUARD sets the CANopen network communication watchdog time. It can be stored to the EEPROM, if bit 3 of the parameter |DRVCNFG| is set to 1.

The product of FB_TGUARD and |FB_LTF| gives the guarding time for life time guarding of the CAN bus.

ASCII -Command	FB2RES
Syntax Transmit	FB2RES [Data]
Syntax Receive	FB2RES <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	Long Int
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.58
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	392

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Number of Counts of an ext. Encoder per Motorturn
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Description
 This parameter defines the number of counts of an external encoder per motorturn. The drive calculates automatically |EXTMUL| and other parameters if necessary.
 The actual position of the external encoder is now scaled to the actualsercos scaling for positions (see also Sercos Manual IDN117).

ASCII -Command	FBTYP
Syntax Transmit	FBTYP [Data]
Syntax Receive	FBTYP <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 20
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Feedback

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3010
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	59

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Selection of Encoder or Resolver
-------------------	----------------------------------

Description

The FBTYP command is used to select the type of feedback device that is used for the commutation and velocity controller. It is also used for the position controller unless |EXTPOS| = 1.

The type of encoder that is set is only initialized when the amplifier is switched on, which means that the amplifier must be switched off and then on again after every change of this variable.

The encoder parameters can be altered by using the appropriate ASCII command (in brackets) and then saved in the encoder EEPROM, using the |HSAVE| command. The encoder commands (|HISOFFS|, |HICOFFS|, |HIFACT1|, |HSAVE|) are only available when communication with the connected encoder has been established.

If communication with the encoder is not possible, then the error message ENCODER FAULT F04 is displayed.

When the data are loaded from the encoder, the setting for the motor number in the encoder is compared with the internal setting (|MNUMBER|). If the numbers are different, then an attempt is made to load a motor data set from the internal motor database that has the same motor number as that stored in the encoder. At the same time, the warning "NEW MOTOR DATA SET" n12 is displayed.

In order to prevent a warning being generated at the next power-on, the latest |MNUMBER| setting should be saved in the EEPROM, using the |SAVE| command. If it was not possible to load a valid motor number from the encoder (for instance, when an encoder is used for the first time), then no motor data will be loaded. However, the n12 warning will still be generated. The |HSAVE| command can be used to save the preset setting for the motor number (|MNUMBER|) in the encoder, so that no warning will be produced at the next power-on.

When using an encoder without a parameter channel (|FBTYP|=7/16), and thus without the facility for storing parameters, the offset values |HISOFFS| / |HICOFFS| / |HIFACT1| will be saved in the serial EEPROM of the amplifier. After an alteration, these values can be permanently stored by using the |SAVE| command.

Zustand	Type of Feedback System	Description
FBTYP = 0	Resolver	Data is loaded from the drive EEPROM.
FBTYP = 2	Hiperface (Stegmann)	In the initialization phase, all the data is loaded that is stored in the encoder EEPROM. These are: Offset compensation Sine (HISOFFS) Offset compensation Cosine (HICOFFS) Amplitude scaling (HIFACT1) Motor number (MNUMBER) Motorphase (MPHASE)
FBTYP = 3	Resolver, EnDAT oder Hiperface	Automatic selection of the feedback device. First the drive tries to communicate with an EnDAT device (FBTYP =4). If there is no reply, the drive tries to communicate with an Hiperface device (FBTYP =2). If there is also no communication, the drive selects resolver feedback (FBTYP =0) and starts to work. The setting of FBTYP =3 is not effected by this search. There is a possibility to read the selected type by the command " M FBTYP".

FBTYPE = 4	EnDAT (Heidenhain)	<p>In the initialization phase, all the data is loaded that is stored in the encoder EEPROM. These are: Offset compensation Sine (HISOFFS) Offset compensation Cosine (HICOFFS) Amplitude scaling (HIFACT1) Motor number (MNUMBER) Motorphase (MPHASE)</p>
FBTYPE = 6	Sine/Cosine Encoder	<p>Sine/Cosine encoder without parameter channel. MPHASE is stored in the drive EEPROM. HISOFFS , HICOFFS , HIFACT1 is also stored in the drive EEPROM.</p>
FBTYPE = 7	Sine/Cosine Encoder	<p>Sine/Cosine encoder without parameter channel. Automatic detection of MPHASE by Wake&Shake mode. HISOFFS , HICOFFS , HIFACT1 is also stored in the drive EEPROM. If the 24V are switched on or the drive has got a COLDSTART , a warning n14 is present. After enabling the drive, a wake & shake mode is activated, to get the commutation angle. The motor is doing a short move to do that. After that, the n14 is cleared.</p>
FBTYPE=8	RS422 & Wake&Shake	<p>This setting can only be used, if GEARMODE =3 and ENCMODE =0 (see ENCLINES). If FPGA =1 the position output at X5 (Drive 400 X4) gives the position information of the incremental encoder.</p>
FBTYPE=9	Digital encoder feedback device (ROD / RS422) MPHASE is loaded out of the EEPROM	<p>This setting can only be used, if GEARMODE =3 and ENCMODE =0 If FPGA =1 the position output at X5 (Drive 400 X4) gives the position information of the incremental encoder.</p>
FBTYPE=10	Without Feedback Device (sensorless)	
FBTYPE=11	Sine encoder feedback with hall's	
FBTYPE=12	RS422 feedback device (A quad B) with hall's The parameter MPHASE can compensate for misalignment of Hall sensors. To compensates inverted hall effect sensors. set MPHASE = 180.	
FBTYPE = 16	Start-up with resolver (commutation), then switch over to Sine/Cosine encoder (FBTYPE =7)	<p>Commutation information read by resolver feedback. The switch-over to sine/cosine is done after a switch-on delay time together with the encoder simulation.</p>
FBTYPE = 17		
FBTYPE = 18		
FBTYPE = 19		
FBTYPE = 20	BISS - Feedback	<p>5V BISS digital connector X1 After the amplifier is switched on all Encoder-EEPROM data are load in the drive. These are: sinus offset adjustment HISOFFS , offset adjustment cosinus HICOFFS , amplitude scaling HIFACT1 , motor number MNUMBER , motor phase MPHASE </p>

FBTYPE = 20

BISS - Geber

ASCII -Command	FBTYPEX
Syntax Transmit	FBTYPEX
Syntax Receive	FBTYPEX <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	Int8
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.86
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	411

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	No

Short Description	Display the detected feedback device
-------------------	--------------------------------------

Description

The detected feedback device can be displayed by FBTYPEX. Especially using |FBTYPE|=3, this object is useful to get the information, which feedback device was detected.

It is also possible to display, if the drive has detected a multiturn encoder. If so, an offset of d100 is added to the feedback type.

E.g.: Endat multiturn was detected, FBTYPEX displays d104.

ASCII -Command	FILTMODE
Syntax Transmit	FILTMODE [Data]
Syntax Receive	FILTMODE <Data>
Type	Variable rw
Format	Unsigned8
DIM	-
Range	0, 1, 2, 3
Default	2
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.71
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	60

Data Type BUS/DPR	Unsigned8
Weighting 10^3	

Last Change of this Object		1.7
EEPROM	Yes	

Short Description	Feedback Filter Mode
-------------------	----------------------

Description
 FILTMODE=0 16 KHz Update without Luenberger Observer
 FILTMODE=1 4 KHz Update without Luenberger Observer
 FILTMODE=2 16 KHz Update with Luenberger Observer
 FILTMODE=3 4 KHz Update with Luenberger Observer

ASCII -Command	FLASH
Syntax Transmit	FLASH [Data]
Syntax Receive	FLASH <Data>
Type	wo
Format	Integer8
DIM	
Range	0 ... 4
Default	-
Opmode	-
Drive Status	Disable
Start Firmware	5.70
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	473

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	
-------------------	--

Description

The command FLASH is used to transfer firmware and parameters between the drive and an external flash-card.

The external flash-card is used as an external memory for S600-firmware and also als for drive-parameter. This tool can be used to update the firmware without an additional hardware (computer, ...). The upload/download-commandos can be set by the ASCII-command FLASH or by using the keys S1/S2 at the flash -card.

The FLASH-command options:

FLASH=0 Output of information text with version number of the save firware on the flash card. The second line includes the actual drive firmware version.

FLASH=1 Saves all drive-data into the flash-card (UPLOAD). The actual firmware-version, drive-parameter, data bank, PLC-programm, cam profiles and flash-motion tasks are saved into the flash-card. The command is activated also,if the key S1 is pressed. The drive display-segment shows an ,u'during the upload process. (UPLOAD). The procedure ends with an automatic reset of the drive.

FLASH=2 Saves all drive-data into the flash-card (DOWNLOAD).The actual firmware-version, drive-parameter, data bank, PLC-programm, cam profiles and flash-motion tasks are saved into the flash-card. The command is activated also,if the key S2 is pressed. The drive display-segment shows an ,u'during the upload process. (DOWNLOAD). The procedure ends with an automatic reset of the drive.

FLASH=3 Erase the exteral flash-card.

FLASH=4 Load parameter-data into the drive.Only data from the serial EEPROM (parameter-memory) are transmitted.

Attention !!

The FLASH-command has to be used only by disabled output stage and switched of main voltage. During this process the 24V DC Link has not to be switched off. If you ignore this you may erase data.

Drives without a firmware will start the monitor programm automatic. The flash-card can be used with monitor-pograms >= version 7.2 implementiert.

ASCII -Command	FLASHSW
Syntax Transmit	FLASHSW [Data]
Syntax Receive	FLASHSW <Data>
Type	r
Format	Integer16
DIM	-
Range	0,1
Default	
Opmode	
Drive Status	
Start Firmware	1.0
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.0
EEPROM	

Short Description	State of the FLASH-CARD download switch
-------------------	---

Description
 FLASHSW shows the actual state of the FLASH-CARD download switch

FLASHSW=0 no automatical download
 FLASHSW=1 automatical download activ

See description of the command |FLASH|

ASCII -Command	FLTCNT
Syntax Transmit	FLTCNT
Syntax Receive	FLTCNT <Data>
Type	Command
Format	String
DIM	-
Range	0, 65535 per Fault Message
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Fault Frequency
-------------------	-----------------

Description

The FLTCNT command provides a listing of all possible error messages, with the number of occurrences of each type of fault in clear text. The total number of faults (sum of the individual faults) is given out before the fault list.

ASCII -Command	FLTCNT *
Syntax Transmit	FLTCNT *
Syntax Receive	FLTCNT <Data>
Type	Command
Format	1 x Integer32 + 32 x Integer16
DIM	-
Range	-
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Fault Frequency
-------------------	-----------------

Description

The command returns a list of 33 numbers:
 1st number: total number of faults (Integer32)
 2nd number number of occurrences of fault F01
 3rd number number of occurrences of fault F02

 33rd number number of occurrences of fault F32

ASCII -Command	FLTHIST
Syntax Transmit	FLTHIST
Syntax Receive	FLTHIST <Data>
Type	Command
Format	String
DIM	Number and TRUN
Range	10 No. of Last Messages+Times
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Fault History: Display last 10 faults
-------------------	---------------------------------------

Description

The FLTHIST command produces a list of the last 10 faults that occurred, together with the corresponding number of operating hours at the time of occurrence, in clear text.

ASCII -Command	FLTHIST *
Syntax Transmit	FLTHIST *
Syntax Receive	FLTHIST <Data>
Type	Command
Format	20 x Integer32
DIM	Number and TRUN
Range	-
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Fault History: Display last 10 faults
-------------------	---------------------------------------

Description

The FLTHIST command produces a list of the last 10 faults that occurred, together with the corresponding number of operating hours at the time of occurrence, in clear text.

The output looks like this:

n1 t1 n2 t2 n3 t3n10 t10

n – fault number

t – time of the event (operating hours counter) [in 1024/60000 minutes]

ASCII -Command	FLUXM
Syntax Transmit	FLUXM [Data]
Syntax Receive	FLUXM <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0 .. 10000
Default	4500
Opmode	All
Drive Status	-
Start Firmware	4.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	393

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	-

Short Description	Rated Flux Level of Permanent Magnet Motor
-------------------	--

Description
 FLUXM is read-only and corresponds to the rated flux level of permanent magnet motor. This variable is determined by the motor torque constant, Kt. The unit is counts and the scaling factor is 22000. This means that Fluxm(counts)/22000 = VoltSec.

This variable is applicable only for the sensorless drive of permanent magnet motor.

ASCII -Command	FOLDMODE
Syntax Transmit	FOLDMODE [Data]
Syntax Receive	FOLDMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	61

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Foldback Mode
-------------------	---------------

Description

This command affects the behavior of the amplifier when it reaches the current limit.

FOLDMODE=0 The drive delivers the peak current (IPEAK) for up to 5 seconds, after that the current is limited to the preset rated current (ICONT).

FOLDMODE=1 reserved

FOLDMODE=2 The current limiting to the rated current does not happen. If the I2t value exceeds the threshold of 105%, the output stage is disabled and the "I2T-MAX" fault is generated

ASCII -Command	FOLDTIME
Syntax Transmit	FOLDTIME [Data]
Syntax Receive	FOLDTIME <Data>
Type	rw
Format	Integer8
DIM	s
Range	0 ... 100
Default	16
Opmode	All
Drive Status	Disable + Reset (Coldstart)
Start Firmware	5.80 (6.10)
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	
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Description

With this command the I2t foldtime time constant could be changed. The default is 16, which is the time constant of the foldback algorithm like it was in all Servostar Firmware before.

Now it is possible to use a shorter time constant to reach earlier the I2t limit and limit the current to the ICONT value. This could be usefully to protect motors which have a smaller i2t time constant then the used drive.

When the ICONT is smaller then the DICONT, then it is also possible to use a longer time constant for the i2t foldback. This is then possible by setting the FOLDTIME command to a higher value. This could be usefully because some motors have a longer time constant, then the drive i2t time constant.

The maximum of the current possible FOLDTIME in seconds could be calculate by the following formula: $FOLDTIME \text{ max} = (DICONT/ICONT)^2 \cdot 16$

ASCII -Command	FPGA
Syntax Transmit	FPGA [Data]
Syntax Receive	FPGA <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3, 4
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	2.49
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	315

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Select different FPGA functionalities
-------------------	---------------------------------------

Description

The command FPGA selects the program that's used in the internal FPGA chip.

- FPGA=0 Program with digital encoder encoder simulation output X5 (SERVOSTAR 400 X4)
 - FPGA=1 Program used when high resolution sine encoder feedback is required from X1 and Master/Slave functionality is required from X5) (SERVOSTAR 400 X4) Note: digital encoder output (connector X5 / SERVOSTAR 400 X4) is disabled.
 - FPGA=3 Program enables synchronization of several drives via CAN (Firmware >=4.56) No SSI output.
 - FPGA=4 Program expands the SSI multiturn output from 24 bit to 27 bit. 15 bits per the turn + 12 bits for 4096 revolution.
- Another FPGA program allows a SSI encoder to be used as secondary feedback. This program is automatically selected if |GEARMODE|=7 is selected.

ASCII -Command	FW
Syntax Transmit	FW
Syntax Receive	FW <Data>
Type	Variable ro
Format	Float
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	3.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	343

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	No

Short Description	Displays the Version Number of the Firmware
-------------------	---

Description

The command FW displays the versionnumber of the firmware. The command is also appears in the |DUMP| list and is part of the parameter settings of the drive.

ASCII -Command	GDTX
Syntax Transmit	GDTX [Data]
Syntax Receive	GDTX <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 18
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.04
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	394

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Number of Actual Value Data Words via Modbus
-------------------	--

Description

This parameter defines the number of cyclic updated actual values in 16 bit data words, which are updated every cycle between the drive and the Modbus board.

ASCII -Command	GEARFILT
Syntax Transmit	GEARFILT [Data]
Syntax Receive	GEARFILT <Data>
Type	
Format	Command
DIM	-
Range	0 ...8
Default	0
Opmode	0
Drive Status	Enable
Start Firmware	6.02
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	470

Data Type BUS/DPR	Command
Weighting 10 ³	

Last Change of this Object	2.1
EEPROM	-

Short Description	
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Description

For the operation of electronic gearing (OPMODE = 4), a second low pass filter is introduced, to smooth the input position command signal. This command GEARFILT can be used to configure the filter, and determine the corresponding frequency of the electronic gearing filter.

To ensure the compatibility, the default value is set to zero, that means that the filter is switched off. When GEARFILT doesn't equal zero, the filter is switched on and the corresponding frequency depends on the value of GEARFILT, as shown in the following table.

GEARFILT	f (HZ)
0	OFF
1	318
2	159
3	80
4	40
5	20
6	10
7	5
8	2.5

The filter is only used, if it is necessary, because the filter also introduces a delay to prevent the slave from following the master exactly at time during acceleration and deceleration. Normally, GEARFILT = 4 with 40 Hz cut-frequency is chosen.

ASCII -Command	GEARI
Syntax Transmit	GEARI [Data]
Syntax Receive	GEARI <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	1 .. 32767
Default	8192
Opmode	4
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Gearing

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	62

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Input Factor for Electronic Gearing
-------------------	-------------------------------------

Description

In master/slave applications (|OPMODE|=4) this parameter can be used to set the master/slave translation ratio. The relationship is as follows:

For |PRBASE|=20
 distance to move = input pulses * 1048576 / |ENCIN| * |GEARO| / GEARI

For |PRBASE|=16
 distance to move = input pulses * 65536 / |ENCIN| * |GEARO| / GEARI

The “distance to move” is always referred to the resolution that has been set for the position control loop (|PRBASE|) (65536 pulses / motor turn for |PRBASE|=16 or 1048576 pulses / motor turn for |PRBASE|=20).

ASCII -Command	GEARMODE
Syntax Transmit	GEARMODE [Data]
Syntax Receive	GEARMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 17
Default	6
Opmode	4
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Gearing

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	63

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	secondary position source (electr. Gearing or secondary feedback to position controller)
-------------------	---

Description

Gearmode configures:

In |OPMODE| =4 The master command source and the second position feedback source (if used)

In |OPMODE| = 5,6 or 8| The secondary position feedback source

Other important settings:

|FPGA| = 1 When setting GEARMODE 10 ... 17

|EXTPOS| = 1 When using a secondary feedback source into the position controller

Starting with firmware 4.96, all devices (resolver (X2) (SERVOSTAR 400 X5), Sine Encoder (X1) (SERVOSTAR 400 X2) and incremental signals (X5 or X3) can be used at the same time.

GEARMODE 1 to 9:

- |OPMODE| = 4 Operation: GEARMODE selects the feedback type and connector used for the master signal
- |OPMODE| = 5,6,8 Operation: GEARMODE selects the secondary feedback type and connector used to close the position loop. Also must set |EXTPOS| =1.

GEARMODE 10 to 17

- |OPMODE| = 4 Operation with a secondary sine encoder feedback (X1 connector). GEARMODE selects what feedback type and connector is used for the master signal. Also must set |FPGA| = 1 and |EXTPOS| = 1

Notes:

- For |OPMODE| = 4 applications with single feedback device to close the velocity and position loops . Choices for the master command signal are:
 - o Digital Encoder (digital or digital encoder / SSI input)
 - o Sine encoder (ENDAT or traditional 1 volt P-P)
 - o Pulse and Direction (digital or digital encoder /SSI input)
 - o or SSI format (digital encoder / SSI input)
- For |OPMODE| = 4 applications with a secondary feedback device (Sine encoder ENDAT or traditional 1 volt P-P) to close the servo position loop loops. Choices for the master command signal are: :
 - o Digital Encoder (digital or digital encoder / SSI input)
 - o Pulse and Direction (digital or digital encoder / SSI input)
 - o or SSI format (digital encoder / SSI input)
- There is no difference between GEARMODE 13 and 15

- There is no difference between GEARMODE 3 and 5
- Resolver and Sine Encoder (Hiperface format only) cannot be used as a master command input or secondary position loop feedback.

For the connector pin assignments, see the Installation Manual.

Following settings have to be made:

Zustand	Description
GEARMODE=0	Encoder Follower Digital I/O 24V (X3) With an incremental encoder (track A/B, 24V signal level) connected to the digital inputs DIGITAL-IN 1/2, terminals X3/11, 12, an additional function assignment for the inputs is not necessary and any assignments on the screen page, Digital I/O, are ignored.
GEARMODE=1	Pulse And Direction Digital I/O 24V (X3) With a stepper motor control (pulse/direction, 24V signal level) connected to the digital inputs DIGITAL-IN 1/2, terminals X3/11, 12, an additional function assignment for the inputs is not necessary and any assignments on the screen page, Digital I/O, are ignored. INPUT1=direction (Low = positive, High = negative) INPUT2=pulse
GEARMODE=2	Encoder Follower Digital I/O 24V (X3) With an incremental encoder (track A/B, 24V signal level) connected to the digital inputs DIGITAL-IN 1/2, terminals X3/11, 12, an additional function assignment for the inputs is not necessary and any assignments on the screen page, Digital I/O, are ignored.
GEARMODE=3	Encoder Follower Digital I/O 5V X5 (Drive 400 X4) With an incremental encoder connected to connector X5 (Drive 400 X4), terminals 4, 5, 6, 7. ENCMODE has to be set to "0".
GEARMODE=4	Pulse And Direction Digital I/O 5V X5 (Drive 400 X4) With a stepper motor control connected to connector X5 (Drive 400 X4), terminals 4, 5, 6, 7. INPUT1=direction (Low = positive, High = negative) INPUT2=pulse ENCMODE has to be set to "0"
GEARMODE=5	Encoder Follower Digital I/O 5V X5 (SERVOSTAR 400 X4) With an incremental encoder connected to connector X5 (Drive 400 X4), terminals 4, 5, 6, 7. ENCMODE has to be set to "0".
GEARMODE=6	Sine encoder to X1 (SERVOSTAR 400 X2). Only the zero crossing of the sine(cosine signals) are used. No analog processing.

GEARMODE=7

SSI input X5 (SERVOSTAR 400 X4).

For the Master/Slave mode with two drives you need settings as follow:

Master: (is sending the SSI position)

|ENCMODE| = 2 setting for encoder emulation
 (1=ROD, 2=SSI)
 |SSIGRAY| = 0 data format (0=binary/1=gray)
 |SSIINV| = 1 SSI-Clock (0=standard,
 1=inverted)
 |SSIMODE| = 1 0=single turn / 1= multi turn
 |SSIOUT| = 0 baudrate 0=200 Kbaud /
 1=1MBaud

Slave: (is reading the SSI position)

|GEARMODE| = 7 Setting for the master
 interface
 |OPMODE| = 4 Master/Slave mode
 |ENCMODE| = 2 always 2 when
 |GEARMODE| = 7 (SSI)
 |SSIGRAY| = 0 data format
 (0=binary/1=gray)
 |SSIINV| = 0 start transmission with MSB
 (=0) or LSB (=1)
 |SSIMODE| = 0 alarm bit at begin (=1) or at
 end (=2) or off (=0)
 |SSIOUT| = 25 data bits-1 (26)
 |IN1MODE| = 16 Start input for the motion
 task
 |IN1TRIG| = 0 0 means: motion task is a
 homing move
 |NREF| = 8 Number for homing move.

The settings, |GEARMODE| = 7 and |OPMODE| =4, activate the read of the SSI-position about the encoder-input. The drive reads the SSI-position every 250 µs and calculates the difference to the previous position. This difference is multiplied by a scaling-factor and added to the last position command value.

With |PRBASE| = 20: Scaling-factor = $2^{(33-|SSIOUT|)} * |GEARO| / |GEARI|$

With |SSIOUT| = 25: Scaling-factor = $256 * |GEARO| / |GEARI|$

The absolute position from Master/Slave could move with |ROFFS|. To adjust the absolute position between Master and Slave, it is necessary to do a homing with the slave drive and |NREF| = 8 (start with digital input). At the beginning of the homing the Slave drive reads the absolute position from the Master, does the scaling and uses this position as the target position for the homing. The drive changes the operation mode to |OPMODE| = 8 and starts the homing move to the target position with |VREF| and ramps |ACCR| / |DECR|. When the drive reaches the target position, it sets the INPOSITION message. The PLC resets the start input to activate the Master/Slave-mode (|OPMODE| = 4).

For testing (with the setting |MSG| = 2), it is possible to display the Master SSI-position at the Slave drive with the command, "|M| NEWSSI," in the terminal program of the drive. It is possible to get the Slave position with the command, "|M| PFB."

GEARMODE=8	<p>SINCOS-Encoder at input X1 (SERVOSTAR 400 X2). The difference to GEARMODE=6 is the sine/cosine signals of the encoder are read analog.</p> <p>This setting can be used in position mode under EXTPOS =1.</p> <p>This increases the resolution significantly.</p>
GEARMODE=9	<p>EnDAT-Encoder at input X1 (Drive 400 X2). The difference to GEARMODE=6 is, that the parameter channel of the encoder is read and the absolute position is transferred to the position register. ENCLINES is calculated automatically to the internal resolution of 20 Bit per rev of the encoder.</p> <p>This setting can be used in position mode under EXTPOS =1.</p> <p>The sine/cosine signals of the encoder are read analog. This increases the resolution significantly.</p>
GEARMODE=10	<p>Same as GEARMODE = 2, except sine encoder at X1 (SERVOSTAR 400 X2) for position control (EXTPOS = 1)</p>
GEARMODE=11	<p>Same as GEARMODE = 1, except sine encoder at X1 (Drive 400 X2) for position control (EXTPOS = 1)</p>
GEARMODE=12	<p>Same as GEARMODE = 0, except sine encoder at X1 (Drive 400 X2) can be used for position control (EXTPOS = 1)</p>
GEARMODE=13	<p>Same as GEARMODE = 3, except Sine encoder at X1 (Drive 400 X2) for position control (EXTPOS = 1)</p>
GEARMODE=14	<p>Same as GEARMODE = 4, except Sine encoder at X1 (Drive 400 X2) for position control (EXTPOS = 1)</p>
GEARMODE=15	<p>Same as GEARMODE = 3, except sine encoder at X1 (Drive 400 X2) for position control (EXTPOS = 1)</p>
GEARMODE=16	<p>see GEARMODE = 6</p>
GEARMODE=17	<p>see GEARMODE 7</p>

ASCII -Command	GEARO
Syntax Transmit	GEARO [Data]
Syntax Receive	GEARO <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-32767 .. 32767
Default	8192
Opmode	4
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Gearing

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	64

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Output Factor for Electronic Gearing
-------------------	--------------------------------------

Description

In master/slave applications (|OPMODE|=4) this parameter can be used to set the master/slave translation ratio. The relationship is as follows:

For |PRBASE|=20
 distance to move = input pulses * 1048576 / |ENCIN| * |GEARO| / |GEARI|

For |PRBASE|=16
 distance to move = input pulses * 65536 / |ENCIN| * |GEARO| / |GEARI|

The “distance to move” is always referred to the resolution that has been set for the position control loop (|PRBASE|) (65536 pulses / motor turn for |PRBASE|=16 or 1048576 pulses / motor turn for |PRBASE|=20).

If a negative value is entered for GEARO, the slave runs in the opposite direction to the master. With the configuration |ANCNFG|=6 the GEARO parameter can be influenced by the analog input SW. The correction factor is given in % by |VSCALE2|. e.g. |VSCALE2|=20

SW2= +10V GEAROeff = GEARO*1.2
 SW2= -10V GEAROeff = GEARO*0.8
 SW2= 0V GEAROeff = GEARO

ASCII -Command	GET
Syntax Transmit	GET
Syntax Receive	GET <Data>
Type	Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	65

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM		-

Short Description	Scope: output data
-------------------	--------------------

Description

The GET command returns a list with all the most recently recorded SCOPE data. The list consists of n+3 lines (n = no. items of data recorded)

- Line 1: commentary e.g. "Drive Recording"
- Line 2: n, timebase in msec e.g. 10, 0.25 (10 data lines, timebase 250 microseconds)
- Line 3: var1, var2, var3 names of the recorded variables, e.g. |VCMD|, |V|, |ICMD|
- Line 4: data1, data2, data3 recorded data, e.g. 0, 20.3, -0.5
- Line 5: data1, dat2, data3

..
Line 1: data1, data2, data3

see also |RECORD|, |RECTRIG|

ASCII -Command	GF
Syntax Transmit	GF [Data]
Syntax Receive	GF <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0 ... 2000
Default	15
Opmode	All
Drive Status	-
Start Firmware	3.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	359

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object		1.4
EEPROM	Yes	

Short Description	Proportional Gain of the Flux Controller
-------------------	--

Description

This command is only for the induction motor mode (|MTYPE| = 3).
 This rotor flux controller utilizes a standard PI controller.
 Rotor flux control loop: propotional gain. (3.40) (see also |GFTN|)

ASCII -Command	GFTN
Syntax Transmit	GFTN [Data]
Syntax Receive	GFTN <Data>
Type	Variable rw
Format	Float
DIM	ms
Range	0 ... 1000
Default	50
Opmode	All
Drive Status	-
Start Firmware	3.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	360

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.4
EEPROM	Yes	

Short Description	Integral Action Time of the Flux Controller
-------------------	---

Description
 This command is only for the induction motor mode (|MTYPE| = 3).
 This rotor flux controller utilizes a standard PI controller.
 Rotor flux control loop: integral action time constant. (3.40) (see also |GF|)

ASCII -Command	GKC
Syntax Transmit	GKC [Data]
Syntax Receive	GKC <Data>
Type	Variable rw
Format	Float
DIM	ms
Range	0 .. 100
Default	10
Opmode	All
Drive Status	-
Start Firmware	4.72
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	391

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Compensation Gain of the Flux Controller
-------------------	--

Description

This parameter is only for the sensorless drive (|FBTYPE|=10). It corresponds to the compensation gain of the rotor flux, and normally is set to 10 ms.

ASCII -Command	GP
Syntax Transmit	GP [Data]
Syntax Receive	GP <Data>
Type	Variable rw
Format	Float
DIM	(m/s)/mm 1000rps/rev 1000/s
Range	0.001 .. 25.0
Default	0.15
Opmode	4, 5, 8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	104
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	66

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Position Control Loop: Proportional Gain
-------------------	--

Description

This variable is used both in the P position control loop (EXTPOS=1, 3, 4), and in the PI position control loop (EXTPOS=0, 2). If GP is set too low, the lag or settling time is too long and the drive is too soft. If GP is set too high, the drive oscillates.

ASCII -Command	GPFBT
Syntax Transmit	GPFBT [Data]
Syntax Receive	GPFBT <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 2.0
Default	1.0
Opmode	4, 5, 8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	67

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position Control Loop: Feed Forward for Actual Current
-------------------	--

Description

Position control loop: feed forward for the actual value of current

This parameter is only used for the PI position control loop (|EXTPOS|=0, 2).

ASCII -Command	GPFFT
Syntax Transmit	GPFFT [Data]
Syntax Receive	GPFFT <Data>
Type	rw
Format	Float
DIM	-
Range	0.0 ... 5.0
Default	1
Opmode	4,5,8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	68

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Position control loop: feed forward for the current command
-------------------	---

Description

Position control loop: feed forward for the current command.
 Has to be set, that the contouring error is minimized.

This parameter has effect for both P position and PI position control structure only in the following cases:

- 1.using table based motion task enabled with bit in |O_C|. (starting firmware 4.78);
- 2.using |SPSET| = 3, when the internal motion task profile is used. (starting firmware 4.91);
- 3.using |SPSET| = 4, when the internal motion task profile is used. (starting firmware 5.41);

If |GV| is changed after optimizing GPFFT, GPFFT has to be changed also inversely proportional.

ASCII -Command	GPFV
Syntax Transmit	GPFV [Data]
Syntax Receive	GPFV <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 50.0
Default	1.0
Opmode	4, 5, 8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	296
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	69

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Position Control Loop: Feed Forward for Velocity
-------------------	--

Description
 This variable is used both in the P position control loop (EXTPOS=1, 3, 4), and in the PI position control loop (EXTPOS=0, 2). Feed forward is used to ease the position controller task. A better setting for GPFV means better utilization of the dynamic range of the position controller. The most favorable setting (usually about 1.0), depends on factors external to the drive such as friction, dynamic resistance, and stiffness. If GPFV is set too low, the drive lags. If GPFV is set too high, the drive oversteers.

ASCII -Command	GPRED
Syntax Transmit	GPRED [Data]
Syntax Receive	GPRED <Data>
Type	rw
Format	Integer16
DIM	
Range	0...200
Default	100
Opmode	8
Drive Status	Disable
Start Firmware	5.80
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	477

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object	2.0
EEPROM	

Short Description	
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Description
 GPRED defines the reduction/attenuation ratio for the proportional gain of the position loop during the motion task phase. This parameter is activ only for P position loop (EXTPOS=4).

ASCII -Command	GPTN
Syntax Transmit	GPTN [Data]
Syntax Receive	GPTN <Data>
Type	Variable rw
Format	Float
DIM	Milliseconds
Range	1.0 .. 200.0
Default	50
Opmode	4, 5, 8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	70

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Position Control Loop: Integral-Action Time
-------------------	---

Description

This parameter is only used for the PI position control loop (|EXTPOS| = 0,2). There is no possibility to switch off the integral part. If a P position control loop and P velocity control loop should be used, set |EXTPOS| = 1,3,4 and set |GVTN| = 0

ASCII -Command	GPV
Syntax Transmit	GPV [Data]
Syntax Receive	GPV <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.1 .. 60.0
Default	3
Opmode	4, 5,8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	71

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Proportional Gain of the Velocity Controller
-------------------	--

Description

This variable is used only for the PI position control loop (|EXTPOS|=0, 2). Adjust GPV by increasing the value to the level where the motor starts to oscillate. Then, back it off until the oscillations have clearly stopped. Typical values are the same as for the |GV| gain of the velocity controller. If the GPV value is too low, the drive is too soft and has poor damping. If the GPV value is too high, the drive whistles or runs roughly.

ASCII -Command	GV
Syntax Transmit	GV [Data]
Syntax Receive	GV <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 62.5*GVTN
Default	1
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	100
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	72

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Velocity Control Loop: Proportional Gain
-------------------	--

Description

That means, that a difference between N_cmd and N_actual of 3000 rpm with GV = 1 results in the peak current of the drive. This variable determines the proportional gain (also known as AC-gain). Adjust this variable by increasing the value to the level where the motor starts to oscillate. Then, back it off until the oscillations have clearly stopped. Typical values are between 10 and 20. If the GV value is too low, the drive is too soft and has poor damping. If the GV value is too high, the drive whistles or runs roughly.

The gain is defined, that a velocity deviation of 3000rpm with GV = 1 results in the peak-current of the drive.

Set |FILTMODE| to 1 or 3 to eliminate GV influence in |OPMODE| 2 & 3.

ASCII -Command	GVD
Syntax Transmit	GVD [Data]
Syntax Receive	GVD <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0 .. 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	395

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Derivate Part in the Velocity Controller
-------------------	--

Description

To compensate the margin of the system stability in the high frequency, the conventional PI velocity controller is extended by PID controller.

GVD is a tuning variable of the PID velocity controller, which sets the gain of the derivative feedback of the actual velocity. The other related parameter is the filter time constant |GVDT|.

ASCII -Command	GVDT
Syntax Transmit	GVDT [Data]
Syntax Receive	GVDT <Data>
Type	Variable rw
Format	Float
DIM	ms
Range	0 .. 1
Default	0.3
Opmode	All
Drive Status	-
Start Firmware	4.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	396

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Filter Time Constant of the D-Part of the Velocity Controller
-------------------	---

Description
 In the PID velocity controller, the derivative feedback of the velocity is directly obtained by derivation of the actual velocity. In order to reduce the derivative noise, the derivative signal will be filtered by a first low pass filter.

GVDT sets the time constant of the filter.

ASCII -Command	GVFBT
Syntax Transmit	GVFBT [Data]
Syntax Receive	GVFBT <Data>
Type	Variable rw
Format	Float
DIM	Milliseconds
Range	0.0 .. 30.0
Default	0.4
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	73

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Velocity Control Loop: Time Constant First Order Tacho Filter
-------------------	---

Description

If necessary, the time constant for the PT-1 filter in the actual velocity feedback is altered (default=0.6 ms). This may improve the step response and smoothness of running, particularly for very small, highly dynamic motors. If the GVFBT value is set too low, the motor runs roughly. If the GVFBT value is set too high, the velocity control becomes soft and unstable.

ASCII -Command	GVFILT
Syntax Transmit	GVFILT [Data]
Syntax Receive	GVFILT <Data>
Type	Variable rw
Format	Integer8
DIM	%
Range	0 .. 100
Default	85
Opmode	0, 1, 4, 5, 8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	74

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Velocity Control Loop: Part of the Output that is filtered [%] by GVT2
-------------------	--

Description
 velocity control loop: Part of the Output that is filtered [%] by |GVT2| (GVFILT = 85 means, 85% are filtered and 15% are not filtered)

ASCII -Command	GVFR
Syntax Transmit	GVFR [Data]
Syntax Receive	GVFR <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 1.0
Default	1.0
Opmode	All
Drive Status	-
Start Firmware	1.77
Configuration	<input type="checkbox"/>
Function Group	PI-PLUS

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	75

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.0
EEPROM	Yes

Short Description	PI-PLUS Actual Velocity Feedforward
-------------------	-------------------------------------

Description
 GVFR is a tuning variable of the velocity control loop which sets the feed-forward to feedback gain ratio for the Pseudo Derivative Feedback with Feed-Forward. (PDFF or PI+) . With GVFR 1 the behavior of the velocity control loop is like a standard PI controller. GVFR 0.65 is a value which suppresses step response overshoot.

ASCII -Command	GVFRT
Syntax Transmit	GVFRT [Data]
Syntax Receive	GVFRT <Data>
Type	rw
Format	Float
DIM	ms
Range	0.0 ... 1000.0
Default	0.0
Opmode	0, 1, 4 ...8
Drive Status	-
Start Firmware	6.23
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	2.1
EEPROM	Yes

Short Description	
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Description

This is an additional time constant for the PI-PLUS (GVFR) velocity command filter. If the PI-PLUS filter is active (GVFR < 1) and GVFRT is greater then 0 this time constant will be used for the PI-PLUS filter. If GVFRT is 0 still the GVTN is used for the PI-PLUS filter time constant

ASCII -Command	GVT2
Syntax Transmit	GVT2 [Data]
Syntax Receive	GVT2 <Data>
Type	Variable rw
Format	Float
DIM	Milliseconds
Range	0.0 .. 30.0
Default	1.0
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	76

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Velocity Control Loop: Second Time Constant
-------------------	---

Description

This variable affects the proportional gain (P-gain) at medium frequencies. It is often possible to improve the damping of the velocity of the velocity control loop by increasing this value to about |GVTN| / 3. If required, set this value after the basic setting of |GV| and |GVTN|. If the GVT2 value is too low, the drive is very stiff. If the GVT2 value is too high, the drive is not stiff enough.

The part, which is filtered can be set by |GVFILT|.

ASCII -Command	GVTN
Syntax Transmit	GVTN [Data]
Syntax Receive	GVTN <Data>
Type	Variable rw
Format	Float
DIM	Milliseconds
Range	0.0 , GV/62.5 .. 1000.0
Default	10
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	101
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	77

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Velocity Control Loop: I-Integration Time
-------------------	---

Description

This variable determines the integral-action time/integral time constant. Smaller motors permit shorter integration times. Larger motors or high moments of inertia in the load usually require integration times of 20ms or more. With GVTN=0ms, the I-component is switched off. If the GVTN value is too low, the drive runs roughly or strongly overshoots with high inertia loads. If the GVTN value is too high, the drive is too soft.

ASCII -Command	HACOFFS
Syntax Transmit	HACOFFS [Data]
Syntax Receive	HACOFFS <Data>
Type	Variable rw
Format	Integer16
DIM	Millivolts
Range	-10000 .. 10000
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	78

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Encoder

Short Description	Hiperface Cosinus Offset (absolut)
-------------------	------------------------------------

Description

The HACOFFS command sets the offset correction (in mV) for the cosine signal of the absolute track (SinCoder). The command is only available when a sin/cos encoder has been selected as the feedback device (|FBTYPE|=2,4,7). Depending on the type of encoder used, the HACOFFS setting is stored in the EEPROM of the encoder (|FBTYPE|=2,4, command |HSAVE|). When using an encoder without a parameter channel (|FBTYPE|=7), and thus without an internal EEPROM, this setting will be saved in the EEPROM of the amplifier (command |SAVE|).

ASCII -Command	HFACT1
Syntax Transmit	HFACT1 [Data]
Syntax Receive	HFACT1 <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	12000 .. 19000
Default	16384
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	79

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Encoder

Short Description	Hiperface Gain Factor (absolut)
-------------------	---------------------------------

Description

The HFACT1 command sets the amplitude scaling for the sine signal of the absolute track (SinCoder). The amplitude scaling is for the value 16384 = 1.

The command is only available when a sin/cos encoder has been selected as the feedback device (|FBTYPE|=2, 4, 7). Depending on the type of encoder used, the HFACT1 setting is stored in the EEPROM of the encoder (|FBTYPE|=2, 4, command |HSAVE|). When using an encoder without a parameter channel (|FBTYPE|=7), and thus without an internal EEPROM, this setting will be saved in the EEPROM of the amplifier (command |SAVE|).

ASCII -Command	HALLDIR
Syntax Transmit	HALLDIR [Data]
Syntax Receive	HALLDIR <Data>
Type	rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disable
Start Firmware	-
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.7
EEPROM	Yes

Short Description	Hall direction & hall segment table
-------------------	-------------------------------------

Description

In the S300 firmware there are 2 tables with hall segment numbers.

HALLDIR = 0: order of hall segments 1,5,4,6,2,3

HALLDIR = 1: order of hall segments 1,3,2,6,4,5

The correct table number can be determined by moving the motor in the positive direction (velocity > 0)
 And checking the order of the hall segments with the macro command (M SR_HALL).

ASCII -Command	HASOFFS
Syntax Transmit	HASOFFS [Data]
Syntax Receive	HASOFFS <Data>
Type	Variable rw
Format	Integer16
DIM	Millivolts
Range	-10000 .. 10000
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	80

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Encoder

Short Description	Hiperface Sinus Offset (absolut)
-------------------	----------------------------------

Description

The HASOFFS command sets the offset correction (in mV) for the sine signal of the absolute track (SinCoder). The command is only available when a sin/cos encoder has been selected as the feedback device (|FBTYPE|=2, 4, 7). Depending on the type of encoder used, the HASOFFS setting is stored in the EEPROM of the encoder (|FBTYPE|=2, 4, command |HSAVE|). When using an encoder without a parameter channel (|FBTYPE|=7), and thus without an internal EEPROM, this setting will be saved in the EEPROM of the amplifier (command |SAVE|).

ASCII -Command	HDUMP
Syntax Transmit	HDUMP
Syntax Receive	HDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	81

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Output all sin/cos (Hiperface) variables
-------------------	--

Description
 Produces an output of all the sin/cos feedback variables.

ASCII -Command	HELP
Syntax Transmit	HELP <Data>
Syntax Receive	HELP <Data>
Type	Variable ro
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.46
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Output Parameter Help Information
-------------------	-----------------------------------

Description

Using the parameter HELP <name> produces a display of help information for the ASCII parameter “name”. This help information includes input limits and both the actual and default values for the parameter.

e.g. HELP GV

GV act=6 min=0 max=1000 default=1

ASCII -Command	HICOFFS
Syntax Transmit	HICOFFS [Data]
Syntax Receive	HICOFFS <Data>
Type	Variable rw
Format	Integer16
DIM	mV
Range	-150 .. 150
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	82

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Hiperface: Cosine-Offset (incremental track)
-------------------	--

Description

The HICOFFS command sets the offset correction (in mV) for the cosine signal of the incremental track. The command is only available when a sin/cos encoder has been selected as the feedback device (|FBTYPE|=2,4,7). Depending on the type of encoder used, the HICOFFS setting is stored in the EEPROM of the encoder (|FBTYPE|=2,4, command |HSAVE|). When using an encoder without a parameter channel (|FBTYPE|=7), and thus without an internal EEPROM, this setting will be saved in the EEPROM of the amplifier (command |SAVE|).

ASCII -Command	HIFACT1
Syntax Transmit	HIFACT1 [Data]
Syntax Receive	HIFACT1 <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	12000 .. 19000
Default	16384
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	83

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Encoder

Short Description	Hiperface: Sin/Cos Gain Factor (incremental track)
-------------------	--

Description

The HIFACT1 command sets the amplitude scaling for the sine signal of the incremental track (SinCoder). The amplitude scaling is for the value 16384 = 1.

The command is only available when a sin/cos encoder has been selected as the feedback device (|FBTYPE|=2,4,7). Depending on the type of encoder used, the HIFACT1 setting is stored in the EEPROM of the encoder (|FBTYPE|=2,4, command |HSAVE|). When using an encoder without a parameter channel (|FBTYPE|=7), and thus without an internal EEPROM, this setting will be saved in the EEPROM of the amplifier (command |SAVE|).

ASCII -Command	HISOFFS
Syntax Transmit	HISOFFS [Data]
Syntax Receive	HISOFFS <Data>
Type	Variable rw
Format	Integer16
DIM	mV
Range	-150 .. 150
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	84

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Encoder	

Short Description	Hiperface: Sin/Cos Offset (incremental track)
-------------------	---

Description

The HISOFFS command sets the offset correction (in mV) for the sine signal of the incremental track. The command is only available when a sin/cos encoder has been selected as the feedback device (|FBTYPE|=2,4,7). Depending on the type of encoder used, the HISOFFS setting is stored in the EEPROM of the encoder (|FBTYPE|=2,4, command |HSAVE|). When using an encoder without a parameter channel (|FBTYPE|=7), and thus without an internal EEPROM, this setting will be saved in the EEPROM of the amplifier (command |SAVE|).

ASCII -Command	HRESET
Syntax Transmit	HRESET
Syntax Receive	HRESET
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	85

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Hiperface: Load Default Parameters
-------------------	------------------------------------

Description

The HRESET returns the default values. This command is only available when |FBTYPE| = 2/4/7 has been set, and the amplifier detects a sin/cos encoder. If a SinCoder (Stegmann type SNS50/60) is detected, then the correction values from data field 5 will be transferred to the encoder variables (in other cases, the default values).

|FBTYPE| = 2 HIPERFACE (Stegmann)

|FBTYPE| = 4 EnDat (Heidenhain)

|FBTYPE| = 7 SINCOS – encoder without its own serial EEPROM

HRESET

The HRESET sets the following default values.

- |HACOFFS|
- |HASOFFS|
- |HAFACT1|
- |HICOFFS|
- |HISOFFS|
- |HIFACT1|

ASCII -Command	HSAVE
Syntax Transmit	HSAVE
Syntax Receive	HSAVE
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	86

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Hiperface: Save Parameters in Encoder
-------------------	---------------------------------------

Description

If |FBTYPE|=2 or =4 is set, the |HSAVE| command saves the variables for the encoder (HIPERFACE / EnDat) in the serial EEPROM of the encoder. With the setting |FBTYPE|=7, only the variables for the incremental track, as well as |MNUMBER| and |MPHASE| are saved in the serial EEPROM of the amplifier.

This command is only available if the amplifier has detected a sin/cos encoder (|FBTYPE| =2;4;7).

|FBTYPE| = 2 HIPERFACE (Stegmann)

|FBTYPE| = 4 EnDat (Heidenhain)

|FBTYPE| = 7 SINCOS – encoder without its own serial EEPROM

The HSAVE command saves the following variables.

- |MNUMBER|*
- |MPHASE|*
- |HACOFFS|
- |HASOFFS|
- |HAFACT1|
- |HICOFFS|*
- |HISOFFS|*
- |HIFACT1|*
- |MBRAKE|*
- |MSERIALNO|*

* If |FBTYPE| = 7, these parameters are saved in the serial EEPROM of the amplifier.

Starting with firmware 5.41, Hiperface encoder, which have contents, can be erased by "HSAVE ERASE".

ASCII -Command	HVER
Syntax Transmit	HVER
Syntax Receive	HVER <Data>
Type	Variable ro
Format	String
DIM	-
Range	max 50 ASCII Characters
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	87

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Output the Hardware Version
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Description

The HVER command returns the designation for the hardware version, in the following form:
 "Drive 6xx Hardware Version (yy) zzzz"
 xx - designation of the output stage (current rating)
 yy - designation of the hardware version
 zzzz - date of the first hardware revision

ASCII -Command	I
Syntax Transmit	I
Syntax Receive	I <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	84
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	88

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	No

Short Description	Current Monitor
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Description

This variable returns the actual current value in amperes. This value is always positive.

ASCII -Command	I2T
Syntax Transmit	I2T
Syntax Receive	I2T <Data>
Type	Variable ro
Format	Integer32
DIM	%
Range	0 .. 100
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	89

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	No

Short Description	Average (rms) current [[I2T Loading]
-------------------	--------------------------------------

Description

This variable returns the average current as a percentage of the continuous current (see [ICONT]). The average current is filtered with a time constant of several seconds.

ASCII -Command	I2TLIM
Syntax Transmit	I2TLIM [Data]
Syntax Receive	I2TLIM <Data>
Type	Variable rw
Format	Integer8
DIM	%
Range	0 .. 100
Default	80
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	114
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	90

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	I2T Warning
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Description

This variable defines a threshold for the I2T warning. As soon as the |I2T| values goes above this threshold, the warning, n01, is generated. This warning is passed on to a control system via a digital output (|OxMODE|=11). If the I2TLIM value is too low, the message appears too soon and the drive is not fully utilized. If the I2TLIM value is too high, limiting occurs at the same time as the message.

ASCII -Command	ICMD
Syntax Transmit	ICMD
Syntax Receive	ICMD <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	-DIPEAK .. DPEAK
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	91

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.3
EEPROM	No	

Short Description	Current command
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Description
Shows the internal current command.

ASCII -Command	ICMDVLIM
Syntax Transmit	ICMDVLIM [Data]
Syntax Receive	ICMDVLIM <Data>
Type	Variable rw
Format	Integer32
DIM	VUNIT
Range	0 .. VLIM
Default	0
Opmode	2,3
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.71
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	389

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Velocity Limit in Current Control
-------------------	-----------------------------------

Description
 ICMDVLIM defines the velocity limit (given in |VUNIT|) at current control in |OPMODE| = 2 and 3. This function is enabled, if ICMDVLIM is >0. It is a configuration parameter, but if ICMDVLIM was >0 while startup of the drive, this function can be disabled online by setting ICMDVLIM afterwards.

ASCII -Command	ICONT
Syntax Transmit	ICONT [Data]
Syntax Receive	ICONT <Data>
Type	Variable rw
Format	Float
DIM	Amperes
Range	10% of DICONT, max(DICONT,IPEAK)
Default	Minimum of DICONT and MICONT
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	92

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Rated Current
-------------------	---------------

Description

This variable sets the required rated output continuous current. The adjustment is usually made to the standstill current for the connected motor. The value entered is limited to the lower of the rated current of the motor (MICONT) or the rated current of the amplifier (DICONT). This variable is used in the monitoring of the actual RMS current that is drawn. If the ICONT value is too low, the drive shows following errors and the torque is too low. If the ICONT value is too high, the motor can be thermally overloaded.

ASCII -Command	ID
Syntax Transmit	ID
Syntax Receive	ID <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	93

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	D-component of Current Monitor
-------------------	--------------------------------

Description
 The D-axes component of the actual current value.

ASCII -Command	IDUMP
Syntax Transmit	IDUMP
Syntax Receive	IDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	94

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Output Current Limit List
-------------------	---------------------------

Description

This command returns a list of the current limit variables and their settings (see |CDUMP|).

ASCII -Command	IMAX
Syntax Transmit	IMAX
Syntax Receive	IMAX <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	0.3 .. 40.0
Default	Minimum of DIPEAK and MIPEAK
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	95

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	Current Limit for Drive/Motor Configuration
-------------------	---

Description

The IMAX command returns the larger value of the two parameters |MIPEAK| and |DIPEAK|. IMAX = max (|MIPEAK|, |DIPEAK|)

ASCII -Command	IN
Syntax Transmit	IN
Syntax Receive	IN <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	96

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	List Analog Voltage Values
-------------------	----------------------------

Description

The IN command returns the input voltages for the 8 A/D channels as counts (-4096 ... +4096).

Channel 0: Heat sink temperature

Channel 1: Ambient temperature

Channel 2: Regen power

Channel 3: I_U

Channel 4: Motor temperature

Channel 5: DC-link/DC-bus voltage [4096 counts = 1015 V]

Channel 6: Supply voltage [4096 counts = 800 V]

Channel 7: I_W

ASCII -Command	IN1
Syntax Transmit	IN1
Syntax Receive	IN1 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	400...4002 P3030 ...P3
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	97

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Status of Digital Input 1
-------------------	---------------------------

Description
 The status of the digital input INPUT1.

ASCII -Command	IN1MODE
Syntax Transmit	IN1MODE [Data]
Syntax Receive	IN1MODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 50
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Digital I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P3030 ...3033
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	98

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Function of Digital Input 1
-------------------	-----------------------------

Description

The IN1MODE command is used to configure the function of the digital input INPUT1. The amplifier must be switched off and then on again after an alteration of this parameter.
The following functions can be configured:

Zustand	Function	Description
Zustand	Function	Description
IN1MODE=0	Off	The state of the input 1 is read and can be used via fieldbus or Slot card.
IN1MODE=1	Failure Reset	Software reset of the servo amplifier in the event of a fault. The high input signal is ignored, if the drive has no fault. All the functions and displays are set to the initial status. Parameters that are not stored in the EEPROM are erased, the parameter set that is stored in the EEPROM is loaded. If any of the error messages F01, F02, F03, F05, F08, F13, F16 or F19 (p.52) are present, then no software-reset will be carried out, just the error message will be deleted. This means that, for example, the encoder output signals are stable and can continue to be evaluated by the controls. When the input is high, while the auxillary 24V supply is switched on, the drive waits, before the input is set to low. This state is symbolised in the display. The first of the three display positions displays a "A".
IN1MODE=2	Off	
IN1MODE=3	Off	
IN1MODE=4	Off	
IN1MODE=5	Off	
IN1MODE=6	Off	
IN1MODE=7	Off	

IN1MODE=8	An In1/An In.2	<p>Switches over the command inputs analog input 1/2 at ANCNFG = 0. This function is only effective if the analog set-point function 0,Xcmd=analog input 1 has been selected.</p> <p>High level at the input : command input 2 (terminals X3/6,7) is active Low level at the input : command input 1 (terminals X3/4,5) is active</p>
IN1MODE=9	MT_No_Bit	<p>Here you can select the motion tasks that are stored in the servo amplifier (numbers 1...7) or the reference traverse/homing (0). The motion task number is presented externally at the digital inputs as a logical word, with a width of max. 3 bits .</p> <p>An input is required to start the motion task (INxMODE =17, Start_MT IO). If you wire up a reference/homing switch (INxMODE =12, Reference) and (also) want to start a following task (INxMODE =15, Start_MT Next) externally, the number of inputs that are available for selecting the motion tasks will be further reduced.</p> <p>This function can also be used for the VCT entry functionality, to select the adress of the VCT's. The start of the VCT entry is done by selecting one input with INxMODE =35.</p>
IN1MODE=10	Intg.Off	<p>Switch off the integral component of the velocity controller, the P-gain remains at the set value, the actual- (rotational) velocity feedback remains in operation.</p>
IN1MODE=11	v/Torq.Contr.	<p>Bypasses the velocity controller. The analog command is taken 1:1 as the command for current control, i.e. change over from velocity control to current (torque) control.</p> <p>High-level at the input : torque control Low-level at the input : velocity control</p> <p>Depending on OPMODE , it changes between OPMODE =0 (low) and OPMODE =2 (high) or OPMODE =1 (low) and OPMODE =3 (high).</p>
IN1MODE=12	Reference	<p>home/reference switch located on machine</p>
IN1MODE=13	ROD/SSI	<p>Changeover of the encoder-emulation (position output) on connector X5.</p> <p>High level at the input : SSI-compatible position signals (ENCMODE = 2) High level at the input : digital encoder-compatible position signals (ENCMODE = 1)</p>
IN1MODE=14	FError_clear	<p>Clear the warning of a contouring error (display n03) or the response monitoring (display n04).</p>
IN1MODE=15	Start_MT Next	<p>The following task, that is defined in the motion task by “Start with I/O” is started. The target position of the present motion task must be reached before the following task can be started.</p> <p>A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN1MODE=16	Start_MT No x	<p>Start a motion task that is stored in the servo amplifier, by giving the motion task number. After the function has been selected you can enter the motion task number as the auxiliary variable IN1TRIG .</p> <p>Motion task number “0” (IN1TRIG =0) initiates homing/reference traverse. A rising edge starts the motion task, a falling edge cancels the motion task.</p>

IN1MODE=17	Start_MT IO	<p>17, Start_MT IO Start of the motion task that has the number that is presented, bit-coded, at the digital inputs (PSTOP/NSTOP/DIGITAL-IN1/DIGITAL-IN2, see function 9, MT_No_Bit). A rising edge starts the motion task a falling edge cancels the motion task by a STOP - command</p>
IN1MODE=18	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN1TRIG . Make the conversion according to the following equation: IN1TRIG given in % of IPEAK </p>
IN1MODE=19	Off	
IN1MODE=20	Start_Jog v=x	<p>Start of the setup mode "Constant velocity" with a defined speed. After selecting the function, you can enter the speed in IN1TRIG . A rising edge starts the motion, a falling edge cancels the motion. This function works in position control, so OPMODE =8 has to be selected. The speed is given in units of the position controller given by VUNIT .</p>
IN1MODE=21	U_Mon.off	<p>Turns off the undervoltage monitoring function of the servo amplifier.</p>
IN1MODE=22	MT Restart	<p>Continues the motion task that was previously interrupted by a STOP - command.</p>
IN1MODE=23	Start2_MT No x	<p>Start of a motion task that is stored in the servo amplifier, with definition of the motion task number. After selecting the function, you can enter the motion task number in IN1TRIG Motion task number "0" starts the homing run. A rising edge starts the motion task. Warning ! The motion task does not stop automatically if the start signal is removed ! The motion task must be stopped by — a falling edge on another digital input (configured with 16, FStart_Nr x) — the ASCII command STOP — the STOP function via Bus or digital input</p>
IN1MODE=24	Switch over OPMODE	<p>The two different OPMODE s, that can be selected for switching over via the digital input, are written in the IN1TRIG help variable of the this input. The lower byte consists the OPMODE that should be available when the input has a negative edge. The higher byte consists the OPMODE that should be available when the input has a positive edge. When the drive is switched on, the OPMODE is set automatically to the corresponding state of the input. The contents of the help variable must be in decimal !! e.g.: Input1=low OPMODE =4 Input1=high OPMODE =8 IN1MODE=24 (Activate Input) IN1TRIG =2052 (Decimal 0804h) 2052 (Dec) = 0804 (Hex)</p>

IN1MODE=25	Zero_latch	<p>Sets the digital encoder zero pulse offset. The current position, depending on the digital encoder resolution that is set, is calculated at the rising edge and stored as NI-Offset in ENCZERO . After that, an automatic SAVE is generated. This function is used to perform an automatic setting of the zero pulse in one turn of the motor..</p>
IN1MODE=26	Position Latch	<p>A edge on this input latches the actual position. The position can then be read by LATCHX32 (positive edge) or LATCHX32N (negative edge). The actual 16-Bit position (absolute in one turn) can be read by LATCHX16 (positive edge) and LATCHX16N (negative edge). The status of the latching can be read by the equivalent bits of DRVSTAT . The min. cycle time for a low/high to high/low transaction is 500µs. The Latch function does not work with POSCNFG =1.</p>
IN1MODE=27	Emergency Stop	<p>Low state on the input starts an emergency stop function, that is executed with the ramp DECSTOP . Independently of the selected OPMODE , in this phase, the drive stops in velocity control. When it has stopped, it switches over to the original mode.</p>
IN1MODE=28	Reserved	
IN1MODE=29	Reserved	
IN1MODE=30	Command Buffer 1	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;). The command buffer for the positive edge is INHCMD , the command buffer for the negative edge is INLCMD . The max. length of that buffers is 56 character for each. If a digital input is configured with INxMODE=30, this input will proceed in that way. When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=30 function.</p>
IN1MODE=31	Command Buffer 2	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;). The command buffer for the positive edge is INHCMDX , the command buffer for the negative edge is INLCMDX . The max. length of that buffers is 56 character for each. If a digital input is configured with INxMODE=31, this input will proceed in that way. When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=31 function.</p>

IN1MODE=32	Brake	<p>Warning ! With suspended loads, this function will lead to slipping of the axes !</p> <p>A rising edge at the input triggers the braking output of the servo amplifier. This function is only available while the amplifier is disabled. If an error message is active, the brake cannot be de-energized. Starting with 4.78, this function also works if the drive has an error.</p>
IN1MODE=33	see 30	<p>Different from the functionality 30, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.</p>
IN1MODE=34	see 31	<p>Different from the functionality 31, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.</p>
IN1MODE=35	Select Velocity/Current Entry	<p>A positive edge on the digital input causes a takeover of the corresponding VCT entry (see command VCT). The number of the VCT entry is defined by the digital inputs configured with mode 9.</p>
IN1MODE=36	Give Offset to Gearing Function	<p>Gearing mode OPMODE =4. A high signal on the digital input configured with this INxMODE adds a difference velocity to the gearing. This allows a simple synchronisation of two axes. The difference velocity is given to IN1TRIG . The scaling is in 20Bit per revolution every 250µs. The difference velocity (n) must be known, then the IN1TRIG can be calculated:</p> $ IN1TRIG = n * 250 / (60 * rpm)$
		<p>e.g.</p> <p>n = 50 rpm IN1TRIG = 208 = 0 Actual position is generated by the external encoder selected by GEARMODE = 1 Actual position is generated by the first feedback device (resolver od high resolution feedback EnDAT or Hiperface)</p>
IN1MODE=37	Change source of the actual position at EXTPOS=1.	
IN1MODE=38	Enable signal for following motion task	<p>Definition of a motion task with following motion tasks. If INxMODE=15 is used (start of an following motion task via I/O), IN1MODE=38 can be used, to have an additional enable for the start of the following motion tasks. Means, that the following motion task is started, if once a rising edge on digital input 1 was detected and then the INxMODE=15 input is enabled to start the following motion task.</p>

IN1MODE=39	Constant velocity for defined time	<p>This function starts a constant velocity for a defined time. The parameters for velocity and time are given by IN1TRIG . The velocity is given by the lower 16 bit (scaling by VUNIT) and the time by the upper 16 bit (given in msec) of the help variable IN1TRIG .</p> <p>A rising edge at INPUT1 changes the OPMODE to 0 (digital velocity) and gives the velocity that is given by IN1TRIG . After the defined time or a falling edge at INPUT1 is detected, the digital velocity command is set to "0". After the actual velocity has reached "0" the OPMODE is automatically switched back to the old one.</p> <p>Example for defining the help variable IN1TRIG </p> <ol style="list-style-type: none"> 1. Velocity = 1000 rpm time = 10 sec = 10000 msec IN1TRIG = 0x271003E8 = 655361000 2. Velocity = -500 rpm time = 10 msec IN1TRIG = 0x000afe0c = 720396
IN1MODE=40	Additional hardware enable input	<p>The digital input works as an additional hardware input. Only if this input has a high signal, the power stage is enabled.</p> <p>This Function can be used by several inputs. In this case, the inputs are configured in series. All inputs have to be high to enable the power stage. (Starting firmware 4.91)</p>
IN1MODE=41	Quick stop	<p>If the input is going to low, the drive stops the motor using the DECSTOP ramp. If zero velocity is reached ($V < VEL0$), the power stage is disabled.</p> <p>While stopping the motor the bit 24 (0x01000000) in TRJSTAT is set.</p> <p>The input is read in the 250µs task.</p>
IN1MODE=42	Activate/deactivate electronic gearing	<p>Activate/deactivate electronic gearing in OPMODE = 4.</p> <p>This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time (stating with firmware 5.51).</p>
IN1MODE=43	Activate/deactivate electronic gearing with position latch	<p>Activate/deactivate electronic gearing in OPMODE = 4.</p> <p>This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time</p> <p>In contrast to IN1MODE = 42, the master position is latched at the rising edge of the input and the position delay caused by the ramp is compensated. IN1TRIG gives the possibility to add an position offset (in PGEARI units) to the latched position(starting with Firmware 5.51).</p>
IN1MODE=44		
IN1MODE=45		
IN1MODE=46		

IN1MODE=47	Master slave mode with correction by pils and direction	<p>Correction of the slave position (OPMODE =4: master/slave operation) by the inputs (INPUT1/INPUT2) . The function of digital inputs is as follows:</p> <p>INPUT1: = 0 direction negative = 1 direction positive</p> <p>INPUT2: rising edge on INPUT2 forces the change of the slave position setpoint by IN1TRIG counts (1 count = ¼ master pulses)</p>
IN1MODE=48	IN1MODE=49	<p>Emergency stop in sensorless mode (FBTYPE =10) (high level)</p> <p>A High level on this input generates an emergency stop for the drive. No feedback information required (the same stop procedure as for F04 – feedback error).</p>
IN1MODE=50	IN1MODE=51	<p>Emergency stop in sensorless mode (FBTYPE =10) (low level)</p> <p>A Low level on this input generates an emergency stop for the drive. No feedback information required (the same stop procedure as for F04 – feedback error).</p> <p>The trigger variable IN1TRIG sets the moving distance within the slave has to catch the master. This distance is defined on the Slave and is given in counts (20 Bit/turn => 2²⁰) . CAMMCTRL can be set to 0 or 256. 256 is used if an overlap motion task should be used.</p>
IN1MODE=52	IN1MODE=53	<p>reserved</p> <p>reserved</p>
IN1MODE=54	IN1MODE=55	<p>reserved</p> <p>Ipeak2 x</p> <p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN1TRIG . Make the conversion according to the following equation: IN1TRIG given in % of IPEAK </p> <p>The reduced value is active on low level. The level is opposite to IN1MODE 18</p>

ASCII -Command	IN1TRIG
Syntax Transmit	IN1TRIG [Data]
Syntax Receive	IN1TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	99

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Variable for IN1MODE
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Description

Auxiliary trigger variable for [IN1MODE]. Certain settings of [IN1MODE] require you to specify an additional trigger level. See [IN1MODE] for further details.

ASCII -Command	IN2
Syntax Transmit	IN2
Syntax Receive	IN2 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	400...4002 P3030 ...P3
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	100

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Status of Digital Input 2
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Description
 The status of the digital input INPUT2.

ASCII -Command	IN2MODE
Syntax Transmit	IN2MODE [Data]
Syntax Receive	IN2MODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 50
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Digital I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P3030 ...3033
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	101

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Function of Digital Input 2
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Description

The IN2MODE command is used to configure the function of the digital input INPUT2. The amplifier must be switched off and then on again after an alteration of this parameter.
The following functions can be configured:

Zustand	Function	Description
IN2MODE=0	Off	The state of the input 2 is read and can be used via fieldbus or Slot card.
IN2MODE=1	Off	
IN2MODE=2	Off	
IN2MODE=3	Off	
IN2MODE=4	Off	
IN2MODE=5	Off	
IN2MODE=6	Off	
IN2MODE=7	Off	
IN2MODE=8	An In1/An In.2	Switches over the command inputs analog input 1/2 at ANCNFG = 0. This function is only effective if the analog set-point function 0,Xcmd=analog input 1 has been selected. High level at the input : command input 2 (terminals X3/6,7) is active Low level at the input : command input 1 (terminals X3/4,5) is active

IN2MODE=9	MT_No_Bit	<p>Here you can select the motion tasks that are stored in the servo amplifier (numbers 1...7) or the reference traverse/homing (0). The motion task number is presented externally at the digital inputs as a logical word, with a width of max. 3 bits .</p> <p>An input is required to start the motion task (INxMODE =17, Start_MT IO). If you wire up a reference/homing switch (INxMODE =12, Reference) and (also) want to start a following task (INxMODE =15, Start_MT Next) externally, the number of inputs that are available for selecting the motion tasks will be further reduced.</p> <p>This function can also be used for the VCT entry functionality, to select the adress of the VCT's. The start of the VCT entry is done by selecting one input with INxMODE =35.</p>
IN2MODE=10	Intg.Off	<p>Switch off the integral component of the velocity controller, the P-gain remains at the set value, the actual- (rotational) velocity feedback remains in operation.</p>
IN2MODE=11	v/Torq.Contr.	<p>Bypasses the velocity controller. The analog command is taken 1:1 as the command for current control, i.e. change over from velocity control to current (torque) control.</p> <p>High-level at the input : torque control Low-level at the input : velocity control</p> <p>Depending on OPMODE , it changes between OPMODE =0 (low) and OPMODE =2 (high) or OPMODE =1 (low) and OPMODE =3 (high).</p>
IN2MODE=12	Reference	<p>home/reference switch located on machine</p>
IN2MODE=13	ROD/SSI	<p>Changeover of the encoder-emulation (position output) on connector X5.</p> <p>High level at the input : SSI-compatible position signals (ENCMODE = 2) High level at the input : digital encoder-compatible position signals (ENCMODE = 1)</p>
IN2MODE=14	FError_clear	<p>Clear the warning of a contouring error (display n03) or the response monitoring (display n04).</p>
IN2MODE=15	Start_MT Next	<p>The following task, that is defined in the motion task by "Start with I/O" is started. The target position of the present motion task must be reached before the following task can be started.</p> <p>A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN2MODE=16	Start_MT No x	<p>Start a motion task that is stored in the servo amplifier, by giving the motion task number. After the function has been selected you can enter the motion task number as the auxiliary variable IN2TRIG .</p> <p>Motion task number "0" (IN2TRIG =0) initiates homing/reference traverse. A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN2MODE=17	Start_MT IO	<p>17, Start_MT IO Start of the motion task that has the number that is presented, bit-coded, at the digital inputs (PSTOP/NSTOP/DIGITAL-IN1/DIGITAL-IN2, see function 9, MT_No_Bit). A rising edge starts the motion task a falling edge cancels the motion task by a STOP - command</p>

IN2MODE=18	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN1TRIG . Make the conversion according to the following equation: IN1TRIG given in % of IPEAK </p>
IN2MODE=19	Off	
IN2MODE=20	Start_Jog v=x	<p>Start of the setup mode "Constant velocity" with a defined speed. After selecting the function, you can enter the speed in IN1TRIG . A rising edge starts the motion, a falling edge cancels the motion. This function works in position control, so OPMODE =8 has to be selected. The speed is given in units of the position controller given by VUNIT .</p>
IN2MODE=21	U_Mon.off	<p>Turns off the undervoltage monitoring function of the servo amplifier.</p>
IN2MODE=22	MT Restart	<p>Continues the motion task that was previously interrupted by a STOP - command.</p>
IN2MODE=23	Start2_MT No x	<p>Start of a motion task that is stored in the servo amplifier, with definition of the motion task number. After selecting the function, you can enter the motion task number in IN2TRIG Motion task number "0" starts the homing run. A rising edge starts the motion task. Warning ! The motion task does not stop automatically if the start signal is removed ! The motion task must be stopped by — a falling edge on another digital input (configured with 16, FStart_Nr x) — the ASCII command STOP — the STOP function via Bus or digital input</p>
IN2MODE=24	Switch over OPMODE	<p>The two different OPMODE s, that can be selected for switching over via the digital input, are written in the IN2TRIG help variable of the this input. The lower byte consists the OPMODE that should be available when the input has a negative edge. The higher byte consists the OPMODE that should be available when the input has a positive edge. When the drive is switched on, the OPMODE is set automatically to the corresponding state of the input. The contents of the help variable must be in decimal !! e.g.:</p> <p>Input2=low OPMODE =4 Input2=high OPMODE =8</p> <p>IN1MODE=24 (Activate Input) IN2TRIG =2052 (Decimal 0804h)</p> <p>2052 (Dec) = 0804 (Hex)</p>
IN2MODE=25	Zero_latch	<p>Sets the digital encoder zero pulse offset. The current position, depending on the digital encoder resolution that is set, is calculated at the rising edge and stored as NI-Offset in ENCZERO . After that, an automatic SAVE is generated. This function is used to perform an automatic setting of the zero pulse in one turn of the motor..</p>

IN2MODE=26	Position Latch	<p>A edge on this input latches the actual position. The position can then be read by LATCHX32 (positive edge) or LATCHX32N (negative edge). The actual 16-Bit position (absolute in one turn) can be read by LATCHX16 (positive edge) and LATCHX16N (negative edge). The status of the latching can be read by the equivalent bits of DRVSTAT .</p> <p>The min. cycle time for a low/high to high/low transaction is 500µs.</p> <p>The Latch function does not work with POSCNFG =1.</p>
IN2MODE=27	Emergency Stop	<p>Low state on the input starts an emergency stop function, that is executed with the ramp DECSTOP . Independently of the selected OPMODE , in this phase, the drive stops in velocity control. When it has stopped, it switches over to the original mode.</p>
IN2MODE=28	Reserved	
IN2MODE=29	Reserved	
IN2MODE=30	Command Buffer 1	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;).</p> <p>The command buffer for the positive edge is INHCMD , the command buffer for the negative edge is INLCMD .</p> <p>The max. length of that buffers is 56 character for each.</p> <p>If a digital input is configured with INxMODE=30, this input will proceed in that way.</p> <p>When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=30 function.</p>
IN2MODE=31	Command Buffer 2	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;).</p> <p>The command buffer for the positive edge is INHCMDX , the command buffer for the negative edge is INLCMDX .</p> <p>The max. length of that buffers is 56 character for each.</p> <p>If a digital input is configured with INxMODE=31, this input will proceed in that way.</p> <p>When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=31 function.</p>
IN2MODE=32	Brake	<p>Warning !</p> <p>With suspended loads, this function will lead to slipping of the axes !</p> <p>A rising edge at the input triggers the braking output of the servo amplifier.</p> <p>This function is only available while the amplifier is disabled. If an error message is active, the brake cannot be de-energized.</p> <p>Starting with 4.78, this function also works if the drive has an error.</p>

IN2MODE=33	see 30	Different from the functionality 30, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.
IN2MODE=34	see 31	Different from the functionality 31, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.
IN2MODE=35	Select Velocity/Current Entry	A positive edge on the digital input causes a takeover of the corresponding VCT entry (see command VCT). The number of the VCT entry is defined by the digital inputs configured with mode 9.
IN2MODE=36	Give Offset to Gearing Function	Gearing mode 4. A high signal on the digital input configured with this INxMODE adds a difference velocity to the gearing. This allows a simple synchronisation of two axes. The difference velocity is given to IN1TRIG . The scaling is in 20Bit per revolution every 250µs. The difference velocity (n) must be known, then the IN1TRIG can be calculated: $ IN1TRIG = n * 250 / (60 * rpm)$ <p>e.g.</p> <p>n = 50 rpm IN1TRIG = 208</p>
IN2MODE=37	Change source of the actual position at EXTPOS =1.	= 0 Actual position is generated by the external encoder selected by GEARMODE = 1 Actual position is generated by the first feedback device (resolver od high resolution feedback EnDAT or Hiperface)
IN2MODE=38		Definition of a motion task with following motion tasks. If INxMODE=15 is used (start of an following motion task via I/O), IN1MODE=38 can be used, to have an additional enable for the start of the following motion tasks. Means, that the following motion task is started, if once a rising edge on digital input 1 was detected and then the INxMODE=15 input is enabled to start the following motion task.
IN2MODE=39	Constant velocity for defined time	This function starts a constant velocity for a defined time. The parameters for velocity and time are given by IN2TRIG . The velocity is given by the lower 16 bit (scaling by VUNIT) and the time by the upper 16 bit (given in msec) of the help variable IN2TRIG . A rising edge at INPUTx changes the OPMODE to 0 (digital velocity) and gives the velocity that is given by IN2TRIG . After the defined time or a falling edge at INPUTx is detected, the digital velocity command is set to "0". After the actual velocity has reached "0" the OPMODE is automatically switched back to the old one. Example for defining the help variable IN2TRIG 1. Velocity = 1000 rpm time = 10 sec = 10000 msec IN2TRIG = 0x271003E8 = 655361000 2. Velocity = -500 rpm time = 10 msec IN2TRIG = 0x000afe0c = 720396

IN2MODE=40	Additional hardware enable	The digital input works as an additional hardware input. Only if this input has a high signal, the power stage is enabled. This Function can be used by several inputs. In this case, the inputs are configured in series. All inputs have to be high to enable the power stage. (Starting firmware 4.91)
IN2MODE=41	Quick stop	If the input is going to low, the drive stops the motor using the DECSTOP ramp. If zero velocity is reached ($V < VEL0 $), the power stage is disabled. While stopping the motor the bit 24 (0x01000000) in TRJSTAT is set. The input is read in the 250µs task.
IN2MODE=42	Activate/deactivate electronic gearing	Activate/deactivate electronic gearing in OPMODE = 4. This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time (stating with firmware 5.51).
IN2MODE=43	Activate/deactivate electronic gearing with position latch	Activate/deactivate electronic gearing in OPMODE = 4. This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time In contrast to IN2MODE = 42, the master position is latched at the rising edge of the input and the position delay caused by the ramp is compensated. IN2TRIG gives the possibility to add an position offset (in PGEARI units) to the latched position(starting with Firmware 5.51).
IN2MODE=44	Latch- Input rising edge	Rising and falling edges on INPUT2 are latching the actual positions PFB and PRD . The latched values are stored in LATCH32 and LATCH16 (rising edge) or LATCH32N and LATCH16N (falling edge). Additionally after a rising edge on INPUT2 the actual position PFB is resetted to the value given by IN2TRIG .
IN2MODE=45	Latch- Input falling edge	Rising and falling edges on INPUT2 are latching the actual positions PFB and PRD . The latched values are stored in LATCH32 and LATCH16 (rising edge) or LATCH32N and LATCH16N (falling edge). Additionally after a falling edge on INPUT2 the actual position PFB is resetted to the value given by IN2TRIG .
IN2MODE=46	Latch- Input mean value	Rising and falling edges on INPUT2 are latching the actual positions PFB and PRD. The latched values are stored in LATCH32 and LATCH16 (rising edge) or LATCH32N and LATCH16N (falling edge). Additionally after a falling edge on INPUT2 the actual position PFB is resetted to the value $IN2TRIG + (LATCH32N - LATCH32)/2$
IN2MODE=47		
IN2MODE=48		
IN2MODE=49		
IN2MODE=50		

IN2MODE=51	Master slave synchronisation	<p>The trigger variable IN2TRIG sets the moving distance within the slave has to catch the master. This distance is defined on the Slave and is given in counts (20 Bit/turn => 2^20). CAMMCTRL can be set to 0 or 256. 256 is used if an overlap motion task should be used.</p>
IN2MODE=52	reserved	
IN2MODE=53	reserved	
IN2MODE=54	reserved	
IN2MODE=55	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN2TRIG . Make the conversion according to the following equation: IN1TRIG given in % of IPEAK </p> <p>The reduced value is active on low level. The level is opposite to IN2MODE 18</p>

ASCII -Command	IN2PM
Syntax Transmit	IN2PM [Data]
Syntax Receive	IN2PM <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	2.44
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	302

Data Type BUS/DPR	Integer8
Weighting 10 ³	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	In-Position 2 Mode
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Description

The IN2PM command is used to configure the function of a digital output during a motion task (motion block) sequence.

The function "NextInPos" is available if an I/O expansion card is used (terminal X11B4) or a digital output of the drive is configured with the function |OxMODE|=16. At the start of the first motion block (motion task), the "NextInPos" output is always set to 0. The response of the output during the execution of the motion block sequence depends on the configuration variable IN2PM.

IN2PM=0 – the output is inverted at the start of the next block.

IN2PM=1– the output is set to 0 at the start of a motion block, and set to HIGH at the end of a motion block.

IN2PM=2 – the output is inverted at the end of a block.

With a sequence of motion blocks where the blocks are started immediately, only the IN2PM=0 or IN2PM=2 settings make sense. If the setting is IN2PM=1, the HIGH state is so short that it may not be registered at all by the external control system.

If a following task is started with the aid of an I/O (|INxMODE|=15), then the IN2PM=2 or IN2PM=1 setting should be used. With this setting, the end of a motion block is signaled by the HIGH state (IN2PM=1) or the change of state (IN2PM=2) at the "NextInPos" output. The external control system can then initialize the continuation of the motion task sequence via the "Start next task" input.

ASCII -Command	IN2TRIG
Syntax Transmit	IN2TRIG [Data]
Syntax Receive	IN2TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	102

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Variable for IN2MODE
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Description

Auxiliary trigger variable for [IN2MODE]. Certain settings of [IN2MODE] require you to specify an additional trigger level. See [IN2MODE] for further details.

ASCII -Command	IN3
Syntax Transmit	IN3
Syntax Receive	IN3 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	400...4002 P3030 ...P3
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	103

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Status of Digital Input 3
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Description
 The status of the digital input INPUT3.

ASCII -Command	IN3MODE
Syntax Transmit	IN3MODE [Data]
Syntax Receive	IN3MODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 50
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Digital I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P3030 ...3033
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	104

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Function of Digital Input 3
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Description

The IN3MODE command is used to configure the function of the digital input INPUT3. The amplifier must be switched off and then on again after an alteration of this parameter.
 The following functions can be configured:

Zustand	Function	Description
IN3MODE=0	Off	The state of the input 1 is read and can be used via fieldbus or Slot card.
IN3MODE=1	Reset	Software reset of the servo amplifier in the event of a fault. The high input signal is ignored, if the drive has no fault. All the functions and displays are set to the initial status. Parameters that are not stored in the EEPROM are erased, the parameter set that is stored in the EEPROM is loaded. If any of the error messages F01, F02, F03, F05, F08, F13, F16 or F19 (p.52) are present, then no software-reset will be carried out, just the error message will be deleted. This means that, for example, the encoder output signals are stable and can continue to be evaluated by the controls. When the input is high, while the auxillary 24V supply is switched on, the drive waits, before the input is set to low. This state is symbolised in the display. The first of the three display positions displays a "A".
IN3MODE=2	PSTOP	A low on the input disables the positive direction (clockwise if DIR =1, counterclockwise if DIR =0). At the same time, a warning "n10" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated.

IN3MODE=3	NSTOP (4.78)	A low on the input disables the negative direction (clockwise if DIR =0, counterclockwise if DIR =1). At the same time, a warning "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated.
IN3MODE=4	PSTOP+Intg.Off	A low on the input disables the positive direction (clockwise if DIR =1, counterclockwise if DIR =0). At the same time, a warning "n10" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated (without integral part in the velocity controller).
IN3MODE=5	NSTOP+Intg.Off	A low on the input disables the negative direction (counterclockwise if DIR =1, clockwise if DIR =0). At the same time, a warning "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated (without integral part in the velocity controller).
IN3MODE=6	PSTOP+NSTOP	A low on the input disables the positive and the negative direction. At the same time, a warning "n10" and "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated.
IN3MODE=7	P/Nstop+Intg.Off	A low on the input disables the positive and the negative direction. At the same time, a warning "n10" and "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated (without integral part in the velocity controller).
IN3MODE=8	An In1/An In.2	Switches over the command inputs analog input 1/2 at ANCNFG = 0. This function is only effective if the analog set-point function 0,Xcmd=analog input 1 has been selected. High level at the input : command input 2 (terminals X3/6,7) is active Low level at the input : command input 1 (terminals X3/4,5) is active

IN3MODE=9	MT_No_Bit	<p>Here you can select the motion tasks that are stored in the servo amplifier (numbers 1...7) or the reference traverse/homing (0). The motion task number is presented externally at the digital inputs as a logical word, with a width of max. 3 bits .</p> <p>An input is required to start the motion task (INxMODE =17, Start_MT IO). If you wire up a reference/homing switch (INxMODE =12, Reference) and (also) want to start a following task (INxMODE =15, Start_MT Next) externally, the number of inputs that are available for selecting the motion tasks will be further reduced.</p> <p>This function can also be used for the VCT entry functionality, to select the adress of the VCT's. The start of the VCT entry is done by selecting one input with INxMODE =35.</p>
IN3MODE=10	Intg.Off	<p>Switch off the integral component of the velocity controller, the P-gain remains at the set value, the actual- (rotational) velocity feedback remains in operation.</p>
IN3MODE=11	v/Torq.Contr.	<p>Bypasses the velocity controller. The analog command is taken 1:1 as the command for current control, i.e. change over from velocity control to current (torque) control.</p> <p>High-level at the input : torque control Low-level at the input : velocity control</p> <p>Depending on OPMODE , it changes between OPMODE =0 (low) and OPMODE =2 (high) or OPMODE =1 (low) and OPMODE =3 (high).</p>
IN3MODE=12	Reference	<p>home/reference switch located on machine</p>
IN3MODE=13	ROD/SSI	<p>Changeover of the encoder-emulation (position output) on connector X5.</p> <p>High level at the input : SSI-compatible position signals (ENCMODE = 2) High level at the input : digital encoder-compatible position signals (ENCMODE = 1)</p>
IN3MODE=14	FError_clear	<p>Clear the warning of a contouring error (display n03) or the response monitoring (display n04).</p>
IN3MODE=15	Start_MT Next	<p>The following task, that is defined in the motion task by "Start with I/O" is started. The target position of the present motion task must be reached before the following task can be started.</p> <p>A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN3MODE=16	Start_MT No x	<p>Start a motion task that is stored in the servo amplifier, by giving the motion task number. After the function has been selected you can enter the motion task number as the auxiliary variable IN3TRIG .</p> <p>Motion task number "0" (IN3TRIG =0) initiates homing/reference traverse. A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN3MODE=17	Start_MT IO	<p>17, Start_MT IO Start of the motion task that has the number that is presented, bit-coded, at the digital inputs (PSTOP/NSTOP/DIGITAL-IN1/DIGITAL-IN2, see function 9, MT_No_Bit). A rising edge starts the motion task a falling edge cancels the motion task by a STOP - command</p>

IN3MODE=18	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN1TRIG . Make the conversion according to the following equation: IN1TRIG given in % of IPEAK </p>
IN3MODE=19	Off	
IN3MODE=20	Start_Jog v=x	<p>Start of the setup mode "Constant velocity" with a defined speed. After selecting the function, you can enter the speed in IN1TRIG . A rising edge starts the motion, a falling edge cancels the motion. This function works in position control, so OPMODE =8 has to be selected. The speed is given in units of the position controller given by VUNIT .</p>
IN3MODE=21	U_Mon.off	<p>Turns off the undervoltage monitoring function of the servo amplifier.</p>
IN3MODE=22	MT Restart	<p>Continues the motion task that was previously interrupted by a STOP - command.</p>
IN3MODE=23	Start2_MT No x	<p>Start of a motion task that is stored in the servo amplifier, with definition of the motion task number. After selecting the function, you can enter the motion task number in IN3TRIG Motion task number "0" starts the homing run. A rising edge starts the motion task. Warning ! The motion task does not stop automatically if the start signal is removed ! The motion task must be stopped by — a falling edge on another digital input (configured with 16, FStart_Nr x) — the ASCII command STOP — the STOP function via Bus or digital input</p>
IN3MODE=24	Switch over OPMODE	<p>The two different OPMODE s, that can be selected for switching over via the digital input, are written in the IN3TRIG help variable of the this input. The lower byte consists the OPMODE that should be available when the input has a negative edge. The higher byte consists the OPMODE that should be available when the input has a positive edge. When the drive is switched on, the OPMODE is set automatically to the corresponding state of the input. The contents of the help variable must be in decimal !! e.g.:</p> <p>Input3=low OPMODE =4 Input3=high OPMODE =8</p> <p>IN3MODE=24 (Activate Input) IN3TRIG =2052 (Decimal 0804h)</p> <p>2052 (Dec) = 0804 (Hex)</p>
IN3MODE=25	Zero_latch	<p>Sets the digital encoder zero pulse offset. The current position, depending on the digital encoder resolution that is set, is calculated at the rising edge and stored as NI-Offset in ENCZERO . After that, an automatic SAVE is generated. This function is used to perform an automatic setting of the zero pulse in one turn of the motor..</p>

IN3MODE=26	Off	
IN3MODE=27	Emergency Stop	Low state on the input starts an emergency stop function, that is executed with the ramp DECSTOP . Independently of the selected OPMODE , in this phase, the drive stops in velocity control. When it has stopped, it switches over to the original mode.
IN3MODE=28	Reserved	
IN3MODE=29	Reserved	
IN3MODE=30	Command Buffer 1	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;).</p> <p>The command buffer for the positive edge is INHCMD , the command buffer for the negative edge is INLCMD .</p> <p>The max. length of that buffers is 56 character for each.</p> <p>If a digital input is configured with INxMODE=30, this input will proceed in that way.</p> <p>When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=30 function.</p>
IN3MODE=31	Command Buffer 2	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;).</p> <p>The command buffer for the positive edge is INHCMDX , the command buffer for the negative edge is INLCMDX .</p> <p>The max. length of that buffers is 56 character for each.</p> <p>If a digital input is configured with INxMODE=31, this input will proceed in that way.</p> <p>When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=31 function.</p>
IN3MODE=32	Brake	<p>Warning !</p> <p>With suspended loads, this function will lead to slipping of the axes !</p> <p>A rising edge at the input triggers the braking output of the servo amplifier.</p> <p>This function is only available while the amplifier is disabled. If an error message is active, the brake cannot be de-energized.</p> <p>Starting with 4.78, this function also works if the drive has an error.</p>
IN3MODE=33	see 30	Different from the functionality 30, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.
IN3MODE=34	see 31	Different from the functionality 31, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.

IN3MODE=35	Select Velocity/Current Entry	<p>A positive edge on the digital input causes a takeover of the corresponding VCT entry (see command VCT). The number of the VCT entry is defined by the digital inputs configured with mode 9.</p>
IN3MODE=36	Give Offset to Gearing Function	<p>Gearing mode 4. A high signal on the digital input configured with this INxMODE adds a difference velocity to the gearing. This allows a simple synchronisation of two axes. The difference velocity is given to IN3TRIG . The scaling is in 20Bit per revolution every 250µs. The difference velocity (n) must be known, then the IN3TRIG can be calculated:</p> $ IN3TRIG = n * 250 / (60 * rpm)$ <p>e.g.</p> <p>n = 50 rpm IN3TRIG = 208</p>
IN3MODE=37	Change source of the actual position at EXTPOS =1.	<p>= 0 Actual position is generated by the external encoder selected by GEARMODE = 1 Actual position is generated by the first feedback device (resolver or high resolution feedback EnDAT or Hiperface)</p>
IN3MODE=38		<p>Definition of a motion task with following motion tasks. If INxMODE=15 is used (start of an following motion task via I/O), IN3MODE=38 can be used, to have an additional enable for the start of the following motion tasks. Means, that the following motion task is started, if once a rising edge on digital input 1 was detected and then the INxMODE=15 input is enabled to start the following motion task.</p>
IN3MODE=39	Constant velocity for defined time	<p>This function starts a constant velocity for a defined time. The parameters for velocity and time are given by INxTRIG. The velocity is given by the lower 16 bit (scaling by VUNIT) and the time by the upper 16 bit (given in msec) of the help variable INxTRIG. A rising edge at INPUTx changes the OPMODE to 0 (digital velocity) and gives the velocity that is given by IN3TRIG . After the defined time or a falling edge at INPUTx is detected, the digital velocity command is set to "0". After the actual velocity has reached "0" the OPMODE is automatically switched back to the old one.</p> <p>Example for defining the help variable IN3TRIG </p> <ol style="list-style-type: none"> Velocity = 1000 rpm time = 10 sec = 10000 msec IN3TRIG = 0x271003E8 = 655361000 Velocity = -500 rpm time = 10 msec IN3TRIG = 0x000afe0c = 720396
IN3MODE=40	Additional hardware enable	<p>The digital input works as an additional hardware input. Only if this input has a high signal, the power stage is enabled. This Function can be used by several inputs. In this case, the inputs are configured in series. All inputs have to be high to enable the power stage. (Starting firmware 4.91)</p>

IN3MODE=41	Quick stop	<p>If the input is going to low, the drive stops the motor using the DECSTOP ramp. If zero velocity is reached ($V < VELO$), the power stage is disabled.</p> <p>While stopping the motor the bit 24 (0x01000000) in TRJSTAT is set. The input is read in the 250µs task.</p>
IN3MODE=42	Activate/deactivate electronic gearing	<p>Activate/deactivate electronic gearing in OPMODE = 4.</p> <p>This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time (stating with firmware 5.51).</p>
IN3MODE=43	Activate/deactivate electronic gearing with position latch	<p>Activate/deactivate electronic gearing in OPMODE = 4.</p> <p>This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time. In contrast to IN3MODE = 42, the master position is latched at the rising edge of the input and the position delay caused by the ramp is compensated. IN3TRIG gives the possibility to add an position offset (in PGEARI units) to the latched position(starting with Firmware 5.51).</p>
IN3MODE=44		
IN3MODE=45		
IN3MODE=46		
IN3MODE=47		
IN3MODE=48		
IN3MODE=49		
IN3MODE=50		
IN3MODE=51	Master slave synchronisation	<p>The trigger variable IN3TRIG sets the moving distance within the slave has to catch the master. This distance is defined on the Slave and is given in counts (20 Bit/turn => 2^{20}). CAMMCTRL can be set to 0 or 256. 256 is used if an overlap motion task should be used.</p>
IN3MODE=52	reserved	
IN3MODE=53	reserved	
IN3MODE=54	reserved	
IN3MODE=55	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN3TRIG .</p> <p>Make the conversion according to the following equation: IN3TRIG given in % of IPEAK </p> <p>The reduced value is active on low level. The level is opposite to IN1MODE 18</p>

ASCII -Command	IN3TRIG
Syntax Transmit	IN3TRIG [Data]
Syntax Receive	IN3TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	105

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Variable for IN3MODE
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Description

Auxiliary trigger variable for [IN3MODE]. Certain settings of [IN3MODE] require you to specify an additional trigger level. See [IN3MODE] for further details.

ASCII -Command	IN4
Syntax Transmit	IN4
Syntax Receive	IN4 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	400...4002 P3030 ...P3
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	106

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Status of Digital Input 4.
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Description
 The status of the digital input INPUT4.

ASCII -Command	IN4MODE
Syntax Transmit	IN4MODE [Data]
Syntax Receive	IN4MODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 50
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Digital I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P3030 ...3033
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	107

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Function of Digital Input 4
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Description

The IN4MODE command is used to configure the function of the digital input INPUT4. The amplifier must be switched off and then on again after an alteration of this parameter. The following functions can be configured:

IN4MODE=0	Off	The state of the input 1 is read and can be used via fieldbus or Slot card.
IN4MODE=1	Reset	Software reset of the servo amplifier in the event of a fault. The high input signal is ignored, if the drive has no fault. All the functions and displays are set to the initial status. Parameters that are not stored in the EEPROM are erased, the parameter set that is stored in the EEPROM is loaded. If any of the error messages F01, F02, F03, F05, F08, F13, F16 or F19 (p.52) are present, then no software-reset will be carried out, just the error message will be deleted. This means that, for example, the encoder output signals are stable and can continue to be evaluated by the controls. When the input is high, while the auxillary 24V supply is switched on, the drive waits, before the input is set to low. This state is symbolised in the display. The first of the three display positions displays a "A".
IN4MODE=2	PSTOP	A low on the input disables the positive direction (clockwise if DIR =1, counterclockwise if DIR =0). At the same time, a warning "n10" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated.

IN4MODE=3	NSTOP (4.78)	A low on the input disables the negative direction (clockwise if DIR =0, counterclockwise if DIR =1). At the same time, a warning "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated.
IN4MODE=4	PSTOP+Intg.Off	A low on the input disables the positive direction (clockwise if DIR =1, counterclockwise if DIR =0). At the same time, a warning "n10" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated (without integral part in the velocity controller).
IN4MODE=5	NSTOP + Int. off	A low on the input disables the negative direction (counterclockwise if DIR =1, clockwise if DIR =0). At the same time, a warning "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated (without integral part in the velocity controller).
IN4MODE=6	PSTOP+NSTOP	A low on the input disables the positive and the negative direction. At the same time, a warning "n10" and "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated.
IN4MODE=7	P/Nstop+Intg.Off	A low on the input disables the positive and the negative direction. At the same time, a warning "n10" and "n11" is displayed. If a negative edge is recognised while the motor is running, the drive stops the motor in OPMODE =0 (velocity control with setpoint zero) using the DECSTOP ramp. When the motor has stopped, the old OPMODE is activated (without integral part in the velocity controller).
IN4MODE=8	An In1/An In.2	Switches over the command inputs analog input 1/2 at ANCNFG = 0. This function is only effective if the analog set-point function 0,Xcmd=analog input 1 has been selected. High level at the input : command input 2 (terminals X3/6,7) is active Low level at the input : command input 1 (terminals X3/4,5) is active

IN4MODE=9	MT_No_Bit	<p>Here you can select the motion tasks that are stored in the servo amplifier (numbers 1...7) or the reference traverse/homing (0). The motion task number is presented externally at the digital inputs as a logical word, with a width of max. 3 bits .</p> <p>An input is required to start the motion task (INxMODE =17, Start_MT IO). If you wire up a reference/homing switch (INxMODE =12, Reference) and (also) want to start a following task (INxMODE =15, Start_MT Next) externally, the number of inputs that are available for selecting the motion tasks will be further reduced.</p> <p>This function can also be used for the VCT entry functionality, to select the adress of the VCT's. The start of the VCT entry is done by selecting one input with INxMODE =35.</p>
IN4MODE=10	Intg.Off	<p>Switch off the integral component of the velocity controller, the P-gain remains at the set value, the actual- (rotational) velocity feedback remains in operation.</p>
IN4MODE=11	v/Torq.Contr.	<p>Bypasses the velocity controller. The analog command is taken 1:1 as the command for current control, i.e. change over from velocity control to current (torque) control.</p> <p>High-level at the input : torque control Low-level at the input : velocity control</p> <p>Depending on OPMODE , it changes between OPMODE =0 (low) and OPMODE =2 (high) or OPMODE =1 (low) and OPMODE =3 (high).</p>
IN4MODE=12	Reference	<p>home/reference switch located on machine</p>
IN4MODE=13	ROD/SSI	<p>Changeover of the encoder-emulation (position output) on connector X5.</p> <p>High level at the input : SSI-compatible position signals (ENCMODE = 2) High level at the input : digital encoder-compatible position signals (ENCMODE = 1)</p>
IN4MODE=14	FError_clear	<p>Clear the warning of a contouring error (display n03) or the response monitoring (display n04).</p>
IN4MODE=15	Start_MT Next	<p>The following task, that is defined in the motion task by "Start with I/O" is started. The target position of the present motion task must be reached before the following task can be started.</p> <p>A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN4MODE=16	Start_MT No x	<p>Start a motion task that is stored in the servo amplifier, by giving the motion task number. After the function has been selected you can enter the motion task number as the auxiliary variable IN4TRIG .</p> <p>Motion task number "0" (IN4TRIG =0) initiates homing/reference traverse. A rising edge starts the motion task, a falling edge cancels the motion task.</p>
IN4MODE=17	Start_MT IO	<p>17, Start_MT IO Start of the motion task that has the number that is presented, bit-coded, at the digital inputs (PSTOP/NSTOP/DIGITAL-IN1/DIGITAL-IN2, see function 9, MT_No_Bit). A rising edge starts the motion task a falling edge cancels the motion task by a STOP - command</p>

IN4MODE=18	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN1TRIG . Make the conversion according to the following equation: IN1TRIG given in % of IPEAK </p>
IN4MODE=19	Off	
IN4MODE=20	Start_Jog v=x	<p>Start of the setup mode "Constant velocity" with a defined speed. After selecting the function, you can enter the speed in IN1TRIG . A rising edge starts the motion, a falling edge cancels the motion. This function works in position control, so OPMODE =8 has to be selected. The speed is given in units of the position controller given by VUNIT .</p>
IN4MODE=21	U_Mon.off	<p>Turns off the undervoltage monitoring function of the servo amplifier.</p>
IN4MODE=22	MT Restart	<p>Continues the motion task that was previously interrupted by a STOP - command.</p>
IN4MODE=23	Start2_MT No x	<p>Start of a motion task that is stored in the servo amplifier, with definition of the motion task number. After selecting the function, you can enter the motion task number in IN4TRIG Motion task number "0" starts the homing run. A rising edge starts the motion task. Warning ! The motion task does not stop automatically if the start signal is removed ! The motion task must be stopped by — a falling edge on another digital input (configured with 16, FStart_Nr x) — the ASCII command STOP — the STOP function via Bus or digital input</p>
IN4MODE=24	Switch over OPMODE	<p>The two different OPMODE s, that can be selected for switching over via the digital input, are written in the IN4TRIG help variable of the this input. The lower byte consists the OPMODE that should be available when the input has a negative edge. The higher byte consists the OPMODE that should be available when the input has a positive edge. When the drive is switched on, the OPMODE is set automatically to the corresponding state of the input. The contents of the help variable must be in decimal !! e.g.:</p> <p>Input4=low OPMODE =4 Input4=high OPMODE =8</p> <p>IN4MODE=24 (Activate Input) IN4TRIG =2052 (Decimal 0804h)</p> <p>2052 (Dec) = 0804 (Hex)</p>
IN4MODE=25	Zero_latch	<p>Sets the digital encoder zero pulse offset. The current position, depending on the digital encoder resolution that is set, is calculated at the rising edge and stored as NI-Offset in ENCZERO . After that, an automatic SAVE is generated. This function is used to perform an automatic setting of the zero pulse in one turn of the motor..</p>

IN4MODE=26	Off	
IN4MODE=27	Emergency Stop	Low state on the input starts an emergency stop function, that is executed with the ramp DECSTOP . Independently of the selected OPMODE , in this phase, the drive stops in velocity control. When it has stopped, it switches over to the original mode.
IN4MODE=28	Reserved	
IN4MODE=29	Reserved	
IN4MODE=30	Command Buffer 1	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;).</p> <p>The command buffer for the positive edge is INHCMD , the command buffer for the negative edge is INLCMD .</p> <p>The max. length of that buffers is 56 character for each.</p> <p>If a digital input is configured with INxMODE=30, this input will proceed in that way.</p> <p>When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=30 function.</p>
IN4MODE=31	Command Buffer 2	<p>A positive or negative edge on the input starts a command buffer. This command buffer contains separate ASCII objects, that are separated with semicolon (;).</p> <p>The command buffer for the positive edge is INHCMDX , the command buffer for the negative edge is INLCMDX .</p> <p>The max. length of that buffers is 56 character for each.</p> <p>If a digital input is configured with INxMODE=31, this input will proceed in that way.</p> <p>When the drive is switched on, the Command buffer is set automatically started to the corresponding state of the input.</p> <p>Remark: Only one of the digital inputs can use the INxMODE=31 function.</p>
IN4MODE=32	Brake	<p>Warning !</p> <p>With suspended loads, this function will lead to slipping of the axes !</p> <p>A rising edge at the input triggers the braking output of the servo amplifier.</p> <p>This function is only available while the amplifier is disabled. If an error message is active, the brake cannot be de-energized.</p> <p>Starting with 4.78, this function also works if the drive has an error.</p>
IN4MODE=33	see 30	Different from the functionality 30, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.
IN4MODE=34	see 31	Different from the functionality 31, the resulting answers of the commands are not suppressed, but are send to the seriell communication channel RS232.

IN4MODE=35	Select Velocity/Current Entry	<p>A positive edge on the digital input causes a takeover of the corresponding VCT entry (see command VCT). The number of the VCT entry is defined by the digital inputs configured with mode 9.</p>
IN4MODE=36	Give Offset to Gearing Function	<p>Gearing mode 4. A high signal on the digital input configured with this INxMODE adds a difference velocity to the gearing. This allows a simple synchronisation of two axes. The difference velocity is given to IN4TRIG . The scaling is in 20Bit per revolution every 250µs. The difference velocity (n) must be known, then the IN4TRIG can be calculated:</p> $ IN4TRIG = n * 250 / (60 * rpm)$ <p>e.g.</p> <p>n = 50 rpm IN4TRIG = 208</p>
IN4MODE=37	Change source of the actual position at EXTPOS=1.	<p>= 0 Actual position is generated by the external encoder selected by GEARMODE = 1 Actual position is generated by the first feedback device (resolver or high resolution feedback EnDAT or Hiperface)</p>
IN4MODE=38		<p>Definition of a motion task with following motion tasks. If INxMODE=15 is used (start of an following motion task via I/O), IN4MODE=38 can be used, to have an additional enable for the start of the following motion tasks. Means, that the following motion task is started, if once a rising edge on digital input 1 was detected and then the INxMODE=15 input is enabled to start the following motion task.</p>
IN4MODE=39	Constant velocity for defined time	<p>This function starts a constant velocity for a defined time. The parameters for velocity and time are given by IN4TRIG . The velocity is given by the lower 16 bit (scaling by VUNIT) and the time by the upper 16 bit (given in msec) of the help variable IN4TRIG . A rising edge at INPUTx changes the OPMODE to 0 (digital velocity) and gives the velocity that is given by IN4TRIG . After the defined time or a falling edge at INPUTx is detected, the digital velocity command is set to "0". After the actual velocity has reached "0" the OPMODE is automatically switched back to the old one.</p> <p>Example for defining the help variable IN4TRIG </p> <ol style="list-style-type: none"> Velocity = 1000 rpm time = 10 sec = 10000 msec IN4TRIG = 0x271003E8 = 655361000 Velocity = -500 rpm time = 10 msec IN4TRIG = 0x000afe0c = 720396
IN4MODE=40	Additional hardware enable	<p>The digital input works as an additional hardware input. Only if this input has a high signal, the power stage is enabled. This Function can be used by several inputs. In this case, the inputs are configured in series. All inputs have to be high to enable the power stage. (Starting firmware 4.91)</p>

IN4MODE=41	Quick stop	<p>If the input is going to low, the drive stops the motor using the DECSTOP ramp. If zero velocity is reached ($V < VELO$), the power stage is disabled.</p> <p>While stopping the motor the bit 24 (0x01000000) in TRJSTAT is set. The input is read in the 250µs task.</p>
IN4MODE=42	Activate/deactivate electronic gearing	<p>Activate/deactivate electronic gearing in OPMODE = 4.</p> <p>This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time (stating with firmware 5.51).</p>
IN4MODE=43	Activate/deactivate electronic gearing with position latch	<p>Activate/deactivate electronic gearing in OPMODE = 4.</p> <p>This function is practical only with slave axis. A rising edge on the digital input starts the motion from 0 to the master speed and a falling edge changes the speed from master speed to 0. The ramp times can be set by ACCR for the acceleration and DECR for deceleration time. In contrast to IN4MODE = 42, the master position is latched at the rising edge of the input and the position delay caused by the ramp is compensated. IN4TRIG gives the possibility to add an position offset (in PGEAR units) to the latched position(starting with Firmware 5.51).</p>
IN4MODE=44		
IN4MODE=45		
IN4MODE=46		
IN4MODE=47		
IN4MODE=48		
IN4MODE=49		
IN4MODE=50		
IN4MODE=51	Master slave synchronisation	<p>The trigger variable IN4TRIG sets the moving distance within the slave has to catch the master. This distance is defined on the Slave and is given in counts (20 Bit/turn => 2^{20}). CAMMCTRL can be set to 0 or 256. 256 is used if an overlap motion task should be used.</p>
IN4MODE=52	reserved	
IN4MODE=53	reserved	
IN4MODE=54	reserved	
IN4MODE=55	Ipeak2 x	<p>Switch over to a second (lower) peak value of current. Scaled as x (0...100) % of the peak current of the instrument. After the function has been selected you can enter the percentage value as the auxiliary variable IN4TRIG .</p> <p>Make the conversion according to the following equation: IN4TRIG given in % of IPEAK </p> <p>The reduced value is active on low level. The level is opposite to IN1MODE 18</p>

ASCII -Command	IN4TRIG
Syntax Transmit	IN4TRIG [Data]
Syntax Receive	IN4TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	108

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Variable for IN4MODE
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Description

Auxiliary trigger variable for [IN4MODE]. Certain settings of [IN4MODE] require you to specify an additional trigger level. See [IN4MODE] for further details.

ASCII -Command	INHCMD
Syntax Transmit	INHCMD [Data]
Syntax Receive	INHCMD <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Command buffer for high level
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Description

The command INHCMD can be used to define an ASCII command sequence. This command sequence will always be carried out when a rising edge is detected at the input that has been configured with the function |INxMODE|=30,33
 A command sequence consists of individual ASCII commands, separated by a semicolon (;)
 The maximum length of this command sequence is 56 characters.

Example:

INHCMD |GV| 10; |GVTN| 15

If a LOW/HIGH edge is detected, the gain of the velocity control loop is set to 10 and the integral action time is set to 15 msec.

ASCII -Command	INHCMDX
Syntax Transmit	INHCMDX [Data]
Syntax Receive	INHCMDX <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	ECHO
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Command buffer for high level (INxMODE=31,34)
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Description

The command INHCMDX can be used to define an ASCII command sequence. This command sequence will always be carried out when a rising edge is detected at the input that has been configured with the function |INxMODE|=31,34
 A command sequence consists of individual ASCII commands, separated by a semicolon (;)
 The maximum length of this command sequence is 56 characters.

Example:

INHCMDX |GV| 10; |GVTN| 15

If a LOW/HIGH edge is detected, the gain of the velocity control loop is set to 10 and the integral action time is set to 15 msec.

ASCII -Command	INLCMD
Syntax Transmit	INLCMD [Data]
Syntax Receive	INLCMD <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Command buffer for low level
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Description

The command INLCMD can be used to define an ASCII command sequence. This command sequence will always be carried out when a falling edge is detected at the input that has been configured with the function |INxMODE|=30,33. A command sequence consists of individual ASCII commands, separated by a semicolon (;). The maximum length of this command sequence is 56 characters.

Example:
 INLCMD |GV| 5; |GVTN| 10

If a HIGH/LOW edge is detected, the gain of the velocity control loop is set to 5 and the integral action time is set to 10 msec.

ASCII -Command	INLCMDX
Syntax Transmit	INLCMD [Data]
Syntax Receive	INLCMD <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	ECHO
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Command buffer for low level (INxMODE=31,34)
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Description

The command INLCMDX can be used to define an ASCII command sequence. This command sequence will always be carried out when a falling edge is detected at the input that has been configured with the function |INxMODE|=31,34. A command sequence consists of individual ASCII commands, separated by a semicolon (;). The maximum length of this command sequence is 56 characters.

Example:

INLCMDX |GV| 5; |GVTN| 10

If a HIGH/LOW edge is detected, the gain of the velocity control loop is set to 5 and the integral action time is set to 10 msec.

ASCII -Command	INPOS
Syntax Transmit	INPOS
Syntax Receive	INPOS <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	109

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Status of In-Position Signal
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Description

The INPOS command returns the status of the IN-Position bit of the status register (|DRVSTAT|). As long as the difference between the last target position (motion task) and the actual position (|PFB|) is within the width of the preset In-Position window (|PEINPOS|), a 1 is signalled, otherwise a 0.

see also |INPT|

ASCII -Command	INPT
Syntax Transmit	INPT [Data]
Syntax Receive	INPT <Data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds
Range	1 .. 32000
Default	10
Opmode	8
Drive Status	-
Start Firmware	2.08
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	304

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	In-Position Delay
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Description

The INPT command defines a delay time for the In-Position signal. At the start of a motion block, the In-Position signal is removed, and the monitoring of the In-Position window is only activated again after the end of this preset time. This function is especially important for positioning tasks within the In-Position window. In such a case, it ensures that the In-Position signal is always removed for a definite time.

See also |INPOS|

ASCII -Command	INS0
Syntax Transmit	INS0
Syntax Receive	INS0 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	446

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A0 of the I/O Option Card
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Description

INS0 is used to read input A0 (terminal 1) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS1
Syntax Transmit	INS1
Syntax Receive	INS1 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	447

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A1 of the I/O Option Card
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Description

INS1 is used to read input A1 (terminal 2 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS2
Syntax Transmit	INS2
Syntax Receive	INS2 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	448

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A2 of the I/O Option Card
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Description

INS2 is used to read input A2 (terminal 3 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS3
Syntax Transmit	INS3
Syntax Receive	INS3 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	449

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A3 of the I/O Option Card
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Description

INS3 is used to read input A3 (terminal 4 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS4
Syntax Transmit	INS4
Syntax Receive	INS4 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	450

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A4 of the I/O Option Card
-------------------	--

Description

INS4 is used to read input A4 (terminal 5 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS5
Syntax Transmit	INS5
Syntax Receive	INS5 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	451

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A5 of the I/O Option Card
-------------------	--

Description

INS5 is used to read input A5 (terminal 6 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS6
Syntax Transmit	INS6
Syntax Receive	INS6 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	452

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A6 of the I/O Option Card
-------------------	--

Description

INS6 is used to read input A6 (terminal 7 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS7
Syntax Transmit	INS7
Syntax Receive	INS7 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	453

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of Input A7 of the I/O Option Card
-------------------	--

Description

INS7 is used to read input A7 (terminal 8 of X11A) at the I/O option card. This input is normally used to select a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INS8
Syntax Transmit	INS8
Syntax Receive	INS8 <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	454

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	State of FSTART_IO of the I/O Option Card
-------------------	---

Description
 INS8 is used to read input FSTART_IO (terminal 2 of X11B) at the I/O option card. This input is normally used to start a motion task, but can be reassigned for general purpose mode by setting |IO11IN| = 2.

ASCII -Command	INTERPOL
Syntax Transmit	INTERPOL [Data]
Syntax Receive	INTERPOL <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	5, 6
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.78
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	388

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Type of Interpolation in OPMODE 5 and 6
-------------------	---

Description

INTERPOL defines the type of interpolation for external trajectory mode (|OPMODE| 5 and 6). This functionality can only be used, selecting the synchronization that can be activated by |SYNCSRC|.

- 0: Linear Interpolation
- 1: (reserved) Sercos Spline Interpolation
- 2: Interpolation 2. Order for CAN

ASCII -Command	IO11A
Syntax Transmit	IO11A [Data]
Syntax Receive	IO11A <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0,1
Default	0
Opmode	8
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	3.42
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	375

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Behavior of the start input at the I/O expansion
-------------------	--

Description

This variable defines the behavior of the I/O expansion card .

IO11A=0 The following task, that is defined in the motion task by “Start with I/O” is started. The target position of the present motion task must be reached before the following task can be started. A rising edge starts the motion task, a falling edge cancels the motion task.

IO11A=1 Start of a motion task that is defined by the inputs X11A 1 ... 8 in the servo amplifier IO option card. A rising edge starts the motion task.

Warning ! The motion task does not stop automatically if the start signal is removed !

- The motion task must be stopped by
- a falling edge on another digital input (configured with 16, FStart_Nr x)
 - the ASCII command STOP
 - the STOP function via Bus or digital input

Remark:

This setting disables the stop command at the state low of the start. To be able to stop a motion task, you have to select another input of the standard I/O for emergency stop or start/stop (see command |INxMODE|)

ASCII -Command	IO11IN
Syntax Transmit	IO11IN [Data]
Syntax Receive	IO11IN <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	Disbale + Reset (Coldstart)
Start Firmware	5.41
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	460

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Functionality of the Inputs of the I/O Option Board
-------------------	---

Description

The I/O option card has 9 input pins which are normally used to select and begin a motion task (terminal 1-8 of X11A select the task, terminal 2 of X11B starts the move). IO11IN is used with the I/O option card to reassign the Motion Block Number and StartMove Input for general purpose use. This allows for up to 13 general purpose inputs (|IN1|-4 and |INS0|-8) that can be used through standard communication channels or through motion tasking.

Usage: IO11IN <mode>

mode:

(The discription is used for the contacts X11A of the I/O optioncard)

- 0 All contacts (A0 ... A7) are used to adress a motion task
- 1 Contacts A0 ... A3 are used for adresssing motion tasks, contacts A4 ... A7 are used for graphical motion tasks
- 2 contacts A4 ... A7 are used for graphical motion tasks

> Version 6.43 :

- 3 I/O-card standard functions switched off.
Inputs-/Outputs can be used from internal PLC-Program only.

ASCII -Command	IPEAK
Syntax Transmit	IPEAK [Data]
Syntax Receive	IPEAK <Data>
Type	Variable rw
Format	Float
DIM	Amperes
Range	0.0 ... DIPEAK
Default	IMAX
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	92
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	110

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Application Peak Current
-------------------	--------------------------

Description
 IPEAK sets the peak rated current of the application (RMS value). The value to be entered is limited to the lower of the peak rated current of the motor (IMIPEAK) or amplifier (DIPEAK). If the IPEAK value is too low, the drive shows following errors and the peak torque is too low. If the IPEAK value is too high, the motor is endangered.

ASCII -Command	IPEAKN
Syntax Transmit	IPEAKN [Data]
Syntax Receive	IPEAKN <Data>
Type	Variable rw
Format	Float
DIM	A
Range	0.0 ... DIPEAK
Default	IMAX
Opmode	All
Drive Status	-
Start Firmware	1.77
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	111

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Negative Peak current Limit
-------------------	-----------------------------

Description
 Sets the intended pulse current (r.m.s. value) for the negative range.

ASCII -Command	IQ
Syntax Transmit	IQ
Syntax Receive	IQ <Data>
Type	Variable ro
Format	Float
DIM	Amperes
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	112

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	Q-Component of Current Monitor
-------------------	--------------------------------

Description
 The Q-axes component of the actual current value.

ASCII -Command	ISCALE1
Syntax Transmit	ISCALE1 [Data]
Syntax Receive	ISCALE1 <Data>
Type	Variable rw
Format	Float
DIM	A/10Volts
Range	0.0 .. 100.0
Default	DIPEAK
Opmode	3
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	113

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Scaling of Analog Current command 1
-------------------	-------------------------------------

Description

Defines the scaling for the analog command input 1 (if it is a current command in |OPMODE| = 3). The current value that is set here corresponds to the maximum input voltage (10V).

ASCII -Command	ISCALE2
Syntax Transmit	ISCALE2 [Data]
Syntax Receive	ISCALE2 <Data>
Type	Variable rw
Format	Float
DIM	A/10Volts
Range	0.0 .. 100.0
Default	DIPEAK
Opmode	3
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	114

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Scaling of Analog Current command 2
-------------------	-------------------------------------

Description

Defines the scaling for the analog command input SW2 (if it is a current command in |OPMODE| = 3). The current value that is set here corresponds to the maximum input voltage (10V).

ASCII -Command	ISTFR
Syntax Transmit	ISTFR [Data]
Syntax Receive	ISTFR <Data>
Type	Variable rw
Format	Float
DIM	A
Range	0 .. IPEAK
Default	0
Opmode	0,1,4,5,6,7,8
Drive Status	Disabled
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	420

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.7
EEPROM	Yes

Short Description	Velocity dependent Friction Compensation
-------------------	--

Description

The two parameters ISTFR and |VSTFR| define the friction compensation curve. If ISTFR is set to 0 the function is inactive. The friction compensation changes the additional current from -ISTFR to ISTFR if the velocity changes from -|VSTFR| to |VSTFR|. It is a configuration parameter if it is changed from "0" to another value, other changes can be don online.

- |V|=0 -> IFRICT = 0
- |V|= 50% of |VSTFR| -> IFRICT = 50% of ISTFR
- |V|>=|VSTFR| -> IFRICT = ISTFR
- |V|= -50% of |VSTFR| -> IFRICT = -50% of ISTFR
- |V|<=-|VSTFR| -> IFRICT = -ISTFR

ASCII -Command	J
Syntax Transmit	J [Data]
Syntax Receive	J <Data>
Type	Command
Format	Float
DIM	rpm (velocity) / Milliseconds (Time)
Range	-15000.0 .. 15000.0 (=velocity),long int (Time)
Default	-
Opmode	0
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope/Service

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	36
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Service Function: Constant Velocity
-------------------	-------------------------------------

Description
 The command “J <n> <t>” can be used to define a constant velocity <n> (in rpm) for a defined time <t> (in msec). If the <t> entry is missing, the drive runs continuously.

ASCII -Command	K
Syntax Transmit	K
Syntax Receive	K
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	115

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Kill (=Disable)
-------------------	-----------------

Description
 The K (Kill) command is a short form command of the “[DIS]” command.

ASCII -Command	KC
Syntax Transmit	KC [Data]
Syntax Receive	KC <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 1.0
Default	1.0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	116

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	I-Controller Prediction Constant
-------------------	----------------------------------

Description

KC is a tuning variable of the current loop. For compensation of time delay a predicted current value can be used in addition to the measured motor current. KC 1 switches the current prediction on, KC 0.5 sets it to 50% and KC 0 switches it off. Disabling the current prediction can cause an unstable current loop.

ASCII -Command	KEYLOCK
Syntax Transmit	KEYLOCK [Data]
Syntax Receive	KEYLOCK <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	117

Data Type BUS/DPR	Integer8
Weighting 10 ³	

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Locks the push buttons
-------------------	------------------------

Description

If KEYLOCK=1, operation of the amplifier from the keys on the front panel is inhibited. The display functions of the instrument (error messages, warnings) remain active.

Keylock=2 is only for drive 4xx. The push button behavior of the master is changed to the behavior of the standard drive. The slave axes (needs option -DISP) is working also in the same way. In the master module, the variable |ADDR| and in the Slave the variable |ADDRFB| is changed.

ASCII -Command	KTN
Syntax Transmit	KTN [Data]
Syntax Receive	KTN <Data>
Type	Variable rw
Format	Float
DIM	Milliseconds
Range	0.2 .. 2.0
Default	0.6
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	107 + 120
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	303

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Current Controller Integral-Action Time
-------------------	---

Description
 The integral-action time (integration time constant) of the current control loop.

ASCII -Command	L
Syntax Transmit	L [Data]
Syntax Receive	L <Data>
Type	Variable rw
Format	Float
DIM	mH
Range	0 .. 100
Default	10
Opmode	All
Drive Status	-
Start Firmware	4.72
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	119

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.5
EEPROM	Yes	

Short Description	Stator Inductance of the Motor
-------------------	--------------------------------

Description
 The parameter describes the stator inductance between phase and phase in mH.

ASCII -Command	LASTWMASK
Syntax Transmit	LASTWMASK
Syntax Receive	LASTWMASK <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	long int
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	462

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	-

Short Description	Fault history of WMASK
-------------------	------------------------

Description
 |WMASK| gives the possibility to create a mask to change warnings to errors. If the F24 occurs, LASTWMASK displays the warnings that caused the error.

ASCII -Command	LATCH16
Syntax Transmit	LATCH16
Syntax Receive	LATCH16 <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.66
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	120

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	-

Short Description	Latched 16-bit Position (positive edge)
-------------------	---

Description

The LATCH16 command returns the position where latching was performed by the last positive (rising) edge on digital input 2 (|IN2MODE|=26). The position value is absolute within one turn, and is given out in the internal units (counts 0 ... 65535). In order to get the absolute 32-bit position in SI units (taking account of the position control loop resolution |PGEAR1|/|PGEAR0|), the command |LATCH32| should be used. The commands LATCH16 and |LATCH32| have the effect of erasing the status bit 20 "positive latch made" in the status register |DRVSTAT|.

ASCII -Command	LATCH16N
Syntax Transmit	LATCH16N
Syntax Receive	LATCH16N <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.03
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	121

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Latched 16-bit Position (negative edge)
-------------------	---

Description

The LATCH16N command returns the position where latching was performed by the last negative (falling) edge on digital input 2 (|IN2MODE|=26). The position value is absolute within one turn, and is given out in the internal units (counts 0 ... 65535). In order to get the absolute 32-bit position in SI units (taking account of the position control loop resolution |PGEAR1|/|PGEAR0|), the command LATCH32N should be used.

The commands LATCH16N and |LATCH32N| have the effect of erasing the status bit 23 “negative latch made” in the status register |TRJSTAT|.

ASCII -Command	LATCH32
Syntax Transmit	LATCH32
Syntax Receive	LATCH32 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.66
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	122

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	-

Short Description	Latched 32-bit Position (positive edge)
-------------------	---

Description

The LATCH32 command returns the position where latching was performed by the last positive (rising) edge on digital input 2 (|IN2MODE|=26). The position value is absolute within 4096 turns, and is given out in microns (taking account of the position control loop resolution |PGEAR1|/|PGEAR0|). To obtain an absolute position within one turn, the |LATCH16| command should be used.

The commands |LATCH16| and LATCH32 have the effect of erasing the status bit 20 "positive latch made" in the status register |DRVSTAT|.

ASCII -Command	LATCH32N
Syntax Transmit	LATCH32N
Syntax Receive	LATCH32N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.03
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	123

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Latched 32-bit Position (negative edge)
-------------------	---

Description

The LATCH32N command returns the position where latching was performed by the last negative (falling) edge on digital input 2 (|IN2MODE|=26). The position value is absolute within 4096 turns, and is given out in microns (taking account of the position control loop resolution |PGEARI|/|PGEARO|). To obtain an absolute position within one turn, the |LATCH16N| command should be used.

The commands |LATCH16N| and LATCH32N have the effect of erasing the status bit 23 “negative latch made” in the status register |TRJSTAT|.

ASCII -Command	LATCHX16
Syntax Transmit	LATCH16
Syntax Receive	LATCH16 <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.61
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	383

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	-

Short Description	Latched 16-bit Position (positive edge)
-------------------	---

Description

The LATCHX16 command returns the position where latching was performed by the last positive (rising) edge on digital input 2 (|IN1MODE|=26). The position value is absolute within one turn, and is given out in the internal units (counts 0 ... 65535). In order to get the absolute 32-bit position in SI units (taking account of the position control loop resolution |PGEARI|/|PGEARO|), the command |LATCHX32| should be used. The commands LATCHX16 and |LATCHX32| have the effect of erasing the status bit 25 “positive latch made” in the status register [TRJSTAT].

ASCII -Command	LATCHX16N
Syntax Transmit	LATCH16N
Syntax Receive	LATCH16N <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.61
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	384

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	No

Short Description	Latched 16-bit Position (negative edge)
-------------------	---

Description

The LATCH16XN command returns the position where latching was performed by the last negative (falling) edge on digital input1 (|IN1MODE|=26). The position value is absolute within one turn, and is given out in the internal units (counts 0 ... 65535). In order to get the absolute 32-bit position in SI units (taking account of the position control loop resolution |PGEAR1|/|PGEAR0|), the command |LATCHX32N| should be used.

The commands LATCHX16N and |LATCHX32N| have the effect of erasing the status bit 26 “negative latch made” in the status register |TRJSTAT|.

ASCII -Command	LATCHX32
Syntax Transmit	LATCHX32
Syntax Receive	LATCHX32 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.07
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	124

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	No

Short Description	Latched External 32-bit Position (positive edge)
-------------------	--

Description

If read-in from an external encoder position is activated ($|EXTPOS|=1,2$), then this position will be stored automatically when a latch event ($|IN1MODE|=26$) occurs.

The LATCHX32 command returns the position where latching was performed by the last positive (rising) edge on digital input 1 ($|IN1MODE|=26$). The position value is absolute within 4096 turns, and is given out in microns (taking account of the position control loop resolution $|PGEARI|/|PGEARO|$). To obtain an absolute position within one turn, the LATCHX16 command should be used.

The commands $|LATCHX16|$ and LATCHX32 have the effect of erasing the status bit 25 “positive latch made” in the status register $|TRJSTAT|$.

ASCII -Command	LATCHX32N
Syntax Transmit	LATCHX32N
Syntax Receive	LATCHX32N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.07
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	125

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	No

Short Description	Latched External 32-bit Position (negative edge)
-------------------	--

Description

If read-in from an external encoder position is activated ($|EXTPOS|=1,2$), then this position will be stored automatically when a latch event ($|IN1MODE|=26$) occurs.

The LATCHX32N command returns the position where latching was performed by the last negative (falling) edge on digital input 1 ($|IN1MODE|=26$). The position value is absolute within 4096 turns, and is given out in microns (taking account of the position control loop resolution $|PGEARI|/|PGEARO|$). To obtain an absolute position within one turn, the |LATCHX16N| command should be used.

The commands |LATCHX16N| and LATCHX32N have the effect of erasing the status bit 26 “negative latch made” in the status register |TRJSTAT|.

ASCII -Command	LDUMP
Syntax Transmit	LDUMP [data]
Syntax Receive	LDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Parameter Output of Motor Data
-------------------	--------------------------------

Description

The command LDUMP <name> can be used to output the parameters for the motor data set <name> from the internal database. The <name> that is entered must be a valid motor designation from the motor database (see |MDBLIST|). If the <name> parameter is not entered, the motor parameters that are loaded at present will be displayed.

ASCII -Command	LED1
Syntax Transmit	LED1 [Data]
Syntax Receive	LED1 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 127
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	126

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	State of Display 1 Segment
-------------------	----------------------------

Description

The command LED1 returns the present status (7-segment code) of the segment in LED1 (left).

Bit-assignment for a 7-segment display:

- Bit 0 (0x01, 1) segment A (top)
- Bit 1 (0x02, 2) segment B (top right)
- Bit 2 (0x04, 4) segment C (bottom right)
- Bit 3 (0x08, 8) segment D (bottom)
- Bit 4 (0x10, 16) segment E (bottom left)
- Bit 5 (0x20, 32) segment F (top left)
- Bit 6 (0x40, 64) segment G (center)

A write action LED1 <code> produces the defined code on the display.
 This only makes sense if the internal display output has been switched off (LEDSTAT 0).
 It is not possible to output a decimal point.

ASCII -Command	LED2
Syntax Transmit	LED2 [Data]
Syntax Receive	LED2 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 127
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	127

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	State of Display 2 Segment
-------------------	----------------------------

Description

The command LED2 returns the present status (7-segment code) of the segment in LED2 (center).
 Bit-assignment for a 7-segment display:

- Bit 0 (0x01, 1) segment A (top)
- Bit 1 (0x02, 2) segment B (top right)
- Bit 2 (0x04, 4) segment C (bottom right)
- Bit 3 (0x08, 8) segment D (bottom)
- Bit 4 (0x10, 16) segment E (bottom left)
- Bit 5 (0x20, 32) segment F (top left)
- Bit 6 (0x40, 64) segment G (center)

A write action LED2 <code> produces the defined code on the display.
 This only makes sense if the internal display output has been switched off (LEDSTAT 0).
 It is not possible to output a decimal point.

ASCII -Command	LED3
Syntax Transmit	LED3 [Data]
Syntax Receive	LED3 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 ..127
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	128

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	State of Display 3 Segment
-------------------	----------------------------

Description

The command LED3 returns the present status (7-segment code) of the segment in LED2 (right).
 Bit-assignment for a 7-segment display:

- Bit 0 (0x01, 1) segment A (top)
- Bit 1 (0x02, 2) segment B (top right)
- Bit 2 (0x04, 4) segment C (bottom right)
- Bit 3 (0x08, 8) segment D (bottom)
- Bit 4 (0x10, 16) segment E (bottom left)
- Bit 5 (0x20, 32) segment F (top left)
- Bit 6 (0x40, 64) segment G (center)

A write action LED3 <code> produces the defined code on the display.
 This only makes sense if the internal display output has been switched off (LEDSTAT 0).
 It is not possible to output a decimal point.

ASCII -Command	LEDSTAT
Syntax Transmit	LEDSTAT [Data]
Syntax Receive	LEDSTAT <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0 .. 16
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	129

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display page
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Description

The variable LEDSTAT shows the number of the present “display page”.
 Altering the LEDSTAT variable makes it possible the change the display via the serial interface.
 The assignments are as follows:
 LEDSTAT=0 Display is switched off
 LEDSTAT=1 Status display
 LEDSTAT=2 Fieldbus address
 LEDSTAT=3 CAN Baud rate
 LEDSTAT=4 Parameter S01 (Kp velocity control loop)
 LEDSTAT=5 Parameter S02 (Tn velocity control loop)
 LEDSTAT=6 Parameter S03 (command offset)
 LEDSTAT=7 Parameter S04 (motor number)
 LEDSTAT=8 Parameter S05 (encoder selection)
 LEDSTAT=9 Parameter S06 (brake selection)
 LEDSTAT=10 Parameter S07 (Multidrive selection, from software 3.00)
 LEDSTAT=11 Load data from the EEPROM
 LEDSTAT=12 Save data in the EEPROM
 LEDSTAT=13 Set default values (from software 3.00)
 LEDSTAT=14 New configuration of the amplifier ([M_RESET], from software 3.00)
 LEDSTAT=15 Error messages
 LEDSTAT=16 Serial number

ASCII -Command	LIST
Syntax Transmit	LIST
Syntax Receive	LIST <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	130

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	List All ASCII Commands
-------------------	-------------------------

Description

All those commands are listed which can be used for to the present motor/amplifier configuration. ASCII commands that require specific hardware (e.g. Hiperface/Endat, Profibus,Sercos) will only be displayed if the corresponding hardware has been recognized correctly.

ASCII -Command	LOAD
Syntax Transmit	LOAD
Syntax Receive	LOAD
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	131

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Load parameters from serial EEPROM
-------------------	------------------------------------

Description

The LOAD command loads the parameters from the serial EEPROM. All parameter changes that have been made since the last [SAVE] command (save in the serial EEPROM) will be lost.

ASCII -Command	M
Syntax Transmit	M [Data]
Syntax Receive	M <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Read/write Macro Variable
-------------------	---------------------------

Description

The M command can be used to access any internal macro variable.

Macro variables are variables which can be used by the macro routines. They are called by name within a macro routine. The complete variable information (name, address) is managed in the form of a table. There are two types of macro variable.

1. System variables – these variables are determined by the firmware, and are fixed. Both the names and the addresses for such variables are constant within a given firmware version. The table with the data for the variables is within the programming area, so that the system variables can be accessed at any time.

2. User variables – these variables are set up in the macro routines during the initialization phase of the amplifier. The availability of a specific variable, or its physical address, depends on the amplifier configuration. The table with the information for the variables is set up in the RAM, and is normally only required during the compilation of the macro programs (initialization phase). After the initialization has been concluded, the table is removed from the memory. In this case, it is not possible to access the user variables through the M command.

If the parameter setting MSG=2 is found when the amplifier is switched on, then the table for the user variables is kept in the memory. In this case, it will also be possible to access the user variables through the M command.

The M command can be used in one of three forms:

1. “M” – a list of all the system and user variables is generated

2. “M name” – an information line is generated for the variable <name>, in the following form:
 “name [TYPE] address FORMAT=value”

The individual elements are interpreted as follows:

name = name of the macro variable

TYPE = variable type (SYSTEM or USER)

address = physical address of the variable (hexadecimal format)

FORMAT = variable type (BYTE,WORD,LONG,STRING), the suffix FAST means that the variable is stored in the internal (fast) RAM

Value = variable contents (in hexadecimal format, or as ASCII string, depending on FORMAT)

3. “M name value” – the number “value” is entered in the variable “name”

The entry for “value” must be made as a decimal number. If the character sequence “0x” is added as a prefix, the number can be entered in hexadecimal format.

ASCII -Command	M_1000
Syntax Transmit	M_1000
Syntax Receive	M_1000 <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display 1 msec Macro Program
-------------------	------------------------------

Description

The source code of the 1 msec macro function is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_125
Syntax Transmit	M_125
Syntax Receive	M_125 <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display 125 microsecond Macro Program
-------------------	---------------------------------------

Description

The source code of the 125 microsecond macro function (current control loop) is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_1600
Syntax Transmit	M_1600
Syntax Receive	M_1600 <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display 16 msec Macro Program
-------------------	-------------------------------

Description

The source code of the 16 msec macro function is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_250
Syntax Transmit	M_250
Syntax Receive	M_250 <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display 250 microsecond Macro Program
-------------------	---------------------------------------

Description

The source code of the 250 microsecond macro function (current control loop) is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

The command is canceled on FW >=6.35

ASCII -Command	M_250p
Syntax Transmit	M_250p
Syntax Receive	M_250p <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display 250 microsecond Macro Program
-------------------	---------------------------------------

Description

The source code of the 250 microsecond macro function (current control loop) is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

The command is canceled on FW >=6.35

ASCII -Command	M_4000
Syntax Transmit	M_4000
Syntax Receive	M_4000 <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display 4 msec Macro Program
-------------------	------------------------------

Description

The source code of the 4 msec macro function is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_DISABLE
Syntax Transmit	M_DISABLE
Syntax Receive	M_DISABLE <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display the "Disable" Macro Program
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Description

The source code of the macro function "Disable" is displayed on the screen. It is only run once, when the amplifier is disabled. The setting |PROMPT|=2 makes the display appear line-by-line. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

The command is canceled on FW >=6.35

ASCII -Command	M_ENABLE
Syntax Transmit	M_ENABLE
Syntax Receive	M_ENABLE <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display the "Enable" Macro Program
-------------------	------------------------------------

Description

The source code of the macro function "Enable" is displayed on the screen. It is only run once, when the amplifier is enabled. The setting |PROMPT|=2 makes the display appear line-by-line. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_INIT
Syntax Transmit	M_INIT
Syntax Receive	M_INIT <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display the "Init" Macro Program
-------------------	----------------------------------

Description

The source code of the macro function "Initialization" is displayed on the screen. It is only run once, when the amplifier is started up. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_IRQ
Syntax Transmit	M_IRQ
Syntax Receive	M_IRQ <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display the "Interrupt" Macro Program
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Description

The source code of the macro function "Interrupt" is displayed on the screen. It is run when a macro-interrupt is called. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_RESET
Syntax Transmit	M_RESET
Syntax Receive	M_RESET
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Disable
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	169

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Recompile Macro Programs
-------------------	--------------------------

Description

All macro programs are compiled and started when the amplifier is switched on. The compilation of the macro programs is managed by configuration variables. The values for these configuration variables must be fixed before the compilation procedure is started. If the value of a configuration variable is altered at a later time, this change will only take effect with the next compilation of the macro programs. This means, that after changing a configuration variable, this change should first be stored in the EEPROM (see |SAVE| command) and the amplifier should then be switched off and on again.

The M_RESET command offers an alternative. This command is used to force a new compilation of the macro programs, without having to switch the amplifier off and on again. Since this function, unlike that performed during the initialization phase, is carried out while the interrupts are enabled, it takes longer to complete (about 5 min).

ASCII -Command	M_SMACRO
Syntax Transmit	M_SMACRO [*]
Syntax Receive	M_SMACRO <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI CAN-Bus

PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display System Macros
-------------------	-----------------------

Description

A list of all the available system macros is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

A line on the screen has the following format: NAME (parameter) info

NAME - name of the macro

(parameter) - transfer parameter for macro

info - short description of macro

The command M_SMACRO * generates an additional line for each macro, in which the formats for the transfer parameters are shown. The abbreviations are as follows:

f - fast: the parameter is a variable that must be held in the fast processor RAM.

G - global: the parameter is a variable, to be held in fast or slow RAM

v - variable: the parameter is a variable

c- constant: the parameter is a constant (number)

b - byte: 8-bit parameter

w - word: 16-bit parameter

l - long: 32-bit parameter

ASCII -Command	M_TASK
Syntax Transmit	M_TASK
Syntax Receive	M_TASK <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display the Main Macro Program
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Description

The source code of the main macro program is displayed on the screen. This program section is always run if no other routine is being performed (idle). The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen.

ASCII -Command	M_UMACRO
Syntax Transmit	M_UMACRO [*]
Syntax Receive	M_UMACRO <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display User Macros
-------------------	---------------------

Description

A list of all the available user macros is displayed on the screen. The setting |PROMPT|=2 makes the display appear page-by-page. Pressing a key steps the display on to show the next side, <ESC> cancels the output to the screen. The output format can be seen in the |M_SMACRO| description.

Note:

Since only SYSTEM macros are used at present, an empty user macro list will be output.

ASCII -Command	MAXDIFF
Syntax Transmit	MAXDIFF [Data]
Syntax Receive	MAXDIFF <Data>
Type	rw
Format	Integer8
DIM	1/16 sine pulse
Range	Int 32
Default	2
Opmode	0,1,4 ... 8
Drive Status	-
Start Firmware	6.23
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	480

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.1
EEPROM	Yes

Short Description	Max. deviation sin/cos encoder
-------------------	--------------------------------

Description

Max. deviation between the digital and analog position (sin/cos encoder). When the deviation is greater than MAXDIFF, the error message F04 and warning n21 are generated. This function must be enabled by the bit 29 of |DRVCNFG|.

ASCII -Command	MAXDIFFI
Syntax Transmit	MAXDIFFI [Data]
Syntax Receive	MAXDIFFI <Data>
Type	r
Format	Integer32
DIM	1/16 sine pulse
Range	Int 32
Default	-
Opmode	0, 1 ,4 ... 8
Drive Status	-
Start Firmware	6.23
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	481

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.1
EEPROM	No

Short Description	deviation sin/cos encoder
-------------------	---------------------------

Description

Deviation between the digital and analog position (sin/cos encoder) that caused the generation of F04 and n21.

See also |MAXDIFF|

ASCII -Command	MAXSDO
Syntax Transmit	MAXSDO
Syntax Receive	MAXSDO <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	int
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.46
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	0

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Number of Objects of the Parameter Channel
-------------------	--

Description
 The command MAXSDO gives the number of objects of the parameter channel.

ASCII -Command	MAXTEMPE
Syntax Transmit	MAXTEMPE [Data]
Syntax Receive	MAXTEMPE <Data>
Type	Variable rw
Format	Integer16
DIM	Centigrade Degrees
Range	10 .. 80
Default	70
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	205
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	132

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Ambient Temperature Switch off Threshold
-------------------	--

Description

The ambient temperature value for switching off. If the drive temperature (as given by [TEMPE]) exceeds this value, the drive faults.

ASCII Object Reference SERVOSTAR™ 400/600

ASCII -Command	MAXTEMPH
Syntax Transmit	MAXTEMPH [Data]
Syntax Receive	MAXTEMPH <Data>
Type	Variable rw
Format	Integer16
DIM	Centigrade Degrees
Range	20 .. 85 (90 ;SR640,SR670)
Default	80
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	203
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	133

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Heat Sink Temperature Switch off Threshold
-------------------	--

Description

The heat sink temperature for switching off. If the heat sink temperature (as given by |TEMPH|) exceeds this value, the drive faults.

ASCII Object Reference SERVOSTAR™ 400/600

ASCII -Command	MAXTEMPM
Syntax Transmit	MAXTEMPM [Data]
Syntax Receive	MAXMTEMP <Data>
Type	Variable rw
Format	Float
DIM	Ohm (KOhm)
Range	0.0 .. 6000.0
Default	291
Opmode	All
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	134

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Motor Temperature Switch off Threshold
-------------------	--

Description

The motor temperature for turning off the power stage (disabling the drive) and displaying a F06 fault. Firmware <2.49 (units = ohms)Entry in ohms up to 6000 (6000 corresponds to about 800 ohms in reality).Firmware 2.49 or above (units = kohms)Entry in kilohms up to 1.5 (1.5 corresponds to about 1500 ohms in reality).If an amplifier is updated to version 2.49 or higher, the resistance value is automatically converted from ohms to kohms.

ASCII -Command	MBPDRVSTAT
Syntax Transmit	MBPDRVSTAT [Data]
Syntax Receive	MBPDRVSTAT <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0 .. 15
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.04
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	397

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	State of the Modbus+ Network
-------------------	------------------------------

Description

MBPDRVSTAT gives the state of the Modbus+ network of the drive. The bit 3 can be written by the drive and can be saved. If the bit is set, Modbus+ network errors are indicated at the drive.

ASCII -Command	MBPSET
Syntax Transmit	MBPSET [Data]
Syntax Receive	MPBSET <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0,1
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.04
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	398

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Address selection of Modbus+
-------------------	------------------------------

Description

This parameter defines the direction of the address selection of the Modbus+ board in the initialization phase.
 MBPSET=0 The address is given by the Modbus board.
 MBPSET=1 The address is given by the drive and it's address in |ADDR|.

ASCII -Command	MBRAKE
Syntax Transmit	MBRAKE [Data]
Syntax Receive	MBRAKE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	135

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Select Motor Holding Brake
-------------------	----------------------------

Description

MBRAKE enables the brake function for a 24V holding brake in the motor directly from the servo amplifier.

MBRAKE = 0 Brake function is disabled

MBRAKE = 1 Brake function is enabled. The output at the BRAKE terminal is 24V if the ENABLE signal is present (brake off) and 0V if the ENABLE signal is missing (brake activated).

MBRAKE = 2 If the wake&shake mode is activated ($|FBTYPE| = 7$ or 8) the holding brake is deactivated after the wake&shake mode (starting with firmware version 5.05).

ASCII -Command	MCFW
Syntax Transmit	MCFW [Data]
Syntax Receive	MCFW <Data>
Type	Variable rw
Format	Float
DIM	-
Range	1 ... 5
Default	1.1
Opmode	All
Drive Status	-
Start Firmware	3.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	361

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	The Correction Factor of the Field Weakening
-------------------	--

Description

This command is only for the induction motor mode (|MTYPE| = 3).
 The correction factor of the field weakening.
 This correction factor is introduced to compensate the nonlinearity of the magnetizing inductance since the magnetizing current is decreased according to the rotor mechanical velocity during the field weakening.

ASCII -Command	MCTR
Syntax Transmit	MCTR [Data]
Syntax Receive	MCTR <Data>
Type	Variable rw
Format	Float
DIM	-
Range	1 ... 5
Default	1.1
Opmode	All
Drive Status	-
Start Firmware	3.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	362

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Correction Factor of the rotor time constant
-------------------	--

Description

This command is only for the induction motor mode (|MTYPE| = 3).
 The correction factor of the rotor time constant for the field weakening, which is introduced to improve the torque performance at the steady state in the field weakening.

ASCII -Command	MDBCNT
Syntax Transmit	MDBCNT
Syntax Receive	MDBCNT <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	1 .. 127
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	136

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.8
EEPROM	-

Short Description	Number of Motor Data Sets
-------------------	---------------------------

Description

MDBCNT returns the number of motor data sets that can be loaded for the present combination of output stage + feedback. A change of the feedback setting [FBTYPE] is used, for instance, to ensure that only the data sets for resolver motors or EnDat motors are used.

ASCII -Command	MDBGET
Syntax Transmit	MDBGET
Syntax Receive	MDBGET <Data>
Type	Command
Format	String
DIM	-
Range	1 .. MDBCNT
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	137

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Get Actual Motor Data Set
-------------------	---------------------------

Description

The MDBGET command generates an information line (directory entry) for the latest motor data set that was selected with the |MDBSET| command. The information line consists of the following elements:
 data set number, motor name, motor number, motor family

The individual elements are interpreted as follows:

Data set number: the number for the data set within the motor database. This number can be used to address a motor data set with the |MDBSET| command. This number is increased automatically at every MDBGET call.

Motor name: a symbolic motor designation (max. length 12 characters).

Motor number: a number that can be used to uniquely identify a particular motor. This number is used to load a data set from the motor database with the |MNUMBER| command.

Motor family: an additional designation (for internal use only).

The group of commands |MDBCNT|,|MDBSET|,MDBGET can be used by an external control system, to read out the contents of the motor database. The procedure is as follows:

1. Read out the number of available data sets, using the |MDBCNT| command.
2. Set the data set pointer to the first data set, using the |MDBSET| 1 command.
3. Read out the first directory entry, using the MDBGET command.
4. Repeat step 3 until the number of available data sets (|MDBCNT|) has been read.

The |MDBLIST| command offers an alternative. This command can be used to display the complete list.

ASCII -Command	MDBLIST
Syntax Transmit	MDBLIST [*]
Syntax Receive	MDBLIST <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	List of Motor Data Sets
-------------------	-------------------------

Description

The MDBLIST command returns the list of contents for the motor database (for the present combination of output stage + feedback). One motor database entry is displayed per line on the screen, in the following format:
 motor name, motor number, motor family, amplifier designation

The individual elements are interpreted as follows:

Motor name: a symbolic motor designation (max. length 12 characters).

Motor number: a number that can be used to uniquely identify a particular motor. This number is used to load a data set from the motor database with the |MNUMBER| command.

Motor family: an additional designation (for internal use only).

If |PROMPT| 2 is set, a formatted output appears, which is especially suitable for terminal display.

The MDBLIST * command can be used to display the complete list of contents for the motor database. The difference to the output generated by MDBLIST is that the contents also include motor data sets that are not suitable for the present combination of output stage and feedback. These data sets will be displayed, but they cannot be loaded.

Compared with the MDBLIST output, the MDBLIST * output has been enlarged by the columns “Amplifier designation” and “Feedback”. These designations can be used to find out for which output stage or |FBTYPE| setting this data set was created.

Amplifier designation 6xx, where xx = current rating

Feedback: 0=Resolver, 2=Hiperface, 4=Endat

ASCII -Command	MDBSET
Syntax Transmit	MDBSET [Data]
Syntax Receive	MDBSET <Data>
Type	Command
Format	Integer16
DIM	-
Range	1 .. MDBCNT
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	138

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Set Actual Motor Data Set
-------------------	---------------------------

Description

The MDBSET command can be used to address a specific data set from the motor database. The subsequent [MDBGET] command provides the directory entry for the selected motor data set (see [MDBGET] description).

ASCII -Command	MDRV
Syntax Transmit	MDRV [Data]
Syntax Receive	MDRV <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	1
Opmode	All
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	313

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Selection of Multidrive Functionality
-------------------	---------------------------------------

Description
 The command MDRV enables the multi drive functionality.

MDRV=0 Multi drive functionality (address range |ADDR| 0...127)
 The |SCAN| command gives every time a "0" (no external drives recognised)

MDRV=1 Multi drive active (address range |ADDR| 0...63)
 The |SCAN| command checks the CAN-bus if there are more drives.

ASCII -Command	MDUMP
Syntax Transmit	MDUMP
Syntax Receive	MDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	139

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Display Present Motor Parameters
-------------------	----------------------------------

Description

Displays the currently valid motor parameters.

ASCII -Command	MH
Syntax Transmit	MH
Syntax Receive	MH
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	8
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	141

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Start Homing
-------------------	--------------

Description

The MH (move home) command is used to start a homing movement (reference traverse) via the serial interface. Homing type, direction and speed are taken from the |NREF|, |DREF| and |VREF| parameters. See also |SETREF| especially for |OPMODE| 1...6.

ASCII -Command	MICONT
Syntax Transmit	MICONT [Data]
Syntax Receive	MICONT <Data>
Type	Variable rw
Format	Float
DIM	Amperes
Range	10% of DICONT, .. 2* DICONT
Default	DICONT
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	111 + 196
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	142

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Motor Continuous Current Rating
-------------------	---------------------------------

Description

This parameter limits the |ICONT| setting of the amplifier, depending on the maximum continuous current rating of the motor.

ASCII -Command	MIMR
Syntax Transmit	MIMR [Data]
Syntax Receive	MIMR <Data>
Type	Variable rw
Format	Float
DIM	A
Range	(0.0 ... 0.8) * ICONT
Default	0.0
Opmode	All
Drive Status	-
Start Firmware	3.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	363

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Magnetizing Current (Induction Motor)
-------------------	---------------------------------------

Description

This command is only for the induction motor mode (|MTYPE|= 3).
 The MIMR defines the magnetizing current of induction motors, which is normally set in the range of 40%~50% of the rated current of the induction motor.
 The magnetizing current maintains constant under the rated velocity. If the motor runs over the rated velocity, the magnetizing current will be decreased according to the rotor mechanical velocity.
 This value will be also limited between 10% and 80% of the rated current.

For sensorless drive of PM motor (|MTYPE|=2, |FBTYPE|=10), this command determines the starting current. In the low velocity operation range, an injecting current controls the PM motor starting and operation.

ASCII Object Reference SERVOSTAR™ 400/600

ASCII -Command	MIPEAK
Syntax Transmit	MIPEAK [Data]
Syntax Receive	MIPEAK <Data>
Type	Variable rw
Format	Float
DIM	Amperes
Range	10% of DIPEAK, .. 2*DIPEAK
Default	DIPEAK
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	109
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	143

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Motor Peak Current Rating
-------------------	---------------------------

Description

MIPEAK limits the |IPEAK| setting of the amplifier, depending on the maximum peak current rating of the motor. The peak current should not exceed 4 times the rated current (|MICONT|) of the motor. The actual value is also determined by the peak current (|DIPEAK|) of the servo amplifier used (defines the maximum value for the entry of |IPEAK| in the current controller).

ASCII -Command	MJOG
Syntax Transmit	MJOG
Syntax Receive	MJOG
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	8
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	145

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Start Jog Mode
-------------------	----------------

Description

MJOG starts the jog mode via the serial interface (OPMODE 8 only). The velocity in the jog mode is taken from |VJOG| (with ± sign). Jog mode is defined as a continuous motion at a constant velocity. This type of operation is started without a reference point being set (without homing). The hardware limit switches are monitored. Software limit switches are only monitored if a reference point is set (the drive has been homed). Acceleration and deceleration ramps are taken from the settings for homing (see |ACCR|, |DECR|, and |VJOG|).

ASCII -Command	MKT
Syntax Transmit	MKT [Data]
Syntax Receive	MKT <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 10.0
Default	1.0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	147

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Motor KT
-------------------	----------

Description

The torque constant of the motor in Nm/A.

This parameter is used for sensorless control. The value can be online checked according to the following equation:

$$K_t = 60 * \text{SQRT}(3) * U_i / (2 * \text{PI} * n)$$

U_i induced voltage of the motor

n actual rotor velocity

ASCII -Command	MLGC
Syntax Transmit	MLGC [Data]
Syntax Receive	MLGC <Data>
Type	Variable rw
Format	Float
DIM	rated to MLGQ
Range	0.2 .. 1.0
Default	0.7
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	149

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Current Control loop Adaptive Gain (Q-component at rated current)
-------------------	---

Description

The current control loop includes an adaptive alteration of the gain that depends on the current. The MLGC parameter defines the relative gain referred to |MLGQ| for continuous current.

MLGC = 0.8 means that the gain of the current control loop for continuous current is 80% of |MLGQ|. A linear interpolation is made for the gain from current = 0 up to current = |ICONT|.

ASCII -Command	MLGD
Syntax Transmit	MLGD [Data]
Syntax Receive	MLGD <Data>
Type	Variable rw
Format	Float
DIM	ratet to MLGQ
Range	0.4 .. 1.0
Default	0.7
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	119
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	150

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Adaptive Gain for Current Control loop, D-component
-------------------	---

Description
 The D-component of the current control loop (field component). The MLGD parameter defines the relative gain referred to [MLGQ].
 MLGC = 0.6 means that the gain of the current control loop D-component is 60% of [MLGQ].

ASCII -Command	MLGP
Syntax Transmit	MLGP [Data]
Syntax Receive	MLGP <Data>
Type	Variable rw
Format	Float
DIM	ratet to MLGQ
Range	0.1 .. 1.0
Default	0.4
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	151

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Current Control loop Adaptive Gain (Q-component at peak current)
-------------------	--

Description

The current control loop includes an adaptive alteration of the gain that depends on the current. The MLGP parameter defines the relative gain referred to |MLGQ| for peak current.

MLGP = 0.6 means that the gain of the current control loop for peak current is 60% of |MLGQ|. A linear interpolation is made for the gain from current = |ICONT| up to current = |IPEAK|.

ASCII -Command	MLGQ
Syntax Transmit	MLGQ [Data]
Syntax Receive	MLGQ <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.01 .. 15.0
Default	1
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Current

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	106
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	152

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Absolute Gain of Current Control loop
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Description

MLGQ gives the absolute gain of the current control loop. This also affects |MLGC|, |MLGP| and |MLGD|.

ASCII -Command	MNAME
Syntax Transmit	MNAME [Data]
Syntax Receive	MNAME <Data>
Type	Variable rw
Format	String
DIM	-
Range	max 12 ASCII Characters
Default	Blanks
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	141
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Motor Name
-------------------	------------

Description

The MNAME parameter is directly related to the motor number [MNUMBER].
 When a motor data set is loaded from the motor database ([MNUMBER] command), the motor designation MNAME is also transferred. If a customer-specific motor designation is to be defined, then this can be done with the MNAME command.
 When the motor name is altered, the motor number ([MNUMBER]) is set to 0, to indicate a customer-specific motor data set.

ASCII -Command	MNUMBER
Syntax Transmit	MNUMBER [Data]
Syntax Receive	MNUMBER <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	int
Default	0
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3046
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	153

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Motor Number
-------------------	--------------

Description

The command “MNUMBER nr” is used to load a motor data set with the number “nr” from the motor database. If MNUMBER 0 is entered, then no data set will be loaded, but the variable MNUMBER will simply be set to 0. This setting indicates a customer-specific motor data set.

ASCII -Command	MONITOR1
Syntax Transmit	MONITOR1
Syntax Receive	MONITOR1 <Data>
Type	Variable ro
Format	Integer16
DIM	mV
Range	-10000 ..10000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	154

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Monitor 1 Output voltage
-------------------	--------------------------

Description
 The actual value of the output voltage from Monitor 1.

ASCII -Command	MONITOR2
Syntax Transmit	MONITOR2
Syntax Receive	MONITOR2 <Data>
Type	Variable ro
Format	Integer16
DIM	mV
Range	-10000 ..10000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	155

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Monitor 2 Output Voltage
-------------------	--------------------------

Description
 The actual value of the output voltage from Monitor 2.

ASCII -Command	MOVE
Syntax Transmit	MOVE [Data]
Syntax Receive	MOVE <Data>
Type	Command
Format	Integer16
DIM	-
Range	0,1,...,180,192 ... 255
Default	-
Opmode	8
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	322

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Start Motion Task
-------------------	-------------------

Description

The command “MOVE nr” starts the motion task “nr” from the motion task memory.
 If the command is used without a parameter, then the number of the most recently started task will be displayed.

ASCII -Command	MPHASE
Syntax Transmit	MPHASE [Data]
Syntax Receive	MPHASE <Data>
Type	Variable rw
Format	Integer16
DIM	Electrical Degrees
Range	0 .. 360
Default	0
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Feedback

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	156

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Motor Phase, Feedback Offset
-------------------	------------------------------

Description

The MOTOR PHASE parameter is handled in different ways, depending on the type of feedback (|FBTYPE|) that is used.

|FBTYPE|=0 resolver

MPHASE is saved in the serial EEPROM of the amplifier (|SAVE| command) and is transferred after every power-on of the amplifier.

|FBTYPE|=2, 4 Hiperface/Endat

MPHASE is saved in the serial EEPROM of the encoder (|HSAVE| command) and is read out from the encoder after every power-on of the amplifier. So if an encoder is exchanged, the MPHASE setting goes with the encoder. When a new encoder is fitted, the MPHASE value must be re-established and stored in the encoder (|HSAVE| command).

|FBTYPE|=7 sin/cos encoder without an internal EEPROM

MPHASE will be determined automatically at the first enable of the output stage (Wake & Shake)

It is not necessary to make a separate determination of the MPHASE value, or to save it.

ASCII -Command	MPHASE2
Syntax Transmit	MPHASE2 [Data]
Syntax Receive	MPHASE2 <Data>
Type	rw
Format	Integer16
DIM	-
Range	0 ... 359, 1000
Default	1000
Opmode	All
Drive Status	-
Start Firmware	6.35
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	54

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	
EEPROM	Yes

Short Description	Commutationfineadjustment
-------------------	---------------------------

Description

Defines the MPHASE setting after the homing move. A value between 0 and 359 activates the function for setting the MPHASE value after the homing move is done. The value MPHASE2 is written to the MPHASE parameter because the MPHASE parameter, which is calculated during W&S, can be imprecise.

The setting MPHASE2 1000 switches this function off.

ASCII -Command	MPOLES
Syntax Transmit	MPOLES [Data]
Syntax Receive	MPOLES <Data>
Type	Variable rw
Format	Integer8
DIM	Poles
Range	0, 2, 4, 6, .. , 256
Default	6
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	157

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Number of Motor Poles
-------------------	-----------------------

Description

The number of motor poles per turn of the motor.

MPOLES = 0 is not saved into the drive if a Firmware > 5.07 is used. The setting MPOLES =0 is also not monitored in the MMI.

ASCII -Command	MRD
Syntax Transmit	MRD
Syntax Receive	MRD
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	8
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	158

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Homing to Resolver Zero, Mode 5
-------------------	---------------------------------

Description

The command MRD initiates a homing movement type 5 (|NREF|=5, to the next zero crossing point of the resolver). The velocity and the direction of movement are taken from the |VREF| and |DREF| variables.

ASCII -Command	MRESBW
Syntax Transmit	MRESBW [Data]
Syntax Receive	MRESBW <Data>
Type	Variable rw
Format	Integer16
DIM	Hz
Range	25 .. 1200
Default	600
Opmode	All
Drive Status	-
Start Firmware	1.38
Configuration	<input type="checkbox"/>
Function Group	Feedback

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	160

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	Yes	

Short Description	Resolver Bandwidth
-------------------	--------------------

Description

MRESBW is a tuning parameter that sets the bandwidth (in Hz) of the inner control loop. A high value (>800 Hz) results in a fast (low phase lag) and noisy velocity signal. A low value (<400 Hz) results in a slow (higher phase lag) and smooth velocity signal. The default value of 600 Hz is a compromise between phase lag and noise. The phase lag can be reduced by providing the acceleration feed forward signal ($|VLO| = 1$).

>= 1.57 for Resolver Feedback

>= 3.10 for High Resolution Feedback

With a wide bandwidth, the drive responds more rapidly to control loop deviations and there is a smaller following error (reduced lag). A very wide bandwidth only makes sense with low moments of inertia, low KP, and very high acceleration values. A narrower bandwidth produces a filter effect. The rotational velocity and positional control are smoother (encoder equivalent output is quieter as well).

For the sensorless drive, the Luenberger Observer is used as the adaptive controller. Therefore, the parameter MRESBW corresponds to the bandwidth of the adaptive controller. It is normally set between 25 and 100 Hz.

ASCII -Command	MRESD
Syntax Transmit	MRESD [Data]
Syntax Receive	MRESD <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.5 .. 2
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.78
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	407

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Damping of the Luenberger Observer
-------------------	------------------------------------

Description

MRESD is a variable to ensure the firmware compatibility for the bandwidth of the Luenberger velocity observer.

If the parameter settings for the firmware version from 3.00 to 3.38 and from 4.00 to 4.77 are used for the firmware version above 4.78, this parameter should be set to 0.5.

ASCII -Command	MRESPOLES
Syntax Transmit	MRESPOLES [Data]
Syntax Receive	MRESPOLES <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	2, 4, .. 32
Default	2
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Feedback

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	161

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Number of Resolver Poles (Multispeed)
-------------------	---------------------------------------

Description
 The number of resolver poles (multispeed resolver) per turn.

ASCII -Command	MRS
Syntax Transmit	MRS [Data]
Syntax Receive	MRS <Data>
Type	Variable rw
Format	Float
DIM	Ohm
Range	0 .. 100
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.72
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	390

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Winding Resistance of the Stator Phase-Phase
-------------------	--

Description

The parameter describes the stator winding resistance phase-phase in Ohm

ASCII -Command	MSERIALNO
Syntax Transmit	MSERIALNO [Data]
Syntax Receive	MSERIALNO <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	Long Int
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.93
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	419

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	No

Short Description	Serial no of the motor for encoder feedback
-------------------	---

Description
 MSERIALNO give the possibility to add a serial number of the motor. It is stored in the encoder with parameter channel (EnDAT or Hiperface) of the motor by typing in |HSAVE|. MSERIALNO gives the serial number of the connected motor with encoder feedback. This command can only be used, if a motor with encoder is connected.

ASCII -Command	MSG
Syntax Transmit	MSG [Data]
Syntax Receive	MSG <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Communication

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	162

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Enable / Disable All Messages via RS232
-------------------	---

Description

If "MSG 2" is set, then the execution of the individual initialization steps will be signaled through the serial interface when the amplifier is switched on (initialization phase). This setting should only be used for test purposes (e.g. during commissioning). Since the PC operating program basically only works with the setting "MSG 1", the "MSG 2" setting can only be implemented with the help of a terminal program (not in the terminal window of the operating program).

ASCII -Command	MSLBRAKE
Syntax Transmit	MSLBRAKE [Data]
Syntax Receive	MSLBRAKE <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	1 .. 32
Default	8
Opmode	All
Drive Status	-
Start Firmware	4.05
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	369

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	DEC ramp at sensorless emergency stop
-------------------	---------------------------------------

Description

If the feedback unit trips (Fault F04, F08 or F25), it is impossible to stop the motor with the standard commutation. Therefore a sensorless stop is implemented. It is not possible to define a ramp, because it depends on the friction and inertia of the system. MSLBRAKE offers the possibility to change the emergency ramp in this case. The lower MSLBRAKE is, the lower is the deceleration of the motor.

ASCII Object Reference SERVOSTAR™ 400/600

ASCII -Command	MSPEED
Syntax Transmit	MSPEED [Data]
Syntax Receive	MSPEED <Data>
Type	Variable rw
Format	Float
DIM	rpm
Range	0.0 .. 12000.0
Default	3000
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	113
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	163

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Maximum Rated Motor Velocity
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Description
 The MSPEED setting fixes the upper limit for the following amplifier parameters: |VLIM|, |VLIMN|, 5/6 * |VOSPD|.

From firmware 4.0 the limit can be set by different units. Details are shown at parameter |VUNIT| .

ASCII -Command	MTANGLP
Syntax Transmit	MTANGLP [Data]
Syntax Receive	MTANGLP <Data>
Type	Variable rw
Format	Integer16
DIM	Electrical Degrees
Range	0 .. 45
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	165

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Current Lead
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Description

The current-dependent phase lead that is applied to make use of the reluctance torque at motor peak current ([MIPEAK]).

ASCII -Command	MTDEL
Syntax Transmit	MTDEL [Data]
Syntax Receive	MTDEL <Data>
Type	rw
Format	Integer16
DIM	-
Range	0 ... 1000
Default	0
Opmode	All
Drive Status	-
Start Firmware	6.35
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object	2.1
EEPROM	Yes

Short Description	Motion Task Delaytime
-------------------	-----------------------

Description

Delay time for motion task execution. The motion task execution will be delayed by at least MTDEL/4 msec

ASCII -Command	MTMUX
Syntax Transmit	MTMUX [Data]
Syntax Receive	MTMUX <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0, 192 ... 255
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.43
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	347

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Presetting for motion task that is processed later
-------------------	--

Description

The command MTMUX presets the number of a motion task that is then prepared to work with commands |O_P|,|O_V|,|O_C|,|O_ACC1|,|O_ACC2|,|O_DEC1|,|O_DEC2|,|O_FT|,|O_FN|. All this commands then have access to the selected motion task.

MTMUX is only allowed to work with RAM motion tasks.

MTMUX is not stored in EEPROM. While start-up of the drive, MTMUX is automatically set to "0".

ASCII -Command	MTR
Syntax Transmit	MTR [Data]
Syntax Receive	MTR <Data>
Type	Variable rw
Format	Float
DIM	ms
Range	30 .. 1000
Default	200
Opmode	All
Drive Status	-
Start Firmware	3.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	364

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object		1.4
EEPROM	Yes	

Short Description	Rotor Time Constant
-------------------	---------------------

Description
 This command is only for the induction motor mode ($|MTYPE| = 3$).
 The MTR defines the rotor time constant at the rated operating point ($T_r = L_h/R_r$), where L_h and R_r are the magnetizing inductance and rotor resistance, respectively.

ASCII -Command	MTYPE
Syntax Transmit	MTYPE [Data]
Syntax Receive	MTYPE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	1, 2, 3
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	166

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.5
EEPROM	Yes	

Short Description	Motor Type
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Description

MTYPE sets the drive control algorithms to different motor types as follows:

MTYPE = 1: permanent magnet motor

MTYPE = 2: permanent magnet motor with Id current control

The one case is for the linear permanent magnet motor, the other case is for the sensorless drive of permanent magnet motor.

MTYPE = 3: asynchronous motor (Induction motor)

ASCII -Command	MUNIT
Syntax Transmit	MUNIT [Data]
Syntax Receive	MUNIT <Data>
Type	Variable rw
Format	Integer8
DIM	
Range	0, 1
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.02
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	372

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.5
EEPROM	Yes	

Short Description	Unit of the Velocity dependant motor parameters
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Description

MUNIT changes the units of the velocity dependant motor parameters, e.g. |MVANGLP| and |MSPEED|.

- MUNIT = 0 rpm
- MUNIT = 1 the setting of |VUNIT| is used

ASCII -Command	MVANGLB
Syntax Transmit	MVANGLB [Data]
Syntax Receive	MVANGLB <Data>
Type	Variable rw
Format	Integer32
DIM	rpm
Range	0 .. 15000
Default	3000
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	167

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Velocity-dependent Lead (Start Phi)
-------------------	-------------------------------------

Description

This is a compensation for the inductive phase shift between the motor voltage and the motor current at high velocities. With defined voltage relationships, it permits a higher torque at the final limit velocity. Alternatively, the achievable final limit velocity can be increased by up to 30%. Depending on the motor velocity, the phase shift (commutation angle) is increased linearly from the Start Phi point up to the Limit Phi value (|MVANGLF|) at the final limit velocity. The most favorable setting depends on the type of motor and the final limit velocity.
See also |MVANGLF|.

ASCII -Command	MVANGLF
Syntax Transmit	MVANGLF [Data]
Syntax Receive	MVANGLF <Data>
Type	Variable rw
Format	Integer16
DIM	Electrical Degrees
Range	0 .. 45
Default	20
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Motor

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	168

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Velocity-dependent Lead (Limit Phi)
-------------------	-------------------------------------

Description

This is a compensation for the inductive phase shift between the motor voltage and the motor current at high velocities. With defined voltage relationships, this permits a higher torque at the final limit velocity. Alternatively, the achievable final limit velocity can be increased by up to 30%. Depending on the motor velocity, the phase shift is increased linearly from the Start Phi point (|MVANGLB|) up to the End Phi value at the final limit velocity. The most favorable setting depends on the type of motor and the final limit velocity.
See also |MVANGLB|.

ASCII -Command	MVANGLP
Syntax Transmit	MVANGLP [Data]
Syntax Receive	MVANGLP <Data>
Type	Variable rw
Format	Integer16
DIM	Electrical Degrees
Range	0 .. 60
Default	20
Opmode	All
Drive Status	-
Start Firmware	2.42
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	146

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Velocity-dependent Lead (Commutation Angle)
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Description

The inductive phase shift between the motor current and the motor voltage is compensated at high velocities. With the given voltage conditions, a higher torque is achieved at the velocity limit. Alternatively, the achievable velocity limit is increased by 30%. The phase shift is increased linearly from a value of 0 degrees at |MVANGLB| up to a final value of |MVANGLF| degrees at |VLIM|. The optimum setting depends on the type of motor and velocity limit.

ASCII -Command	MVER
Syntax Transmit	MVER [Data]
Syntax Receive	MVER <Data>
Type	ro
Format	Float
DIM	
Range	
Default	
Opmode	All
Drive Status	-
Start Firmware	6.67
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	865

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	2.6
EEPROM	No

Short Description	Version of the motor data base
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Description
 This variable includes the version of the motor data base.

ASCII -Command	MVR
Syntax Transmit	MVR [Data]
Syntax Receive	MVR <Data>
Type	Variable rw
Format	Float
DIM	rpm
Range	0 .. 10000
Default	6000
Opmode	All
Drive Status	-
Start Firmware	4.72
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	365

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Beginning Velocity of the field weakening
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Description

For the induction motor mode (|MTYPE| = 3), the parameter MVR is set to the rated rotor mechanical velocity. This value determines the beginning of the field weakening. The value for 50 Hz induction motors with two poles is 3000 rpm. For the 50 Hz induction motor with four poles, MVR is 1500 rpm. If the induction motor is for 60 Hz power line, the correspondent rated velocity should be given.

In the case of sensorless drives of PM motor (|MTYPE|=2, |FBTYPE|=10), the parameter MVR determines the switching value from scalar control to vector control. It is normally set to 10% ~ 20% of the rated velocity of the motor.

When using Hall' only, the parameter MVR determines the threshold speed where the actual speed is switched between speed estimation by using sensorless control method and speed calculation by the Hall's. So parameter's of the PM motor |MKT|, |MKS| and |L| must be set correctly. |MTYPE| has to be set to 2. If MVR = 0, the compensation for the low speed will be switched off. An optimal setting of this parameter depends on the relation of the motor poles and the rated speed. Normally it is set to 20 - 30% of the rated speed |VLIM|.

ASCII -Command	NONBTB
Syntax Transmit	NONBTB [Data]
Syntax Receive	NONBTB <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	170

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Mains-BTB Check On/Off
-------------------	------------------------

Description

If the AC main power is missing, then the output stage will produce a fault message F16 (Mains-RTO) if the drive is enabled. To disable this response set NONBTB = 1. In the case the drive is powered directly from DC power (no AC Mains power) this setting is required.

See also |UVLTMODE|.

Starting with firmware 5.41, this parameter is changed to a configuration parameter

ASCII -Command	NREF
Syntax Transmit	NREF [Data]
Syntax Receive	NREF <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 20
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3027
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	173

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Homing Mode
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Description

For linear movements, before a positioning movement can be started, a homing operation must be carried out. The reference point set in this operation is valid until the next hardware reset of the amplifier. An attempt to start positioning without a reference point being set causes a warning (LCD display n09). Any previously-set reference point is cancelled before the homing operation begins. A preset zero-point offset is taken into account for the position output and display. Exception: Homing=5. In this case, the true current position is displayed. You can shift the zero-crossing point of the motor shaft within one turn by using |ENCZERO|. Zero-point recognition: The reference point is set to the first zero-crossing point of the feedback unit (zero mark) after recognition of the reference switch transition. Two-pole resolvers and all encoders have just one zero-crossing per turn, so the positioning at the zero mark is unambiguous within a motor turn. For four-pole resolvers, there are two zero-crossings per turn. For six-pole resolvers, there are three zero-crossings per turn. If the transition of the reference switch lies very close to the zero-crossing point of the feedback unit, the positioning to the zero mark can vary by one motor turn. The repetition accuracy of homing operations made without zero-point recognition depends on the traversing velocity and the mechanical design of the reference or limit switch. For homing modes 1 and 3, a digital input must be configured as a zero-mark input (home position) (|INxMODE|=12 or I/O expansion card). For homing modes 2 and 4, a digital input must be configured as a hardware limit switch (|INxMODE|=2 or |INxMODE|=3). For homing modes 1, 2, 3, 4, 5, and 7, the setting of the zero-pulse offset for the Encoder Equivalent Output (EEO) output is taken into account (the zero point is set so both the output of the zero pulse and the display of the zero position appear at zero-pulse offset). The setting of the reference offset (|ROFFS|) is taken into account for all homing modes. The zero point is assigned to a freely chosen absolute position value.

If a multiturn encoder is used, every homing move can be started. If the homing move is ready, |RSOFFS| is calculated automatically and a |SAVE| command is executed.

Wenn the drive is switched off and on, the drive has the same position.

See also |REFMODE|

Zustand	Short Description	Additional Description
NREF=0	Set Reference at actual position	The actual position becomes the reference point (the target and the actual position are set to ROFFS). The distance between the actual and the target position is lost.

NREF=1	Traverse to the reference switch with zero-mark recognition.	<p>The drive starts a move using DREF , until a positive edge at the reference switch is detected. Then the distance to the next zero point of the resolver is calculated and a move to this position is started.</p> <p>If the reference switch is present (input signal = high), a move in the opposite direction of DREF is started until a negative edge is detected. Then the homing move is started.</p> <p>If a hardware limit switch is detected (start of the homing move behind the reference switch), the direction is changed and a move is started, until a positive and a negative level edge is detected at the reference switch. Then the homing move is started. At the end of the homing move, the target and the actual position are set to ROFFS .</p>
NREF=2	Move to hardware limit-switch, with zero-mark recognition.	<p>The drive starts a move using DREF until the hardware limit switch is reached. Then the direction is changed and the drive moves to the next zero point of the resolver.</p> <p>At the end of the homing move, the target and the actual position are set to ROFFS .</p>
NREF=3	Move to reference switch, without zero-mark recognition.	<p>The drive starts a move using DREF , until a positive edge at the reference switch is detected. The position at the edge of the reference move is equivalent to ROFFS . Then the drive stops.</p> <p>If the reference switch is present (input signal = high), a move in the opposite direction of DREF is started until a negative edge is detected. Then the homing move is started.</p> <p>If a hardware limit switch is detected (start of the homing move behind the reference switch), the direction is changed and a move is started, until a positive and a negative level edge is detected at the reference switch. Then the homing move is started. The real stop position is not the edge of the reference switch and depends on the selected speed and the deceleration ramp.</p>
NREF=4	Move to hardware limit-switch, without zero-mark recognition.	<p>The drive starts a move using DREF , until the hardware limit switch is detected. Then the direction is changed and a move is started until the hardware limit switch is high again.</p> <p>In case this homing procedure is started while the hardware limit switch is active the axis will move to the opposite direction than the locked direction by hardware limit switch. (see also command DREF)</p> <p>The position at the edge of the hardware limit switch is equivalent to ROFFS . Then the drive stops.</p> <p>The real stop position is not the edge of the hardware limit switch and depends on the selected speed and the deceleration ramp.</p>
NREF=5	Move to the next zero-mark of the feedback unit.	<p>Homing to the next zero point of the resolver. The moving direction is given by variable DREF .</p> <p> DREF =0 negative DREF =1 positive DREF =2 the direction is given by the shortest distance.</p>
NREF=6	Set Reference at actual position, without losing target position	<p>The actual position becomes the reference point (the position command and the actual position are set to ROFFS).</p> <p>The difference to NREF=0 is, that the distance between target and actual position is not lost (position error).</p>

NREF=7	Move to mechanical stop with zero-mark recognition	<p>When the homing mode 7 is started, the peak current limit threshold IPEAK is set to REFIP (peak current for the homing mode in A) in the direction given by DREF (DREF =0 positive, DREF =1 negative).</p> <p>When the drive moves the motor, the contouring error is monitored and if the error becomes higher than PEMAX / 2 (half of the contouring error window), the direction is changed and a move to the next zero point of the resolver is started. The motor stops in that position and sets the actual and the target position to ROFFS . The peak current of the drive is set back to the original value of IPEAK .</p>
NREF=8	Move to absolute SSI-position	<p>(FW > 3.20)</p> <p>When a homing mode 8 is started, the actual position of an external Multiturn SSI encoder (GEARMODE =7) is read, calculated with GEARI and GEARO to internal counts and an offset value ROFFS2 is added. The result is a target position for a motion task that is started. When the target position is reached, the IN-POSITION bit is set. This function is done for a gantry application with multiturn encoder feedback and coupling of the two drive using SSI multiturn,</p>
NREF=9	Move to mechanical stop without zero-mark recognition	<p>(FW > 3.20)</p> <p>When the homing mode 9 is started, the peak current limit threshold IPEAK is set to REFIP (peak current for the homing mode in A) in the direction given by DREF (DREF =0 positive, DREF =1 negative).</p> <p>When the drive moves the motor, the contouring error is monitored and if the error becomes higher than PEMAX / 2 (half of the contouring error window), this position is used to set the actual and the target position to ROFFS . The peak current of the drive is set back to the original value of IPEAK .</p> <p>(FW > 4.71)</p>

ASCII -Command	NREFMT
Syntax Transmit	NREFMT [Data]
Syntax Receive	NREFMT <Data>
Type	rw
Format	Integer16
DIM	
Range	0 ... 511
Default	0
Opmode	8
Drive Status	
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	466

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	motion task automatic executed after homing
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Description

The command NREFMT will automatically start a motion task at the end of homing.

The parameter NREFMT is a bit-variable (16 bit) :

FEDCBA9876543210
 xxxxxxxcnnnnnnnn

Bits 0..7 (nnnnnnnn) number of the automatic started motion task
 number = 0 no motion task will be started.

Bit 8 =0 motion task nn will be started after the motor stopped. The bits "homing active=0" and "homing finished=1" are set before motion task nn is started.

=1 motion task nn starts immediately. The bits "homing active=0" and "homing finished=1" are set after motion task nn is finished.

(This option is available > firmware 5.70)

ASCII -Command	O_ACC1
Syntax Transmit	O_ACC1 [Data]
Syntax Receive	O_ACC1 <Data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds, mm/sec ^2
Range	1 .. 32000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	183

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Acceleration Time 1 for Motion Task 0
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Description

The command O_ACC1 can be used to define the acceleration ramp for motion task 0 (direct motion block). The scaling of the acceleration time depends on the |PGEARI|, |PGEARO| and |O_C| parameters.

1. Bit 12 of the motion task control variable |O_C| is = 0.
The acceleration time is given in milliseconds for acceleration from 0 to the target speed |O_V|.
2. Bit 12 of the motion task control variable |O_C| is = 1.
The acceleration is given in mm/sec². The resulting run-up time is calculated at the start of the motion task.

Note: If the resolution is set to 1 (|PGEARI|=|PGEARO|) then internal units (counts) will be used for the speed, position and acceleration. In this case, O_ACC1 is interpreted as a run-up time in msec.

ASCII -Command	O_ACC2
Syntax Transmit	O_ACC2 [Data]
Syntax Receive	O_ACC2 <Data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds
Range	1 .. 32000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	184

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	No

Short Description	Acceleration Time 2 for Motion Task 0
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Description

The command O_ACC2 defines the time taken to build up the initial acceleration for motion task 0 (direct motion task). The following settings are possible:

- O_ACC2 = 0 the acceleration is applied instantly (V-ramp = trapeze)
- O_ACC2 = 0.5 * |O_ACC1| the acceleration is built up linearly (V-ramp = sine² form / S-curve)
- O_ACC2 < 0.5 * |O_ACC1| Set internally to 0.5 * |O_ACC1|).

Starting with firmware 4.86, also a table motion task is available. To enable this function, the bit 9 of |O_C| has to be set to "1". In this case, O_ACC2 is not used as acceleration time, but as number of the selected table. Before, that table(s) have to be downloaded by |UPDATE| Lookup.

ASCII -Command	O_C
Syntax Transmit	O_C [Data]
Syntax Receive	O_C <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	int
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	185

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Control Variable for Motion Task 0
-------------------	------------------------------------

Description

The O_C command defines the type of motion task for the local motion task 0 (direct motion task). A bit-variable (16 bits) is transferred as the parameter. The individual bits of this variable are interpreted as follows:

see also |o_c_6|

Table 1

Bit	Significance	Meaning
0	0x0001	Bit for the type of motion task (relative or absolute) (see table 2)
1	0x0002	Bit for the type of the relative motion task (see table 2)
2	0x0004	Bit for the type of the relative motion task (see table 2)
3	0x0008	=0 no next motion task, at the end of the motion task, the drive stops. =1 Next motion task selected, at the end of the motion task, automatically the next motion task is started. The number of the next motion task is given by O_FN
4	0x0010	Bit for the type of next motion task (see table 3)
5	0x0020	Bit for the type of next motion task (see table 3)
6	0x0040	Bit for the type of next motion task (see table 3)
7	0x0080	Bit for the type of next motion task (see table 3)
8	0x0100	Bit for the type of next motion task (see table 3)
9	0x0200	=0 The motion task is executed via the internal trajectory generator. =1 A stored lookup table profile is started. The table has to be stored in the flash of the drive. O_ACC2 gives the number of the selected table. The sum of O_ACC1 and O_DEC1 gives the moving time of the profile. O_V and O_DEC2 are ignored.
10	0x0400	=0 The profile is executed in the given direction. =1 The profile is executed in the inverse direction.
11	0x0800	reserved

12	0x1000	<p>=0 the acc and dec of the motion tasks is given in msec from "0" to the target speed.</p> <p>=1 the acc and dec of the motion task is given in mm/sec² (see also commands O_ACC1 , O_ACC2 , O_DEC1 , O_DEC2).</p> <p>This bit is only considered if ACCUNIT = 0.</p>
13	0x2000	<p>=0 The target position and target speed of the motion task is interpreted as counts (there is no calculation needed).</p> <p>=1 The target position and target speed is given in SI units. There must be a calculation with PGEARI and PGEARO to get the internal counts (see also O_S , O_V , PGEARI , PGEARO).</p>
14	0x4000	<p>=0 The speed that is given in the motion task is the target speed.</p> <p>=1 The target speed is given by the analog setpoint 1 .</p> <p>When a motion task is started, the analog input is read and becomes the target speed of the motion task (Scaling: 10V= VSCALE1). The absolute of analog input 1 is used.</p>
15	0x8000	<p>Bit 3 of the type of the relative motion task (see separate table)</p>

Table 2

Type of relative/absolute Motion Task

Bit 15/2/1/0 xxx0	Meaning
xxx0	Absolute Motion Task, the position value in the motion task is the new target position
x001	<p>Relative Motion Task, the position value in the motion task is added to the old target position.</p> <p>The target position depends on the IN-POSITION message:</p> <p>IN-POSITION=1 target position = last target position + relative position of the motion task</p> <p>IN-POSITION = 0 target position = actual position + relative position of the motion task</p>
x011	<p>Relative Motion Task, the position value in the motion task is added to the old target position.</p> <p>target position = last target position + relative position of the motion task</p>
x101	<p>Relative Motion Task, the position value in the motion task is added to the old target position.</p> <p>target position = actual position + relative position of the motion task</p>
0111	<p>Relative Motion Task, the position value in the motion task is added to the old target position.</p> <p>target position = latched position at the positive edge of the input + relative position of the motion task (see object LATCH32)</p>
1111	<p>Relative Motion Task, the position value in the motion task is added to the old target position.</p> <p>target position = latched position at the negative edge of the input + relative move of the motion task (see object LATCH32N)</p>

Table 3 Type of Next motion task

Bit 8/7/6/5/4	Meaning
00000	Switch over to next motion task with stop. The drive stops at the target position of the actual motion task. Then it starts the next motion task in the sequence.
00001	Switch over to next motion task without stop. The drive moves to the target position with target speed of the actual motion task. Then it starts the next motion task in the sequence.
	This function is only available on linear acceleration.
10001	Switch over to next motion task without stop. The drive calculates the changing point that the speed of the motor at target position becomes the speed of the next motion task in the sequence.
00010	Switch over to next motion task with stop. The drive stops at the target position of the actual motion task. The next motion task in the sequence is started, if the digital input selected by INxMODE =15 is switched to low.
00110	Switch over to next motion task with stop. The drive stops at the target position of the actual motion task. The next motion task in the sequence is started, if the digital input selected by INxMODE =15 is switched to high.
01000	Switch over to next motion task with stop. The drive stops at the target position of the actual motion task. The next motion task in the sequence is started after the selected delay time defined by O_FT).
01010	Switch over to next motion task with stop. The drive stops at the target position of the actual motion task. The next motion task in the sequence is started after the selected delay time defined by O_FT) or if the digital input selected by INxMODE =15 is set to low.
01110	Switch over to next motion task with stop. The drive stops at the target position of the actual motion task. The next motion task in the sequence is started after the selected delay time defined by O_FT) or if the digital input selected by INxMODE =15 is set to high.

ASCII -Command	O_DEC1
Syntax Transmit	O_DEC1 [Data]
Syntax Receive	O_DEC1 <Data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds, mm/sec ^2
Range	1 .. 32000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	186

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Braking Time 1 for Motion Task 0
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Description

The command O_DEC1 can be used to define the deceleration (braking) ramp for motion task 0 (direct motion task). The scaling of the deceleration/braking time depends on the |PGEARI|, |PGEARO| and |O_C| parameters.

1. Bit 12 of the motion task control variable |O_C| is = 0.
The braking time is given in milliseconds for deceleration from target speed |O_V| down to 0.
2. Bit 12 of the motion task control variable |O_C| is = 1.
The deceleration is given in mm/sec². The resulting run-down time is calculated at the start of the motion task.

Note: If the resolution is set to 1 (|PGEARI|=|PGEARO|) then internal units (counts) will be used for the speed, position and acceleration. In this case, O_DEC1 is interpreted as a run-down time in msec.

ASCII -Command	O_DEC2
Syntax Transmit	O_DEC2 [Data]
Syntax Receive	O_DEC2 <Data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds
Range	1 .. 32000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	187

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	No

Short Description	Deceleration Time 2 for Motion Task 0
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Description

The command O_DEC2 defines the time taken to build up the initial deceleration for motion task 0 (direct motion task). The following settings are possible:

- O_ADEC2 = 0 the deceleration is applied instantly (V-ramp = trapeze)
- O_DEC2 = 0.5 * |O_DEC1| the deceleration is built up linearly (V-ramp = sine² form / S-curve)
- O_DEC2 < 0.5 * |O_DEC1| Set internally to 0.5 * |O_DEC1|

ASCII -Command	O_FN
Syntax Transmit	O_FN [Data]
Syntax Receive	O_FN <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0, 1, .. ,180,192 .. 255
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	188

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Next Task Number for Motion Task 0
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Description

The command O_FN can be used to define the number of the following motion block. This number is only used if bit 3 (next block activated) of the motion block control word is set to 1.

The motion block number can have the following values:

- 0 - direct motion block
- 1 ... 180 motion block from the Flash EEPROM
- 192 ... 255 motion block from the RAM

ASCII -Command	O_FT
Syntax Transmit	O_FT [data]
Syntax Receive	O_FT <data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds
Range	1 .. 32767
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	189

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Delay before Next Motion Task
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Description
 This parameter can be used to delay the start of the next motion task (if one is defined). This parameter is only evaluated if bit 3 (next task activated) and bit 7 (delay time activated) of the motion task control word are set.

ASCII -Command	O_P
Syntax Transmit	O_P [data]
Syntax Receive	O_P <data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	190

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Target Position/Path for Motion Task 0
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Description

The command O_P can be used to define the target position for motion block 0 (direct motion block). Depending on the type of motion task (absolute or relative) this parameter will be interpreted as an absolute target position or a relative path movement. The scaling of the position depends on the |PGEARI|, |PGEARO|, |PRBASE| and |O_C| parameters.

1. Bit 13 of the motion block control word = 0 (given in internal units)

The position /path is given in counts.

Scaling: |PRBASE|=20 -> 1048576 increments per turn
 |PRBASE|=16 -> 65536 increments per turn

2. Bit 13 of the motion block control variable is = 1 (taking the resolution into account)

The position is converted according to the following formula:

$$\text{Position [increments]} = |\text{O}_P| * |\text{PGEARO}| / |\text{PGEARI}|$$

Note: If the resolution is set to 1 (|PGEARI|=|PGEARO|) then internal units (counts) will be used for the speed, position and acceleration.

ASCII -Command	O_V
Syntax Transmit	O_V [data]
Syntax Receive	O_V <data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	191

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Target Speed for Motion Task 0
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Description

The command O_V can be used to define the target speed for motion block 0 (direct motion block). The scaling of the speed depends on the |PGEARI|, |PGEARO|, |PRBASE| and |O_C| parameters.

- Bit 13 of the motion block control word = 0 (given in internal units)
The speed is given in counts.
Scaling: |PRBASE|=20 -> 140/32 increments per rpm
|PRBASE|=16 -> 140/512 increments per rpm

- Bit 13 of the motion block control variable is = 1 (taking the resolution into account)
The speed is converted according to the following formula:
Speed [increments] = |O_P| * |PGEARO| / |PGEARI| / 4000

Note: If the resolution is set to 1 (PGEARI=PGEARO) then internal units (counts) will be used for the speed.

ASCII -Command	O1
Syntax Transmit	O1 [data]
Syntax Receive	O1 <data>
Type	Variable rw
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3036 ... 7
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	174

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	State of Digital Output 1
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Description

The O1 command returns the state of the digital output 1 (0 = Low,1 = High).
 If no function is assigned to digital output 1 (|O1MODE|=0), then the High/Low state can be given out at output 1 by using the command "O1 1" or "O1 0".

ASCII -Command	O1MODE
Syntax Transmit	O1MODE [Data]
Syntax Receive	O1MODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 50
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Digital I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3005 ... 6
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	175

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Function of digital output 1
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Description

The O1 command returns the state of the digital output 1 (0 = Low,1 = High).
 If no function is assigned to digital output 1 (O1MODE=0), then the High/Low state can be given out at output 1 by using the command “|O1| 1” or “|O1| 0”.

Zustand	Function	Description
O1MODE=0	Off	OFF The state of the digital output 1 can be set/cleared by RS232/Fieldbus or Slot board
O1MODE=1	v_act< O1TRIG	As long as the absolute value for the motor velocity is lower than a preset value (O1TRIG), a HIGH-signal will be output. After the function has been selected you can enter the velocity in rpm in O1TRIG . The output is high, if V < O1TRIG and becomes low, if V > O1TRIG + 0.01 * MSPEED . The value unit is fixed by VUNIT
O1MODE=2	v_act> O1TRIG	As long as the absolute value for the motor velocity is higher than a preset value (O1TRIG), a HIGH-signal will be output. After the function has been selected you can enter the velocity in rpm in O1TRIG . The output is high, if V > O1TRIG and becomes low, if V < O1TRIG + 0.01 * MSPEED . The value unit is fixed by VUNIT
O1MODE=3	Mains-RTO	After switching on the mains supply, a HIGH-signal is output until the DC-link circuit is fully charged up. A LOW-signal is output when the charging of the DC-link circuit is finished. If the DC-link voltage falls below VBUSMIN value, then a HIGH-signal will be output. The “Undervoltage” monitoring is inactive.
O1MODE=4	Regen off	Signals if the preset regen power (screen page “Basic Setup”) is exceeded.
O1MODE=5	Sw_limit	This produces a HIGH-signal if a software limit-switch is reached (a preset function of the corresponding position register, set to “SW limit-switch 1” or “SW limit-switch 2” – the function is defined in the screen page “Position”).

O1MODE=6	Pos.>x	<p>If the position (angular position of the motor shaft) exceeds a preset value (O1TRIG), a HIGH-signal will be output. After the function has been selected, you can enter the signaling position in increment (a number or fraction of motor turns N) as O1TRIG . Make the calculation according to the following equation: $x = 1048576 * N * \text{Inkr.}$ Maximum possible entry value: $x = 2^{31} = 2147483648$, this corresponds to $N = 2048$</p>
O1MODE=7	InPos	<p>When the target position for a motion task has been reached (the InPosition window PEINPOS), this is signaled by the output of a HIGH-signal. A cable break will not be detected. The width of the InPosition window for all the valid motion tasks is entered in the "Position data" screen page. If a sequence of motion tasks is performed one after another, then the signal for reaching the final position of the motion-task sequence will be output (target position of the last motion task). Signaling that the target position of each motion task has been reached, in a sequence of motion tasks, can be achieved with the function "16, Next_InPos".</p>
O1MODE=8	I_act< O1TRIG	<p>The output is a HIGH-signal, as long as the absolute r.m.s. value of the actual current is lower than a defined value in mA (O1TRIG). After the function has been selected, you can enter the current value as O1TRIG in mA.</p>
O1MODE=9	I_act> O1TRIG	<p>The output is a HIGH-signal, as long as the absolute r.m.s. value of the actual current is higher than a defined value in mA (O1TRIG). After the function has been selected, you can enter the current value as O1TRIG in mA.</p>
O1MODE=10	Error	<p>If the position goes outside the preset contouring-error window, this is indicated by a LOW-signal. The width of the contouring-error window (PEMAX) is entered in the screen page "Position" for all the valid motion tasks.</p>
O1MODE=11	I2T	<p>If the preset I2T monitoring threshold (I2TLIM) is reached (screen page "Current") this is indicated by a HIGH-signal.</p>
O1MODE=12	Posreg.1	<p>The preset function of the corresponding position register 1 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>
O1MODE=13	Posreg.2	<p>The preset function of the corresponding position register 2 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>
O1MODE=14	Posreg.3	<p>The preset function of the corresponding position register 3 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>
O1MODE=15	Posreg.4	<p>The preset function of the corresponding position register 4 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>

O1MODE=16	Next-InPos	The start of each motion task in an automatically executed sequence of motion tasks is signalled by an inversion of the output signal. The output produces a Low signal at the start of the first motion task of the motion task sequence. The type of message can be set by IN2PM
O1MODE=17	Error/Warn	The output produces a HIGH-signal if an error or a warning message is signaled by the servo amplifier. A list of the error messages can be found under ERRCODE . n32 has no effect to the output.
O1MODE=18	Error	The output produces a HIGH-signal if an error is signaled by the servo amplifier. A list of the error messages can be found under ERRCODE
O1MODE=19	DC_Link> O1TRIG	A HIGH-signal is output if the actual value of the DC-link voltage is higher than a defined value in volts (O1TRIG). After the function has been selected, you can enter the voltage value as O1TRIG in Volt..
O1MODE=20	DC_Link < O1TRIG	A HIGH-signal is output if the actual value of the DC-link voltage is lower than a defined value in volts (O1TRIG). After the function has been selected, you can enter the voltage value in O1TRIG in Volt.
O1MODE=21	Powerstagesstatus (Enable / Disable)	A HIGH-signal is output if the servo amplifier is enabled. To obtain the enable, the external Hardware Enable signal must be present, the Enable status must be set in the setup software (or via the fieldbus interface) and no errors must be present that would cause an automatic internal disabling of the servo amplifier. If function OxMODE = is selected, the enable signal is high, if the line voltage is applied and the charging of the link capacitors is finished. The drive is disabled, if the DC-link voltage goes under the threshold VBUSMIN .
O1MODE=22	Zero_pulse	The zero mark/pulse (HIGH-signal) is indicated by the encoder-emulation. This function is only use-ful at very low velocities. Vmax = 15000 / ENCOUT e.g. ENCOUT =256 Pulses/Rev Vmax = 58 rpm
O1MODE=23	Slot-DPR	This configuration enables the possibility to output a state from the Slot board (mem DPR Slot Board Offset 0x3E4). If no Slot board is available, this configuration is equal to OxMODE=0. If a Device-Net option board is plugged in the drive, this setting enables access of Device-Net to digital output 1
O1MODE=24	Ref_OK	The output signals High, if a reference point is available. Reference traverse (homing) has been carried out, or a reference point has been set. (see NREF)
O1MODE=25	Reserved	
O1MODE=26	Reserved	
O1MODE=27	Reserved	
O1MODE=28	Posreg.0	The preset function of the corresponding position register 0 is indicated by a HIGH-signal. Valid only with expansion card -I/0-14/08- .

O1MODE=29	Posreg.5	The preset function of the corresponding position register 5 is indicated by a HIGH-signal. Valid only with expansion card -I/0-14/08- .
O1MODE=30	OR-Operation of all Posreg.	<p>The digital output is set if a cam is active.</p> <p>A cam is defined by the position register P1..P16. This registers should be used two by two example:</p> <p>cam 1: P1 and P2 cam 2: P5 and P6 cam 3: P11 and P12</p> <p>The OxTRIG-variable is used to activate the cam monitoring. The corresponding mask for this example is:</p> <p>OxTRIG = 3123 (Hex-description 0x0C33)</p> <p>The output is set to high level, if any of this cams is active.</p> <p>example 2: O1MODE=30 O1TRIG=3 (Hex 0x0003) O2MODE=30 O2TRIG=3120 (Hex 0x0C30) Output 1 is active if cam 1 is set (P1 und P2). Output 2 is active if cam 2 (P5,P6) or cam 3 (P11,P12) is set.</p>
O1MODE=31	Analog SW1 < O1TRIG	The output is high, if the analog input voltage at analog input 1 is lower than the threshold O1TRIG . The auxiliary variable O1TRIG is given in mV (with sign).
O1MODE=32	Analog SW1 > O1TRIG	The output is high, if the analog input voltage at analog input 1 is higher than the threshold O1TRIG . The auxiliary variable O1TRIG is given in mV (with sign).
O1MODE=33	Analog SW2 < O1TRIG	The output is high, if the analog input voltage at SW2 is lower than the threshold O1TRIG . The auxiliary variable O1TRIG is given in mV (with sign).
O1MODE=34	Analog SW2 > O1TRIG	The output is high, if the analog input voltage at SW2 is higher than the threshold O1TRIG . The auxiliary variable O1TRIG is given in mV (with sign).
O1MODE=35	Internal Enable	<p>The state of the internal ENABLE signal is mirrored on the digital output. If the settings are: MBRAKE =0, STOPMODE =0 and ACTFAULT =0, the function is similar to O1MODE =21.</p> <p>If one of the three variables is "1", the output changes to low, when the drives starts to dec to "0".</p> <p>If O1MODE =21, the output is low, if the drive has stopped and has disabled the output stage.</p>
O1MODE=36	Logical OR: DRVSTAT - O1TRIG	This function makes a OR operation between the Bit-variable DRVSTAT and a Bit mask given by O1TRIG . The result is present at output 1.
O1MODE=37	Logical AND: DRVSTAT - O1TRIG	This function makes a AND operation between the Bit-variable DRVSTAT and a Bit mask given by O1TRIG . The result is present at output 1.
O1MODE=38	Logical OR: TRJSTAT - O1TRIG	This function makes a OR operation between the Bit-variable TRJSTAT and a Bit mask given by O1TRIG . The result is present at output 1.

O1MODE=39	Logical AND: TRJSTAT - O1TRIG	This function makes a AND operation between the Bit-variable TRJSTAT and a Bit mask given by O1TRIG . The result is present at output 1.
O1MODE=40	Logical OR: POSRSTAT - O1TRIG	This function makes a OR operation between the Bit-variable POSRSTAT and a Bit mask given by O1TRIG . The result is present at output 1.
O1MODE=41	Logical AND: POSRSTAT - O1TRIG	This function makes a AND operation between the Bit-variable POSRSTAT and a Bit mask given by O1TRIG . The result is present at output 1.
O1MODE=42		<p>This function enables a temperature warning. If one of the three internal measured temperatures reaches the trip level, the digital output ist set to high. After the selected delay time given in O1TRIG the drive generates a error message and disables the output stage.</p> <p>The delay time has the range 0...30000 msec and effects following temperatures:</p> <p>Motor temperature TEMPM], threshold MAXTEMPM] Heatsink temperature TEMPH], Threshold MAXTEMPH] Ambient temperature TEMPE], threshold MAXTEMPE]</p> <p>Start Firmware 3.41</p>
O1MODE=43	The sign of the actual velocity	<p>OUTPUT1 = 0 V > VEL0 </p> <p>This function is available starting firmware version 4.01.</p>
O1MODE=44	Velocity In-Position (active high)	The output 1 is set, if the absolute of the difference between the internal velocity command and the actual velocity is smaller than O1TRIG . The size of the window (O1TRIG) is given in valid velocity units (VUNIT). (4.30)
O1MODE=45	Velocity In-Position (aktive low)	The output 1 is set, if the absolute of the difference between the internal velocity command and the actual velocity is bigger than O1TRIG . The size of the window (O1TRIG) is given in valid velocity units (VUNIT). (4.30)
O1MODE=46	Current in Window (high active)	The digital output 1 is set, if the absolute of the difference between current command and actual value is smaller than the window, defined by O1TRIG . The window is given in mA.
O1MODE=47	Current not in Window (low active)	The digital output 1 is set, if the absolute of the difference between current command and actual value is greater than the window, defined by O1TRIG . The window is given in mA.
O1MODE=48	Logical NOR: DRVSTAT - O1TRIG	This function makes a inverted OR operation between the Bit-variable DRVSTAT and a Bit mask given by O1TRIG . The result is present at output 1. (starting with 4.92)
O1MODE=49	Logical NAND: DRVSTAT - O1TRIG	This function makes a inverted AND operation between the Bit-variable DRVSTAT and a Bit mask given by O1TRIG . The result is present at output 1. (starting with 4.92)
O1MODE=50	Logical NOR: TRJSTAT - O1TRIG	This function makes a inverted OR operation between the Bit-variable TRJSTAT and a Bit mask given by O1TRIG . The result is present at output 1. (starting with FW 4.92)
O1MODE=51	Logical NAND: TRJSTAT - O1TRIG	This function makes a AND operation between the Bit-variable TRJSTAT and a Bit mask given by O1TRIG . The result is present at output 1. (starting with 4.92)

O1MODE=52	Logical AND: POSRSTAT - O1TRIG	same as O1MODE = 41 but the output is for PTBASE * 250 us on high level
O1MODE=53	Master slave synchron	output is se, if master and slave are synchronized (see also IN1MODE = 51

ASCII -Command	O1TRIG
Syntax Transmit	O1TRIG [Data]
Syntax Receive	O1TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3007 ... 8
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	176

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Auxiliary Variable for O1MODE
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Description
 The function of the auxiliary variable O1TRIG depends on the configuration of [O1MODE].
 see [O1MODE]

ASCII -Command	O2
Syntax Transmit	O2 [Data]
Syntax Receive	O2 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3036 ... 7
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	177

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	State of Digital Output 2
-------------------	---------------------------

Description

The O2 command returns the state of the digital output 2 (0 = Low,1 = High).
 If no function is assigned to digital output 2 (|O2MODE|=0), then the High/Low state can be given out at output 2 by using the command “|O2| 1” or “|O2| 0”.

ASCII -Command	O2MODE
Syntax Transmit	O2MODE [Data]
Syntax Receive	O2MODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 50
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Digital I/O

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3005 ... 6
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	178

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Function of Digital Output 2
-------------------	------------------------------

Description

The O2MODE command can be used to configure the function of the digital output OUT2. The amplifier must be switched off and then on again after an alteration of this parameter.
The following functions can be configured:

Zustand	Function	Description
O2MODE=0	Off	OFF The state of the digital output 2 can be set/cleared by RS232/Fieldbus or Slot board
O2MODE=1	v_act< O1TRIG	As long as the absolute value for the motor velocity is lower than a preset value (O2TRIG), a HIGH-signal will be output. After the function has been selected you can enter the velocity in rpm in O2TRIG . The output is high, if V < O2TRIG and becomes low, if V > O2TRIG + 0.01 * MSPEED .
O2MODE=2	v_act> O1TRIG	As long as the absolute value for the motor velocity is higher than a preset value (O2TRIG), a HIGH-signal will be output. After the function has been selected you can enter the velocity in rpm in O2TRIG . The output is high, if V > O2TRIG and becomes low, if V < O2TRIG + 0.01 * MSPEED .
O2MODE=3	Mains-RTO	This signals the operational readiness of the SERVOSTAR™ 600 power output stage. After switch-ing on the mains supply, a LOW-signal is output until the DC-link circuit is fully charged up. A HIGH-signal is output when the charging of the DC-link circuit is finished. If the DC-link voltage falls below VBUSMIN value, then 0V will be output. The “Undervoltage” monitoring is inactive.
O2MODE=4	Regen off	Signals if the preset regen power (screen page “Basic Setup”) is exceeded.
O2MODE=5	Sw_limit	This produces a HIGH-signal if a software limit-switch is reached (a preset function of the corresponding position register, set to “SW limit-switch 1” or “SW limit-switch 2” – the function is defined in the screen page “Position”).(see SWCNFG)

O2MODE=6	Pos.> O1TRIG	<p>If the position (angular position of the motor shaft) exceeds a preset value (O1TRIG), a HIGH-signal will be output. After the function has been selected, you can enter the signaling position in increment (a number or fraction of motor turns N) as O1TRIG .</p> <p>Make the calculation according to the following equation: $O1TRIG = 1048576 * N * Inkr.$ Maximum possible entry value: $x = 2^{31} = 2147483648$, this corresponds to $N = 2048$</p>
O2MODE=7	InPos	<p>When the target position for a motion task has been reached (the InPosition window), this is signaled by the output of a HIGH-signal. A cable break will not be detected.</p> <p>The width of the InPosition window PEINPOS for all the valid motion tasks is entered in the "Position data" screen page.</p> <p>If a sequence of motion tasks is performed one after another, then the signal for reaching the final position of the motion-task sequence will be output (target position of the last motion task). Signaling that the target position of each motion task has been reached, in a sequence of motion tasks, can be achieved with the function "16, Next_InPos".</p>
O2MODE=8	I_act < O2TRIG	<p>The output is a HIGH-signal, as long as the absolute r.m.s. value of the actual current is lower than a defined value in mA (O2TRIG).</p> <p>After the function has been selected, you can enter the current value as O2TRIG .</p>
O2MODE=9	I_act > O2TRIG	<p>The output is a HIGH-signal, as long as the absolute r.m.s. value of the actual current is higher than a defined value in mA (O2TRIG).</p> <p>After the function has been selected, you can enter the current value as O2TRIG .</p>
O2MODE=10	Error	<p>If the position goes outside the preset contouring-error window (PEMAX), this is indicated by a LOW-signal.</p> <p>The width of the contouring-error window is entered in the screen page "Position" for all the valid motion tasks.</p>
O2MODE=11	I²t	<p>If the preset I²t monitoring threshold I2TLIM is reached (screen page "Current") this is indicated by a HIGH-signal.</p>
O2MODE=12	Posreg.1	<p>The preset function of the corresponding position register 1 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>
O2MODE=13	Posreg.2	<p>The preset function of the corresponding position register 2 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>
O2MODE=14	Posreg.3	<p>The preset function of the corresponding position register 3 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>
O2MODE=15	Posreg.4	<p>The preset function of the corresponding position register 4 (the function is defined in the screen page "Position") is indicated by a HIGH-signal.</p>

O2MODE=16	Next-InPos	The start of each motion task in an automatically executed sequence of motion tasks is signalled by an inversion of the output signal. The output produces a Low signal at the start of the first motion task of the motion task sequence. The type of message can be set by IN2PM
O2MODE=17	Error/Warn	The output produces a HIGH-signal if an error or a warning message is signaled by the servo amplifier. A list of the error messages can be found under ERRCODE . n32 has no effect to the output.
O2MODE=18	Error	The output produces a HIGH-signal if an error is signaled by the servo amplifier. A list of the error messages can be found under ERRCODE
O2MODE=19	DC_Link > O2TRIG	A HIGH-signal is output if the actual value of the DC-link voltage is higher than a defined value in volts (O2TRIG). After the function has been selected, you can enter the voltage value as O2TRIG .
O2MODE=20	DC_Link < O2TRIG	A HIGH-signal is output if the actual value of the DC-link voltage is lower than a defined value in volts (O2TRIG). After the function has been selected, you can enter the voltage value as O2TRIG .
O2MODE=21	Powerstagesstatus (Enable / Disable)	A HIGH-signal is output if the servo amplifier is enabled. To obtain the enable, the external Hardware Enable signal must be present, the Enable status must be set in the setup software (or via the fieldbus interface) and no errors must be present that would cause an automatic internal disabling of the servo amplifier. If function OxMODE = is selected, the enable signal is high, if the line voltage is applied and the charging of the link capacitors is finished. The drive is disabled, if the DC-link voltage goes under the threshold VBUSMIN .
O2MODE=22	Zero_pulse	The zero mark/pulse (HIGH-signal) is indicated by the encoder-emulation. This function is only useful at very low velocities. Vmax = 15000 / ENCOUT e.g. ENCOUT =256 Pulses/Rev Vmax = 58 rpm
O2MODE=23	Slot-DPR	This configuration enables the possibility to output a state from the Slot board (mem DPR Slot Board Offset 0x3E4). If no Slot board is available, this configuration is equal to O2MODE=0. If a Device-Net option board is plugged in the drive, this setting enables access of Device-Net to digital output 2+
O2MODE=24	Ref_OK	The output signals High, if a reference point is available. Reference traverse (homing) NREF has been carried out, or a reference point has been set)
O2MODE=25	Reserved	
O2MODE=26	Reserved	
O2MODE=27	Reserved	
O2MODE=28	Posreg. 0	The preset function of the corresponding position register 0 is indicated by a HIGH-signal. Valid only with expansion card -I/0-14/08- .

O2MODE=29	Posreg. 5	The preset function of the corresponding position register 5 is indicated by a HIGH-signal. Valid only with expansion card -I/0-14/08- .
O2MODE=30	OR-Operation of all Posreg.	If one of the position registers 0...5 indicates high, the output is high, otherwise low.
O2MODE=31	Analog SW1 > O2TRIG	The output is high, if the analog input voltage at analog input 1 is lower than the threshold O2TRIG . The auxiliary variable O2TRIG is given in mV (with sign).
O2MODE=32	Analog SW1 < O2TRIG	The output is high, if the analog input voltage at analog input 1 is higher than the threshold O2TRIG . The auxiliary variable O2TRIG is given in mV (with sign).
O2MODE=33	Analog SW2 < O2TRIG	The output is high, if the analog input voltage at SW1 is higher than the threshold O2TRIG . The auxiliary variable O2TRIG is given in mV (with sign).
O2MODE=34	Analog SW2 > O2TRIG	The output is high, if the analog input voltage at SW2 is lower than the threshold O2TRIG . The auxiliary variable O2TRIG is given in mV (with sign).
O2MODE=35	Internal Enable	The state of the internal ENABLE signal is mirrored on the digital output. If the settings are: MBRAKE =0, STOPMODE =0 and ACTFAULT =0, the function is similar to O1MODE=21. If one of the three variables is "1", the output changes to low, when the drives starts to dec to "0". If O1MODE=21, the output is low, if the drive has stopped and has disabled the output stage.
O2MODE=36	Logical OR: DRVSTAT - O2TRIG	This function makes a OR operation between the Bit-variable DRVSTAT and a Bit mask given by O2TRIG . The result is present at output 2.
O2MODE=37	Logical AND: DRVSTAT - O2TRIG	This function makes a AND operation between the Bit-variable DRVSTAT and a Bit mask given by O2TRIG . The result is present at output 2.
O2MODE=38	Logical OR: TRJSTAT - O2TRIG	This function makes a OR operation between the Bit-variable TRJSTAT and a Bit mask given by O2TRIG . The result is present at output 2.
O2MODE=39	Logical AND: TRJSTAT - O2TRIG	This function makes a AND operation between the Bit-variable TRJSTAT and a Bit mask given by O2TRIG . The result is present at output 2.
O2MODE=40	Logical OR: POSRSTAT - O2TRIG	This function makes a OR operation between the Bit-variable POSRSTAT and a Bit mask given by O2TRIG . The result is present at output 2.
O2MODE=41	Logical AND: POSRSTAT - O2TRIG	This function makes a AND operation between the Bit-variable POSRSTAT and a Bit mask given by O2TRIG . The result is present at output 2.

O2MODE=42		<p>This function enables a temperature warning. If one of the three internal measured temperatures reaches the trip level, the digital output ist set to high. After the selected delay time given in O2TRIG the drive generates a error message and disables the output stage.</p> <p>The delay time has the range 0...30000 msec and effects following temperatures:</p> <p>Motor temperature TEMPM , threshold MAXTEMPM Heatsink temperature TEMPH , Threshold MAXTEMPH Ambient temperature TEMPE , threshold MAXTEMPE </p>
O2MODE=43	The sign of the actual velocity	<p>Start Firmware 3.41 OUTPUT2 = 0 V > VEL0 This function is available starting firmware version 4.01.</p>
O2MODE=44	Velocity In-Position (active high)	<p>The output 2 is set, if the absolute of the difference between the internal velocity command and the actual velocity is smaller than O2TRIG . The size of the window (O2TRIG) is given in valid velocity units (VUNIT). (4.30)</p>
O2MODE=45	Velocity In-Position (aktive low)	<p>The output 2 is set, if the absolute of the difference between the internal velocity command and the actual velocity is bigger than O2TRIG . The size of the window (O2TRIG) is given in valid velocity units (VUNIT). (4.30)</p>
O2MODE=46	Current in Window (high active)	<p>The digital output 2 is set, if the absolute of the difference between current command and actual value is smaller than the window, defined by O1TRIG . The window is given in mA.</p>
O2MODE=47	Current not in Window (low active)	<p>The digital output 2 is set, if the absolute of the difference between current command and actual value is greater than the window, defined by O2TRIG . The window is given in mA.</p>
O2MODE=48	Logical NOR: DRVSTAT - O2TRIG	<p>This function makes a inverted OR operation between the Bit-variable DRVSTAT and a Bit mask given by O2TRIG . The result is present at output 2. (starting with 4.92)</p>
O2MODE=49	Logical NAND: DRVSTAT - O2TRIG	<p>This function makes a inverted AND operation between the Bit-variable DRVSTAT and a Bit mask given by O2TRIG . The result is present at output 2. (starting with 4.92)</p>
O2MODE=50	Logical NOR: TRJSTAT - O2TRIG	<p>This function makes a inverted OR operation between the Bit-variable TRJSTAT and a Bit mask given by O2TRIG . The result is present at output 2. (starting with 4.92)</p>
O2MODE=51	Logical NAND: TRJSTAT - O2TRIG	<p>This function makes a AND operation between the Bit-variable TRJSTAT and a Bit mask given by O2TRIG . The result is present at output 2. (starting with 4.92)</p>
O2MODE=52	Logical AND: POSRSTAT - O2TRIG	<p>same as O2MODE = 41 but the output is for PTBASE * 250 us on high level</p>
O2MODE=53	Master slave synchron	<p>output is se, if master and slave are synchronized (see also IN2MODE = 51)</p>

ASCII -Command	O2TRIG
Syntax Transmit	O2TRIG [Data]
Syntax Receive	O2TRIG <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3007 ... 8
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	179

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Auxiliary Variable for O2MODE
-------------------	-------------------------------

Description

The function of the auxiliary variable O2TRIG depends on the configuration of [O2MODE].
see [O2MODE]

ASCII -Command	OCOPY
Syntax Transmit	OCOPY <Data> [- Data] <data>
Syntax Receive	OCOPY <Data> <Data>
Type	Command
Format	Integer8 Integer8
DIM	-
Range	0,1,...,180,192..255
Default	-
Opmode	8
Drive Status	Enabled (only RAM) / Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Parameter Motion Task

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Save/copy Motion Tasks
-------------------	------------------------

Description

The OCOPY command can be used to copy motion tasks from one storage location to another. The motion block number can have the following values:

0 - direct/local motion block

1 ... 180 motion blocks from the ROM. The ROM motion blocks are stored in a segment of the internal Flash EEPROM. They remain in the amplifier memory even after the 24V supply has been switched off. Write access to these motion blocks is only permitted if the output stage has been disabled.

192 ... 180 motion blocks from the RAM. The RAM motion blocks can also be written while the output stage is enabled. But the contents of these motion blocks will be lost if the 24V supply is switched off. When the controller is switched on, the RAM motion blocks will be initialized with the contents of ROM motion blocks 1 ... 64.

e.g.

OCOPY 0 1 save the local motion block (direct motion block /RAM) as ROM motion task 1

(The output stage must be inhibited while this command is carried out)

OCOPY 1 192 copy the first ROM motion block to the RAM (number 192)

OCOPY 1 - 16 192 copy ROM motion blocks 1 ... 16 to the RAM (192 ... 207)

ASCII -Command	OLIST
Syntax Transmit	OLIST [Data] [Data]
Syntax Receive	OLIST <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI CAN-Bus

PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	List of Motion Task Data
-------------------	--------------------------

Description

The command “OLIST x number” is used to output the contents of “number” motion blocks (= motion orders) one after another, starting with block “x”. The interpretation and sequence of the parameters that are shown corresponds to the parameters of the |ORDER| command.

If the “number” parameter is missing, then just the contents of motion block “x” will be shown.

If both the “x” and the “number” parameter are missing, then the contents of all the valid motion blocks will be shown (i.e. motion blocks with valid data and correct checksums).

ASCII -Command	OPMODE
Syntax Transmit	OPMODE [Data]
Syntax Receive	OPMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, .., 8
Default	1
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Amplifier

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	32 + 33
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	180

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Operating Mode
-------------------	----------------

Description

The OPMODE command is used to set the operating mode (basic function) for the amplifier. This operating mode can be changed over at any time, through the fieldbus interface or the digital I/O (|INxMODE|=24). The following settings are possible:

Zustand	Short Description	Description
OPMODE=0	Velocity control -digital command	Digital (rotational) velocity There are different possibilities to generate a velocity command: - RS232 Interface (" J " command) - Fieldbus Interface (PROFIBUS, CANopen, SERCOS, DPR Slot boards) - INxMODE 35 (VCT entry started by I/O)
OPMODE=1	Velocity control -analog command	Analog (rotational) velocity The velocity setpoint is generated by the analog inputs 1/2. The configuration is done with ANCNFG and INxMODE =8.
OPMODE=2	Current control -digital command	Digital torque The current setpoint can be generated by: - RS232 Interface (" T " command) - Fieldbus Interface (PROFIBUS, CANopen, SERCOS, DPR Slot boards)
OPMODE=3	Current control -analog command	Analog torque The current command is generated by the analog inputs 1/2. The configuration is done with ANCNFG and INxMODE =8.
OPMODE=4	Electronic Gearing (Master/Slave)	Position: electr. gearing The target position is generated by an external encoder. The type of the activated interface is selected by GEARMODE . If a SinCos type is selected by FBTYPE the FPGA has to be set to 3 (FW >4.56)

REV 2.3
If a P-position controller is used (see |EXTPOS| - setting) the values |ACC| and |DEC| should be set to minimum to prevent motor oscillation.

OPMODE=5	External Trajectory	<p>Position: ext. position nodes</p> <p>The target position is generated by fieldbus (PROFIBUS, CANopen or DRP Slot board). The cycle time for writing the new position can be selected with the command PTBASE in 250µs steps. The position controller brings the actual position to the new target position in the selected time.</p> <p>When using ANCNFG=8, the target position is given by the analog input 1. The analog voltage is read every 250µs and is used as target position for the position controller. The scaling of the analog input voltage is done with SRND and ERND . Before this function is active, a homing move has to be completed.</p>
OPMODE=6	SERCOS control	SERCOS control
OPMODE=7	Reserved	
OPMODE=8	Motion Tasks	<p>Position: motion blocks</p> <p>This setting allows the starting of motion tasks and also the homing moves.</p> <p>If a P-position controller is used (see EXTPOS - setting) the values ACC and DEC should be set to minimum to prevent motor oscillation.</p> <p>REV 2.3</p> <p>If a P-position controller is used (see EXTPOS - setting) the values ACC and DEC should be set to minimum to prevent motor oscillation.</p>

ASCII -Command	OPTION
Syntax Transmit	OPTION
Syntax Receive	OPTION <Data>
Type	Variable ro
Format	Integer16
DIM	-
Range	int (=Word)
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	181

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Option Slot ID
-------------------	----------------

Description

The OPTION command returns the identification for the slot card that has been detected. The following IDs are possible at present:

- H0000 no slot card detected
- H01xx I/O-expansion card
- H02xx (S600 = PROFIBUS)
- H03xx (S600 = SERCOS)
- H06xx customer
- H8100 customer
- H8200 customer (S400 = PROFIBUS)
- H8300 customer (S400 = 8300 SERCOS)

0x0Cxx S300 - Profibus - card

The least significant 8 bits (xx) indicate the hardware revision of the corresponding card.

ASCII -Command	ORDER
Syntax Transmit	ORDER [Data1...Data10]
Syntax Receive	ORDER <Data1...Data10>
Type	Command
Format	Integer32 ... Integer32
DIM	-
Range	0 .. 180, 192 .. 255
Default	-
Opmode	8
Drive Status	Enabled (only RAM) / Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Parameter Motion Task

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Set Motion Task Parameters
-------------------	----------------------------

Description

The ORDER command can be used to define any RAM/ROM motion task (= order). The ORDER command can be used in one of three forms:

- ORDER the contents of the direct motion task (nr = 0) are shown
- ORDER nr the contents of motion task number "nr" are shown
- ORDER nr o_p o_v o_c o_acc1 o_dec1 o_acc2 o_dec2 o_fn o_ft = definition of motion task "nr"

The "nr" parameter specifies the number of the motion task that is to be defined. The motion task number can have the following values:

- 0 - direct/local motion task
- 1 ... 180 motion tasks from the ROM. The ROM motion tasks are stored in a segment of the internal Flash EEPROM. They remain in the amplifier memory even after the 24V supply has been switched off. Write access to these motion tasks is only permitted if the output stage has been disabled.
- 192 ... 255 motion tasks from the RAM. The RAM motion tasks can also be written while the output stage is enabled. But the contents of these motion tasks will be lost if the 24V supply is switched off. When the controller is switched on, the RAM motion tasks will be initialized with the contents of ROM motion tasks 1 ... 64.

The individual elements o_p ... o_ft have the same interpretation as the corresponding ASCII commands.

- |O_P| target position/path for the motion task
- |O_V| target speed/velocity
- |O_C| type of motion task (control word)
- |O_ACC1| acceleration ramp /starting acceleration
- |O_DEC1| braking ramp / deceleration
- |O_ACC2| build-up time for the starting acceleration (>0 for sine² / S-curve)
- |O_DEC2| build-up time for the deceleration (>0 for sine² / S-curve)
- |O_FN| number of following motion tasks
- |O_FT| delay before starting next motion task

ASCII -Command	OS1
Syntax Transmit	OS1 [Data]
Syntax Receive	OS1 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	455

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	No	

Short Description	Set/Reset of "Posreg1" of the I/O Option Card
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Description

The I/O option card has 5 output pins which are normally used to signal on position registers |SWE0|-4. OS1 sets the digital output "PosReg1" (terminal 6 of X11B) of the I/O option card.

Set |SWCNFG| Bit 0 to "0" to disable the appropriate register (|SWE1|) to reassign the output for use in general purpose mode.

This command allows using the output for general purposes through standard communication channels or through motion tasking.

ASCII -Command	OS2
Syntax Transmit	OS2 [Data]
Syntax Receive	OS2 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	456

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	Set/Reset of "Posreg2" of the I/O Option Card
-------------------	---

Description

The I/O option card has 5 output pins which are normally used to signal on position registers |SWE0|-4. OS2 sets the digital output "PosReg2" (terminal 7 of X11B) of the I/O option card.

Set |SWCNFG| Bit 4 to "0" to disable the appropriate register (|SWE2|) to reassign the output for use in general purpose mode.

This command allows using the output for general purposes through standard communication channels or through motion tasking.

ASCII -Command	OS3
Syntax Transmit	OS3 [Data]
Syntax Receive	OS3 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	457

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	No	

Short Description	Set/Reset of "Posreg3" of the I/O Option Card
-------------------	---

Description

The I/O option card has 5 output pins which are normally used to signal on position registers |SWE0|-4. OS3 sets the digital output "PosReg3" (terminal 8 of X11B) of the I/O option card.

Set |SWCNFG| Bit 8 to "0" to disable the appropriate register (|SWE3|) to reassign the output for use in general purpose mode.

This command allows using the output for general purposes through standard communication channels or through motion tasking.

ASCII -Command	OS4
Syntax Transmit	OS4 [Data]
Syntax Receive	OS4 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	458

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	Set/Reset of "Posreg4" of the I/O Option Card
-------------------	---

Description

The I/O option card has 5 output pins which are normally used to signal on position registers |SWE0|-4. OS4 sets the digital output "PosReg4" (terminal 9 of X11B) of the I/O option card.

Set |SWCNFG| Bit 12 to "0" to disable the appropriate register (|SWE4|) to reassign the output for use in general purpose mode.

This command allows using the output for general purposes through standard communication channels or through motion tasking.

ASCII -Command	OS5
Syntax Transmit	OS5 [Data]
Syntax Receive	OS5 <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	459

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	Set/Reset of "Posreg5" of the I/O Option Card
-------------------	---

Description

The I/O option card has 5 output pins which are normally used to signal on position registers |SWE0|-4. OS5 sets the digital output "PosReg5" (terminal 10 of X11B) of the I/O option card.

Set |SWCNFG2| Bit 0 to "0" to disable the appropriate register (|SWE0|) to reassign the output for use in general purpose mode.

This command allows using the output for general purposes through standard communication channels or through motion tasking.

ASCII -Command	OVERRIDE
Syntax Transmit	OVERRIDE [Data]
Syntax Receive	OVERRIDE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 3
Default	0
Opmode	8
Drive Status	-
Start Firmware	2.08
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	108
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	182

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Override Function for Motion Tasks
-------------------	------------------------------------

Description

The override function can be used to influence the speed/velocity for a motion block, jog mode or reference movement through the analog/digital interface. When this function is activated, the analog command is read every millisecond and used for scaling the velocity for the motion block.

Analog input=10V motion block velocity = the target velocity that is programmed in the motion block

Analog input=5V motion block velocity = 50% of the programmed target velocity

The override function does not work with sin^2 curves.

The following settings are possible:

OVERRIDE=0 override function is switched off

OVERRIDE=1 analog input 1 input is activated for the override function

OVERRIDE=2 analog input 2 input is activated for the override function

OVERRIDE=3 Digital interface is activated for the override function. The digital Interface can be: Sercos, CAN, PROFIBUS, DPR, RS 232 and all other field busses.
see |DOVERRIDE|.

Firmware 6.48 (SR600 / 400)

OVERRIDE=4 Limiting of the motion task speed by the master speed

In case motion tasks are used in electronic gearing the motion task speed is limited in a way, so that the sign of the slave speed (master + motion task) is not inverted.

Example 1: Master-Speed (PSPEED1) = +1000
The motion task speed (PSPEED3) is limited to (-1000...PVMAX)

Example 2: Master-Speed (PSPEED1) = -2000
The motion task speed (PSPEED3) is limited to (-PVMAX...+2000).

OVERRIDE=5 Limiting of the motion task speed by the positive master speed

In case of negative master speed command the motion task speed is set to 0 .

Example 1: Master-Speed (PSPEED1) = +1000
The motion task speed (PSPEED3) is limited to (-1000...PVMAX)

Example 2: Master-Speed (PSPEED1) = -2000
The motion task speed (PSPEED3) is limited to 0.

OVERRIDE=6 Limiting of the motion task speed by the negative master speed

In case of positive master speed command the motion task speed is set to 0 .

Example 1: Master-Speed (PSPEED1) = +1000
The motion task speed (PSPEED3) is limited to 0.

Example 2: Master-Speed (PSPEED1) = -2000
The motion task speed (PSPEED3) is limited to (-PVMAX ... +2000).

ASCII -Command	P1...P16
Syntax Transmit	P1 [Data]
Syntax Receive	P1 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	324

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Fast Position Register 1 ... 16
-------------------	---------------------------------

Description

The variables P1 ... P16 contain the position values for the position thresholds 1 ... 16.
 The scaling of the position depends on the |PGEARI|, |PGEARO|, |PRBASE| parameters, and is calculated according to the following formula:

$$P[\text{increments}] = P[\text{entered}] * |PGEARO| * 2^{|PRBASE|} / |PGEARI|$$

1048576 increments/turn at |PRBASE|=20
 65536 increments/turn at |PRBASE|=16

see also description of |WPOS|, |WPOSE|, |WPOSP|, |WPOSX|, |POSSTAT|

The object number is given for P1. The other object numbers up to P16 are the next ones.

ASCII -Command	PASS
Syntax Transmit	PASS [Data]
Syntax Receive	PASS <Data>
Type	w
Format	Integer32
DIM	-
Range	-2147483648...2147483647
Default	0
Opmode	
Drive Status	
Start Firmware	6.02
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	469

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	Password Input
-------------------	----------------

Description

This variable defines the value of the password. When the password function is activ (|PASSX| = y) the change of parameter is only possible after the setting of a valid password value "PASS y"

ASCII -Command	PASSCNFG
Syntax Transmit	PASSCNFG [Data]
Syntax Receive	PASSCNFG <Data>
Type	rw
Format	Integer8
DIM	
Range	0,1
Default	0
Opmode	
Drive Status	
Start Firmware	6.02
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	472

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	

Short Description	Password Function
-------------------	-------------------

Description
 The command PASSCNFG sets the password-function.(see also [PASS], [PASSX])

PASSCNFG=0 all parameter writing procedures are locked

PASSCNFG=1 only parameter SAVE is locked

ASCII -Command	PASSX
Syntax Transmit	PASSX [Data]
Syntax Receive	PASSX <Data>
Type	w
Format	Integer32
DIM	
Range	-2147483648...2147483647
Default	0
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	468

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	activate password function
-------------------	----------------------------

Description
 PASSX activates the password function
 PASSX=0 password function switched off
 PASSX=y password function switched on.
 The change of all parametera is only possible after the setting of a valid password “[PASS] y”.

ASCII -Command	PBAL
Syntax Transmit	PBAL
Syntax Receive	PBAL <Data>
Type	Variable ro
Format	Integer32
DIM	W
Range	0 .. 1500
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	192

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Actual Regen Power
-------------------	--------------------

Description
 The actual value of average regen power.

ASCII -Command	PBALMAX
Syntax Transmit	PBALMAX [Data]
Syntax Receive	PBALMAX <Data>
Type	Variable rw
Format	Integer32
DIM	W
Range	see Manual
Default	80 / 200
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	193

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Maximum Regen Power
-------------------	---------------------

Description

This parameter can be used to limit the continuous power dissipated in the regen resistor. If the actual value of the power in the regen resistor exceeds the preset maximum value, then the regen resistor is switched off. This may trigger the fault message “Overvoltage” as a result. If the maximum value is too high, the regen resistor may be overloaded.

ASCII -Command	PBALRES
Syntax Transmit	PBALRES [Data]
Syntax Receive	PBALRES <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	194

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Select Regen Resistor
-------------------	-----------------------

Description

This parameter can be used to select whether the internal (0) or an external (1) regen resistor should be used. It affects the |PBALMAX| parameter.

ASCII -Command	PBAUD
Syntax Transmit	PBAUD
Syntax Receive	PBAUD <Data>
Type	Variable ro
Format	Float
DIM	kBaud
Range	1.0 .. 12000.0
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.73
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	195

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	Profibus Baud Rate
-------------------	--------------------

Description

The PBAUD command reads out the present PROFIBUS baud rate. The baud rate is provided by the master (control system). The Drive detects the baud rate automatically.

The following settings are possible (in kbaud/kbps):

- 12000
- 6000
- 3000
- 1500
- 500
- 187.5
- 93.75
- 45.45
- 19.2
- 9.6

ASCII -Command	PDUMP
Syntax Transmit	PDUMP
Syntax Receive	PDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	196

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	List All Position Control Variables
-------------------	-------------------------------------

Description
 Produces a list of all the position control parameters.

ASCII -Command	PE
Syntax Transmit	PE
Syntax Receive	PE <Data>
Type	Variable ro
Format	Integer32
DIM	µm
Range	long int
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	189
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	197

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Actual Following Error
-------------------	------------------------

Description

The following error |OPMODE| = 8 or contouring error |OPMODE| 5 or 6) is the momentary difference between the position command and the actual position, and is displayed in the same units as the position control loop (|PGEARI| / |PGEARO|). See description of |PFB| , |PEMAX|

ASCII -Command	PEERCOP
Syntax Transmit	PEERCOP [Data]
Syntax Receive	PEERCOP <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 9
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.04
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	399

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.5
EEPROM	Yes	

Short Description	Number of Data Words (Command) at Modbus+
-------------------	---

Description

This parameter defines the number of data words (command), which are updated cyclic. Data, which is enabled as process data, cannot be written by the SDO channel (messaging).

ASCII -Command	PEERCOPS
Syntax Transmit	PEERCOPS [Data]
Syntax Receive	PEERCOPS <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	1 .. 64
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.04
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	400

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Number of Data Words (Command) at Modbus+
-------------------	---

Description

This parameter gives the address of the Modbus-Master for this drive. While initializing, this parameter is send from the drive to the Modbus board. The board then transmits only data to the drive, that was send from this master.

ASCII -Command	PEINPOS
Syntax Transmit	PEINPOS [Data]
Syntax Receive	PEINPOS <Data>
Type	Variable rw
Format	Integer32
DIM	PUNIT
Range	long int
Default	4000
Opmode	>=4
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	198

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	In-Position Window
-------------------	--------------------

Description
 If the distance between the actual position and the target position during the execution of an internal motion block is less than the window width that has been set, then the In-Position signal is generated (status message, digital output).
 The In-Position window is entered in the same units as the position control loop (|PGEARI| / |PGEARO|).
 See description of |PFB|

ASCII -Command	PEMAX
Syntax Transmit	PEMAX [Data]
Syntax Receive	PEMAX <Data>
Type	Variable rw
Format	Integer32
DIM	µm
Range	long int
Default	262144
Opmode	>=4
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	159
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	199

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Max. Following Error
-------------------	----------------------

Description

If the momentary following or contouring error (|PE|) goes beyond the maximum value set, the motion is stopped and the following error warning (n03) or contouring error fault (F03) is generated. The motion block can only be continued (|CONTINUE|) or restarted after the warning has been acknowledged (|CLRFAULT|, digital input |INxMODE|=14). PEMAX=0 switches off the following error monitoring.

If a following error occurs, negative values (starting version 4.78) do not result in a stop of the axis. The status bit and warning are still there. A following motion task or new motion task cannot be started until the following error is cleared.

ASCII -Command	PFB
Syntax Transmit	PFB
Syntax Receive	PFB <Data>
Type	Variable ro
Format	Integer32
DIM	µm
Range	long int
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	51
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	200

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Actual Position from Feedback Device
-------------------	--------------------------------------

Description

The PFB command returns the actual value of the position (from the position control loop feedback). The unit for the position value depends on the |PGEARI|, |PGEARO| and |PRBASE| settings.

$$PFB = \text{Position} * |PGEARI| / |PGEARO|$$

whereby:

Position = position value in increments, 1048576/turn for |PRBASE|=20, 65536/turn for |PRBASE|=16
 |PGEARI|, |PGEARO| - resolution of position control loop

Note: If the resolution is set to 1 (|PGEARI|=|PGEARO|) then the PFB command provides internal units (counts).

If the position information of an external encoder is evaluated (|EXTPOS|=1,2,3), then this information can be displayed by using the |PFB0| command.

ASCII -Command	PFB0
Syntax Transmit	PFB0
Syntax Receive	PFB0 <Data>
Type	Variable ro
Format	Integer32
DIM	Counts
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	53
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	201

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Position from External Encoder
-------------------	--------------------------------

Description

The PFB0 command returns the actual position calculated from the position information provided by an external digital or sine encoder. The position is only derived from an external encoder if the configuration variable |EXTPOS| is set to 1,2,3. The unit for the position value depends on the |PGEARI|, |PGEARO|, |ENCIN| and |EXTMUL| settings.

$$PFB0 = \text{Position} * |PGEARI| / |PGEARO|$$

whereby:

Position = position value in increments (resolution: |EXTMUL| * |ENCIN| per turn*4)

|PGEARI|, |PGEARO| - resolution of position control loop

Note: If the resolution is set to 1 (|PGEARI|=|PGEARO|) then the PFB0 command provides internal units (counts).

- |PFB| indicates always the position of the position loop
- PFB0 indicates always the position of the second feedback device.

Following cases are possible:

1. There is no second feedback device (|EXTPOS|=0 or 4)
 - PFB indicates the position of FBTYPE (position loop)
 - PFB0 is always 0 (no second device)
2. There are two feedback devices. The position loop works with second feedback (|EXTPOS|=1, |GEARMODE|)
 - |PFB| and PFB0 indicate the same position of the second feedback device.
3. There are two feedback devices. The position loop works with |FBTYPE|, second feedback is not used internally (|EXTPOS|=2,3)

PFB indicates the position of FBTYPE (position loop)
 PFB0 indicates the position of the second feedback device

ASCII -Command	PGEARI
Syntax Transmit	PGEARI [Data]
Syntax Receive	PGEARI <Data>
Type	Variable rw
Format	Integer32
DIM	µm
Range	long int
Default	10000
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	202

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.7
EEPROM	Yes	

Short Description	Position Resolution (Numerator)
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Description

The parameter PGEARI is used in conjunction with the |PGEARO| parameter to convert the control loop position and speed from SI units into increments.
 The |PGEARO| parameter contains the number of increments that are moved if the path to be moved has a length of PGEARI.
 The conversion is made according to the following formula:

$$\text{Position[increments]} = \text{Position[SI]} * |\text{PGEARO}| / \text{PGEARI}$$

$$\text{Velocity[increments]} = \text{Velocity[SI]} * |\text{PGEARO}| / \text{PGEARI} / 4000$$

If PGEARI=|PGEARO|, then there will be no conversion from SI units into increments. In this case, the position and velocity must be given in increments.

Position: 1046576 increments/turn for |PRBASE| = 20, or 65536 increments/turn for |PRBASE| = 16

Velocity: 140/32 * speed in RPM

1. Example

PGEARI = 10000
 |PGEARO| = 1048576
 |PRBASE| = 20

The motion task position should be given in µm with a resolution of 10 mm/rev. The internal resolution of 20 Bit/rev (PRBASE=20) is used. Followind settings have to be made:

Position: 1046576 counts/rev at |PRBASE| = 20 or 65536 counts/rev at |PRBASE| = 16.

All settings regarding position (|PFB|, |O_P|, |PE|, |PEMAX|, |PEINPOS|) are made in µm, the settings regarding speed/velocity in µm/sec, all settings regarding acceleration in 1000µm/sec²

2. Example

PGEARI = 3600
 |PGEARO| = 65536
 |PRBASE| = 16

The position is given in 0.1 degree steps with a resolution of 360.0 degrees/rev. The internal resolution of 16 Bit/rev (|PRBASE| = 16) is used. Following settings have to be made:

All settings regarding position (|PFB|, |O_P|, |PE|, |PEMAX|, |PEINPOS|) are made in 0.1*degree, the settings regarding speed/velocity in 0.1*degree/sec, all settings regarding acceleration in 1000*0.1*degree/sec²

The user units that at are used for PGEARI and PGEARO are defined by |PUNIT|.

Example:

|LINEARMOTOR|
|CENTER_DRIVE|
|OUTSIDE_DRIVE|
|SPINDLE_DRIVE|
|BELTDRIVE|

ASCII -Command	PGEARO
Syntax Transmit	PGEARO [Data]
Syntax Receive	PGEARO <Data>
Type	Variable rw
Format	Integer32
DIM	µm
Range	long int
Default	1048576
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	203

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	Yes

Short Description	Position Resolution (Denominator)
-------------------	-----------------------------------

Description

The parameter |PGEARI| is used in conjunction with the PGEARO parameter to convert the control loop position and speed from SI units into increments.

The PGEARO parameter contains the number of increments that are moved if the path to be moved has a length of |PGEARI|. The conversion is made according to the following formula:

$$\text{Position[increments]} = \text{Position[SI]} * \text{PGEARO} / |\text{PGEARI}|$$

$$\text{Velocity[increments]} = \text{Velocity[SI]} * \text{PGEARO} / |\text{PGEARI}| / 4000$$

If |PGEARI| = PGEARO, then there will be no conversion from SI units into increments. In this case, the position and velocity must be given in increments.

Position: 1046576 increments/turn for |PRBASE| = 20, or 65536 increments/turn for |PRBASE| = 16

$$\text{Velocity: speed [UPM]} * 2^{\text{PRBASE}} / (4000 * 60)$$

For an example: see |PGEARI|

The user units that are used for PGEARI and PGEARO are defined by |PUNIT|.

ASCII -Command	PIOBUF
Syntax Transmit	PIOBUF
Syntax Receive	PIOBUF <Data>
Type	Variable rw
Format	String
DIM	-
Range	-
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.73
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	204

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Profibus data
-------------------	---------------

Description

This command reads out the present PROFIBUS input and output buffers. The output buffer handles the data flow from the control system to the Drive, and the input buffer handles the data flow from the Drive to the control system. Each buffer is 20 bytes long (telegram length) and is put together from the PKW section (8 bytes. i.e. 4 words) and the PZD section (12 bytes, 6 words). The individual bytes are in hexadecimal format.

PIOBUF provides 20 bytes of output buffer in the first line, and 20 bytes of input buffer in the second line.

If the communication over the PROFIBUS is interrupted or faulty, then a fault message “ERR [PIOBUF] NO DATA EXCHANGE SPC3 - INTERRUPT” is generated.

ASCII -Command	PMODE
Syntax Transmit	PMODE [Data]
Syntax Receive	PMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	1
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Basic Setup

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	205

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Line Phase Error Mode
-------------------	-----------------------

Description

The PMODE parameter configures the response of the amplifier to the failure of a mains supply phase.
 PMODE=0 no warning, no fault message, current limited to max. 4A
 PMODE=1 warning n05, current limited to max. 4A
 PMODE=2 fault message F19, output stage is disabled

If the current limiting is activated, it only applies to periods of acceleration. A braking operation can still be carried out at full current.

ASCII -Command	PNOID
Syntax Transmit	PNOID
Syntax Receive	PNOID <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.73
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	206

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	PROFIBUS ID
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Description

The PNOID command reads out the identification number of the Drive. This number is used for the unique identification of the Drive as a participant in the PROFIBUS network. The ID is allocated and managed by the PROFIBUS User Organization. This instrument ID is also part of the GSD (base data for the instrument).

PNOID returns the identification number 045D (hexadecimal).

ASCII -Command	POP
Syntax Transmit	POP time1(msec) time2(msec)
Syntax Receive	POP <Data>
Type	Multi Line Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Enabled
Start Firmware	4.32
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	-

Short Description	Generate Current Step
-------------------	-----------------------

Description

The POP command is used along with |POPI|, |POPI2| and |POPV| for giving the drive a current step. The command is only available when |MSG| = 2. POP is used by the Current Loop Tuning Wizard and other test programs; it is not normally used in applications.

POP time1(msec) time2(msec)

When a POP command is entered, the drive will switch the |OPMODE| = 2 and step at current level POPI for time1 msec, then at |POPI2| for time2 msec. Time2 is optional. At the end of the full period, control will return to the prior |OPMODE|. |POPV| limits the maximum velocity during the current step - if velocity reaches the |POPV| limit, the POP command will be canceled.

ASCII -Command	POPI
Syntax Transmit	POPI [Data]
Syntax Receive	POPI <Data>
Type	Variable rw
Format	Float
DIM	A
Range	-DIPEAK .. DIPEAK
Default	0
Opmode	-
Drive Status	-
Start Firmware	4.32
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.9
EEPROM	No

Short Description	Current Level for POP Command
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Description
 POPI gives the current level for the current step command [POP]. The value is in amps. POPI is used by the Current Loop Tuning Wizard and other test programs; it is not normally used in applications.

See also: [POP], [POPI2], [POPV]

ASCII -Command	POPI2
Syntax Transmit	POPI2 [Data]
Syntax Receive	POPI2 <Data>
Type	Variable rw
Format	Float
DIM	A
Range	-DIPEAK .. DIPEAK
Default	0
Opmode	-
Drive Status	-
Start Firmware	4.32
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.9
EEPROM	No

Short Description	Current Level for POP Command
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Description

POPI2 gives the current level for the second stage of the current step command [POP]. The value is in amps. POPI2 is used by the Current Loop Tuning Wizard and other test programs; it is not normally used in applications.

See also: [POP], [POPI], [POPV]

ASCII -Command	POPV
Syntax Transmit	POPV [Data]
Syntax Receive	POPV <Data>
Type	Variable rw
Format	Float
DIM	A
Range	-VLIM .. VLIM
Default	0
Opmode	-
Drive Status	-
Start Firmware	4.32
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.9
EEPROM	No

Short Description	Max. Speed Level for POP Command
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Description

POPV limits the maximum velocity during a |POP| current step - if velocity reaches the POPV limit, the |POP| command will be canceled. POPV is used by the Current Loop Tuning Wizard and other test programs; it is not normally used in applications.

See also: |POP|, |POPI|, |POPI2|

ASCII -Command	POSCNFG
Syntax Transmit	POSCNFG [Data]
Syntax Receive	POSCNFG <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	8
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	Position Data

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	207

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Axes Type
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Description

Use the axis type to select whether the axis is treated as a linear or rotary axis. This variable does not imply that the motor is a linear or rotary motor, but instead, affects the way the software limit switches are used by the firmware. The software limit switches are treated in different ways, depending on the selection. The possible settings are:

POSCNFG=0	Linear Axes	<p>Axes with a limited range of movement. The zero position for position tracking is fixed by a homing operation. With this setting, a set reference point is a precondition to be able to implement motion blocks. After the homing movement (setting the reference point) has been completed, the position is continuously tracked for the control loop, and remains valid until the amplifier is switched off.</p>
POSCNFG=1	Rotary Axes	<p>A rotary axes (with either linear or rotary motion) is an axis with unlimited travel. The software limit-switches have no significance in this case. A rotary axis always makes a relative movement, even if the tasks are entered as absolute ones. The actual position is set to zero with every start. A reference point is not required.</p>
POSCNFG=2	Modulo Axis	<p>Axes with a limited range of movement. The minimum position is SRND and the maximum position is ERND -1. If the maximum position ERND -1 is reached, it automatically switches over to SRND . The absolute target positions have to be in the defined range. If a motion task is started, which has an absolute position outside the range, a warning "n08" is displayed (wrong motion task). Relative moves are calculated in a way, that the target position always is in the defined range. A positioning in axes like this, gives two possibilities of direction to the target position. DREF gives the possibility to restrict the direction. This axis type also needs a homing move.</p>

ASCII -Command	POSRSTAT
Syntax Transmit	POSRSTAT [Data]
Syntax Receive	POSRSTAT <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	323

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Status of Fast Position Registers 1 ... 16
-------------------	--

Description

The variable POSRSTAT returns the present status of the fast position registers.
 This variable can be considered as a 32-bit variable, whereby the lower 16 bits (bits 0 ... 15) are used for the status information of position registers P1 ... P16.
 Bit=0 position signaling inactive
 Bit=1 position signaling active (position overrun for |WPOSP|=0 or underrun for |WPOSP|=1).

See also |WPOS|

ASCII -Command	PPOTYP
Syntax Transmit	PPOTYP
Syntax Receive	PPOTYP <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	2
Default	2
Opmode	All
Drive Status	-
Start Firmware	1.73
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	208

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Profibus PPO Type
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Description

PPOTYP reads the PROFIBUS DP telegram type. The amplifier supports telegram type 2 (telegram consists of 10 words (20 bytes) and is divided into a PKW section (4 words) and a PZD section (6 words)). PPOTYP returns the value, 2.

ASCII -Command	PRBASE
Syntax Transmit	PRBASE [Data]
Syntax Receive	PRBASE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	16, 20
Default	20
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	79 + 116
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	209

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Position Resolution
-------------------	---------------------

Description

PRBASE sets the internal feedback resolution. The change in resolution is activated when the amplifier is cold started. Note: The actual position parameter (PFB) is 32-bits, therefore the setting of PRBASE dictates how many shaft revolutions (or linear distance for linear motors) are possible.

PRBASE= 20 (bits/rev)

1048575 incr/rev (internal units)

Maximum path length (absolute) ±2047 motor revs

PRBASE = 16 (bits/rev)

65535 incr/rev (internal units)

Maximum path length (absolute) ±32767 motor revs

When PRBASE is changed, PGEARO is automatically adjusted.

Change from 16 to 20 bit: |PGEARO| = |PGEARO| * 16

Change from 20 to 16 bit: |PGEARO| = |PGEARO| / 16

For linear motors the incr/rev becomes incr/pole pitch. Example: IF PRBASE with a linear motor having a 32 mm pole pitch then the internal resolution will be 1048575 incr/32 mm

Starting with firmware 5.41 PRBASE and 28 are added:

PRBASE (bits/rev)

16777216 incr/rev (internal units)

Maximum path length (absolute) +/- 127 motor revs

PRBASE((bits/rev)

268435456 incr/rev (internal units)

Maximum path length (absolute) +/- 8 motor revs

If motor movement causes PFB to count up > 2^31 -1, PFB will roll over to 2^31 + 1

If motor movement causes PFB to count down < -2^31 + 1, PFB will roll over to + 2^31 - 1

Position rollover can be modified by setting (POSCNFG) = 2

ASCII -Command	PRD
Syntax Transmit	PRD
Syntax Receive	PRD <Data>
Type	Variable ro
Format	Integer32
DIM	Counts
Range	0 .. 1048575
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	210

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	No

Short Description	20-bit Position Feedback
-------------------	--------------------------

Description

The PRD command returns a 20-bit position (absolute within one turn) that is derived from the signals of the feedback device (FBTYPE). Unlike the position from the position control loop, PFB, this position cannot be altered. PRD is not related to |PRBASE|

ASCII -Command	PROMPT
Syntax Transmit	PROMPT [Data]
Syntax Receive	PROMPT <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0, 1, 2, 3
Default	1
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Communication

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	211

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Select RS232 Protocol
-------------------	-----------------------

Description

The PROMPT parameter can be used to set the protocol for the RS232 transmission. The following settings are possible:

PROMPT=0	No Echo	The data that is received through the RS232 interface are not automatically echoed (transmitted).
PROMPT=1	"-->" plus Echo	There is no output of the prompt (-->) symbol. The data that is received through the RS232 interface are automatically echoed (transmitted). The prompt (-->) symbol is given for inputting data.
PROMPT=2	Terminal Mode	This setting is the same as PROMPT=1 except: 1. If a CR(Enter) command is typed in at the beginning of the line, the last command is repeated. 2. Some commands (like DUMP) output more than one monitor screen. In this cases, the output is automatically stopped after one page.

PROMPT=3

"-->" plus Echo plus Checksum

This setting is the same as PROMPT=1 except. Additional to that, a Checksum is transmitted and checked in both directions to prevent wrong data. All character of a command are summed (Modulo 256 without CR).

e.g.

Command string : "|ADDR| 1<CR>"

generate Checksum:

"A" = 0x41

"D" = 0x44

"D" = 0x44

"R" = 0x52

" " = 0x20

"1" = 0x31

The sum is: 0x16C

Modulo 256: 0x6C = 108 (Dec)

First Character:

$108/16 + 0x30 = 0x36 = "6"$

Sec. Character: $108\%16 + 0x30 = 0x3C = "<"$

The command string is: "ADDR 16<" <CR>

When the command string is received, that same calculation is done and the last two characters in front of the <CR> are compared with the received data. If the checksum is ok, the ACK (0x06) is send, if no NACK (0x15) is send.

When user software (Drive.exe) established communication PROMPT is automatically set = 3. If changeing from Drive.exe to another interface it may be necessary to set PROMPT to 1 by entering 133 to eliminate a checksum.

ASCII -Command	PSTATE
Syntax Transmit	PSTATE
Syntax Receive	PSTATE <Data>
Type	Variable ro
Format	String
DIM	-
Range	-
Default	-
Opmode	-
Drive Status	-
Start Firmware	1.73
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	212

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	No

Short Description	Profibus Status
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Description

The command PSTATE reads out the present status of the PROFIBUS communication. The first value that is shown provides the SPC3 WATCHDOG status, the second value provides the PROFIBUS DP-status.

PLC WATCHDOG status

- 0 = baud rate search
- 1 = check baud rate
- 2 = DP mode, i.e. the bus watchdog is active

PROFIBUS-DP status

- 0 = wait for parameterization, performed by the master
- 1 = wait for configuration, performed by the master
- 2 = data exchange
- 3 = fault – the cause could, for instance, have been a faulty parameterization telegram in the data transfer phase.

Productive data can only be received, i.e. data exchanged for the PKW and PZD sections of the Drive, when the PLC WATCHDOG status has the value 2, and the PROFIBUS-DP status has the value 2.

ASCII -Command	PTARGET
Syntax Transmit	PTARGET
Syntax Receive	PTARGET <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	340

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Last Target Position
-------------------	----------------------

Description

The command PTARGET can be used to request the target position for the last motion task that was started (and possibly already interrupted). This position is accepted as a new target position, as soon as the |CONTINUE| command is executed (to continue the last motion task).

ASCII -Command	PTBASE
Syntax Transmit	PTBASE [Data]
Syntax Receive	PTBASE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	1 .. 127
Default	4 (1 msec)
Opmode	All
Drive Status	
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	213

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Time base for the external trajectory
-------------------	---------------------------------------

Description

The PTBASE parameter is used to define the interpolation time for the external trajectory (|OPMODE|=5). The time is set in 250 microsecond steps, and defined the time period in which the drive should reach the next position command. Since the internal position control loop works in 250 microsecond steps, an interpolation of the given position command (external trajectory) is also given in 250 microsecond steps.

ASCII -Command	PTEACH
Syntax Transmit	PTEACH <Data> [Data]
Syntax Receive	PTEACH <Data>
Type	Command
Format	Integer8 Integer8
DIM	-
Range	0,1,...,180,192 .. 255
Default	-
Opmode	All
Drive Status	Enabled (only RAM) / Disabled
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Teach-In Function
-------------------	-------------------

Description

The command PTEACH can be used to accept the present position (from the position control loop) as the target position for a motion block.

Syntax: PTEACH QNR [ZNR]

QNR – Number of the source motion block

ZNR – Number of the target motion block

PTEACH load the actual position (|PFB|) into the motion task no. [QNR]. All the other necessary motion task parameter are defined in the motion task QNR

When the actual position is accepted, it depends on the state of |O_C| bit 13, if the position is calculated either in increments (bit 13 =0) or as SI units (bit 13 =1).

If the number of the target motion task is within the Flash EEPROM range (1 ... 180) then the PTEACH command is only permitted while the output stage is disabled.

ASCII -Command	PTMIN
Syntax Transmit	PTMIN [Data]
Syntax Receive	PTMIN <Data>
Type	Variable rw
Format	Integer16
DIM	>> ACCUNIT
Range	1 .. 32767
Default	10
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	214

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Min. Acceleration Ramp for Motion Tasks
-------------------	---

Description

The minimum acceleration ramp PTMIN defines the minimum time that is permitted for a velocity change from 0 to |PVMAX|. Regardless of how the acceleration value is entered (milliseconds, SI units), the acceleration that is used is limited to |PVMAX| / PTMIN at the start of a motion task.

With the help of the |PVMAX| and PTMIN parameters it is possible to control the behavior of the system, especially during the commissioning phase, without having to alter the individual motion tasks.

ASCII -Command	PUNIT
Syntax Transmit	PUNIT [Data]
Syntax Receive	PUNIT <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 10
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.00
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	352

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Set Resolution of the Position
-------------------	--------------------------------

Description

PUNIT enables a systemwide setting for the unit of position for the position controller. The following settings are possible:

- PUNIT=0 increments
- PUNIT=1 1 dm (0.1 m)
- PUNIT=2 1 cm (0.01 m)
- PUNIT=3 1 mm
- PUNIT=4 0.1 mm
- PUNIT=5 0.01 mm
- PUNIT=6 1 µm
- PUNIT=7 0.1 µm
- PUNIT=8 0.01 µm
- PUNIT=9 1 nm
- PUNIT=10 inches
- PUNIT =11 mills
- PUNIT=12 ° (degree)

The parameter PUNIT is only used for the MMI. It calculates different units for the MMI. All internal calculations (position controller resolution |PGEARI| and motion tasks are not effected.

IF PUNIT=0 there is no difference to older firmware versions. The unit is defined only by |PGEARI|.

e.g: |PGEARI|=360 (Unit = Degree)
 |PGEARI|=3600 (Unit= 0.1 Degree)

ASCII -Command	PV
Syntax Transmit	PV
Syntax Receive	PV <Data>
Type	Variable ro
Format	Integer32
DIM	VUNIT
Range	long int
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	215

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Actual Velocity (Position Control Loop)
-------------------	---

Description

The actual velocity (position control loop) can be requested by using the PV command.
 The scaling of the velocity depends on the |PGEARI|, and |PGEARO| parameters.

ASCII -Command	PVMAX
Syntax Transmit	PVMAX [Data]
Syntax Receive	PVMAX <Data>
Type	Variable rw
Format	Integer32
DIM	VUNIT
Range	0 .. VLIM
Default	10000
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	216

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	Yes	

Short Description	Max. Velocity for Position Control
-------------------	------------------------------------

Description

The parameter PVMAX defines the maximum velocity that is permitted for a motion task. When a motion task is started, the target velocity for the motion task is limited to the value of PVMAX.
 With the help of the PVMAX and |PTMIN| parameters it is possible to control the behavior of the system, especially during the commissioning phase, without having to alter the individual motion tasks.

When used together with the |PVMAXN| parameter, it is possible to implement a directionally-dependent velocity limit. The PVMAX determines the maximum velocity for positive and negative directions together. By making a subsequent entry for |PVMAXN|, the limit for the negative direction can be set separately.

ASCII -Command	PVMAXN
Syntax Transmit	PVMAXN [Data]
Syntax Receive	PVMAXN <Data>
Type	Variable rw
Format	Integer32
DIM	VUNIT
Range	0 .. VLIM
Default	10000
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	217

Data Type BUS/DPR	Integer32
Weighting 10 ³	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Max. (Negative) Velocity for Position Control
-------------------	---

Description

The parameter PVMAXN defines the maximum velocity (in the negative direction) that is permitted for a motion task. When a motion task is started, the target velocity for the motion task is limited to the value of PVMAXN.

When the maximum velocity for the positive direction (|PVMAX|) is defined, the PVMAXN parameter is set to the |PVMAX| value at the same time. So, if a separate setting is required for the negative direction of movement, the value for PVMAXN must be entered separately, afterwards.

With the help of the |PVMAX|, |PTMIN| and PVMAXN parameters it is possible to control the behavior of the system, especially during the commissioning phase, without having to alter the individual motion tasks.

ASCII -Command	RDP
Syntax Transmit	RDP [Data]
Syntax Receive	RDP <Data>
Type	Variable rw
Format	Char
DIM	-
Range	0 .. 2
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.96
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	439

Data Type BUS/DPR	Char
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Activate Racjk Drive Panel Mode
-------------------	---------------------------------

Description

RDP is used to enable RDP (Rack Drive Panel anti-backlash control) and to select the RDP operating mode. See the Application Note "Rack Drive Panel (RDP): Controlling Backlash" for more information.

- 0 RDP disabled; normal operation of the amplifier.
- 1 RDP mode enabled; Enable mode = "Fault Disables Other Drive."
- 2 RDP mode enabled; Enable mode = "Fault Forces Other Drive From RDP."

See also: |RDPBIAS|, |RDPCLAMP|, |RDPKI|, |RDPKP|, |RDPON|, |RDPINT|

ASCII -Command	RDPBIAS
Syntax Transmit	RDPBIAS [Data]
Syntax Receive	RDPBIAS <Data>
Type	Variable rw
Format	Float
DIM	Amp
Range	0 .. ICONT
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	440

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Rack Drive Panel Bias Current
-------------------	-------------------------------

Description
 The RDP bias current in Amps. Normally set at 25% - 50% of |ICONT|. Set positive in one drive and negative in the other.
 See also: |RDP|

ASCII -Command	RDPCLAMP
Syntax Transmit	RDPCLAMP [Data]
Syntax Receive	RDPCLAMP <Data>
Type	Variable rw
Format	Float
DIM	Rpm
Range	0 .. VLIM
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	441

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Max. Velocity Offset of the Rack Drive Panel Circuit
-------------------	--

Description

Maximum output of the RDP equalization circuit in rpm. Normally set at 50 rpm in the master drive. Set to 0 in the slave drive.

See also: |RDP|

ASCII -Command	RDPINT
Syntax Transmit	RDPINT
Syntax Receive	RDPINT <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	442

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	No

Short Description	Rack Drive Panel Test Variable
-------------------	--------------------------------

Description

Rack Drive Panel test variable. Equals the integral value of the Rack Drive Panel equalization circuit. Scaled for 9000000 = 1 rpm (this is 9 million = 1 rpm). Limited by |RDCLAMP| (scaled in rpm).

See also |RDP|

ASCII -Command	RDPKI
Syntax Transmit	RDPKI [Data]
Syntax Receive	RDPKI <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	443

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Integral gain of Rach Drive Panel
-------------------	-----------------------------------

Description

Integral Gain of the RDP equalization circuit. Normally set at 13 in the master drive. Set to 0 in the slave drive.

See also |RDP|

ASCII -Command	RDPKP
Syntax Transmit	RDPKP [Data]
Syntax Receive	RDPKP <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-
Default	0
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	444

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Proportional Gain of Rach Drive Panel
-------------------	---------------------------------------

Description

Proportional Gain of equalization circuit. Normall set at 300 in the master drive. Set to 0 in the slave drive.

See also |RDP|

ASCII -Command	RDPON
Syntax Transmit	RDPON
Syntax Receive	RDPON <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	445

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	No	

Short Description	Test Variable Rack Drive Panel
-------------------	--------------------------------

Description

Rack Drive Panel test variable. Will read 1 only when Rack Drive Panel is active, otherwise 0.

See also |RDP|

ASCII -Command	READNIMP
Syntax Transmit	READNIMP
Syntax Receive	READNIMP
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	220

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.8
EEPROM	-

Short Description	Read/Set the EEO (ROD) Zero-Pulse Offset
-------------------	--

Description

READNIMP calculates the actual position, depending on the resolution set for the Encoder Equivalent Output (EEO), and enters it as the |ENCZERO| variable. This function ensures that the Encoder Equivalent Output (EEO) zero-pulse is always generated at the actual position (within a single turn). If this setting is to be permanently accepted, use the |SAVE| command (save in the serial EEPROM).

ASCII -Command	READY
Syntax Transmit	READY
Syntax Receive	READY <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	221

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	No	

Short Description	Status of the Software Enable
-------------------	-------------------------------

Description
 Requests the status of the internal software enable.
 READY = 0 Disabled
 READY = 1 Enabled

ASCII -Command	RECDONE
Syntax Transmit	RECDONE
Syntax Receive	RECDONE <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	222

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Scope: Recording Done
-------------------	-----------------------

Description

The RECDONE command can be used to request the status of the SCOPE recording. The command returns a 1 if the recording is finished and the data can now be requested with the [GET] command.

ASCII -Command	RECING
Syntax Transmit	RECING
Syntax Receive	RECING <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	223

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Scope: Recording in Progress
-------------------	------------------------------

Description

Returns a 1 if the recording is active. At the end of a recording, or if the recording has not started, a 0 is returned.

ASCII -Command	RECOFF
Syntax Transmit	RECOFF
Syntax Receive	RECOFF
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	224

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Scope: Cancel Scope Recording
-------------------	-------------------------------

Description

RECOFF stops the SCOPE recording (if started). State after RECOFF: |RECRDY|=1, |RECING|=0, |RECDONE|=0.

ASCII -Command	RECORD
Syntax Transmit	RECORD [Data]
Syntax Receive	RECORD <Data>
Type	Variable rw
Format	String
DIM	-
Range	1 .. 10000 (=Time);1 .. 1024(=Points); ASCII String (=
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Scope: Capture Data for Recording
-------------------	-----------------------------------

Description

The RECORD command can be used to define the data for the next SCOPE recording. The command is used in the following form.

RECORD time number var1 [var2] [var3]

time: the sampling interval in 250 microsecond steps

number: the number of sample points to be recorded.

The maximum possible number depends on the number and size of the variables to be recorded.

If the number entered is too large, it will automatically be limited (when recording Long/Float variables, a maximum of 512 sample points can be recorded).

var1,var2,var3 - names of the variables to be recorded. Apart from the names for macro variables, the following names can be used.

|I| - actual value of current

|ICMDVAL| - command for current

|PE| - following error

|V| - actual value of velocity

|VCMD| - command for velocity

|VBUS| - DC-bus (DC-link) voltage

|PFB| - actual position

ASCII -Command	RECRDY
Syntax Transmit	RECRDY
Syntax Receive	RECRDY <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	225

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Scope: Status of RECORD Function
-------------------	----------------------------------

Description
 After the recording has been made trigger-ready by |RECORD| / |RECTRIG|, the RECRDY command generates a 0. As soon as the trigger condition defined by RECRDY is fulfilled, and the recording starts, RECRDY generates a 1. (RECRDY=0 means “waiting for trigger event”)

ASCII -Command	RECTRIG
Syntax Transmit	RECTRIG [Data]
Syntax Receive	RECTRIG <Data>
Type	Variable rw
Format	String
DIM	-
Range	ASCII String (=Mode);Depends upon Mode (=Level);0
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Scope: Activate Recording Function
-------------------	------------------------------------

Description

The RECTRIG command prepares the SCOPE function for a data recording. The command is used in the following form.

RECTRIG mode level location direction

mode: designates the name of a variable that is to be used to trigger the recording. If the designation IMM is used, the recording starts immediately. In this case, the parameters “level”, “location” and “direction” do not have to be specified.

level: specifies the value of the variable that has to be reached to trigger the recording.

location: give the number of points that are to be recorded previous to the moment of the trigger event.

direction: specifies in which direction the value must pass the threshold “level” of the “mode” variable in order to trigger the recording.

direction=0 falling (variable value falls below threshold level)

direction=1 rising (variable value goes above threshold level)

ASCII -Command	REFIP
Syntax Transmit	REFIP [Data]
Syntax Receive	REFIP <Data>
Type	Variable rw
Format	Float
DIM	Amperes
Range	0.0 .. min(IPEAK,IPEAKN)
Default	min(IPEAK,IPEAKN,DICONT/2)
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	226

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Peak Rated Current for Homing 7
-------------------	---------------------------------

Description

The REFIP parameter is used to set the peak current for homing to a mechanical stop. If home type |NREF| = 7 or 9 is used (homing to a mechanical stop), the drives peak current will be determined by REFIP. When the homing movement is finished, the drive's peak current is reset to |IPEAK|.

>> For detailed information see |NREF| also.

For FW version < 5.82, REFIP is also used to reduce the current for Wake&Shake mode (|FBTYPE|=7). If the wake&shake mode is started, drive's peak current is set to REFIP. After the Wake and Shake is complete, drive current is changed back to |IPEAK|.

FW 5.80 and higher versions use the parameter |REFIP2| for Wake & Shake - Modus

ASCII -Command	REFIP2
Syntax Transmit	
Syntax Receive	
Type	Variable rw
Format	Float32
DIM	
Range	0 ...IPEAK
Default	IPEAK
Opmode	
Drive Status	
Start Firmware	5.8
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	483

Data Type BUS/DPR	
Weighting 10^3	

Last Change of this Object	1.0
EEPROM	

Short Description	
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Description
 REFIP2 limits the peak current during the wake & shake procedure.
 After wake & shake is finished the current is reset to the |IPEAK| value.

ASCII -Command	REFLS
Syntax Transmit	REFLS [Data]
Syntax Receive	REFLS <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0, 1, 2, 3
Default	0
Opmode	8
Drive Status	
Start Firmware	3.43
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	349

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Behavior of the Hardware Limit switches at Homing Move
-------------------	--

Description

REFLS defines the drive behavior when activating a hardware limit during a homing move.

- REFLS=0 Change direction at NSTOP and PSTOP
- REFLS=1 Change direction at PSTOP, create error message F26 (limit switch) at NSTOP
- REFLS=2 Change direction at NSTOP, create error message F26 (limit switch) at PSTOP
- REFLS=3 Create error message F26 (limit switch) at NSTOP and PSTOP

REFLS used when /NREF/ (homing mode) = 1 or 3

ASCII -Command	REFMODE
Syntax Transmit	REFMODE [Data]
Syntax Receive	REFMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3, 4, 5, 6, 7
Default	0
Opmode	8
Drive Status	-
Start Firmware	2.49
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	316

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Source of the Zero Pulse in Homing Mode
-------------------	---

Description
 The command REFMODE selects the source of the zero pulse in homing mode.

- REFMODE=0 Resolver- or singleturn encoder-zero, Zero crossing per rev of a multiturn encoder (Firmware 5.41) / at |EXTPOS|=1 Data-Pin X1-connector (Drive 400 X2)
- REFMODE=1 digital INPUT1
- REFMODE=2 digital INPUT2
- REFMODE=3 digital INPUT3
- REFMODE=4 digital INPUT4
- REFMODE=5 Data-Pin of X1-Connector (Drive 400 X2)
- REFMODE=6 Zero pulse of the connector X5 (Drive 400 X4) is used (Firmware 3.43) only with |FPGA|=1 and |ENCMODE|=0
- REFMODE=7 Zero crossing of the absolute multiturn encoder (per rev) (Firmware 4.34)

ASCII -Command	REFPOS
Syntax Transmit	REFPOS
Syntax Receive	REFPOS <Data>
Type	Variable ro
Format	Integer32
DIM	Counts
Range	0 .. 1048575
Default	-
Opmode	8
Drive Status	-
Start Firmware	1.78
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	227

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Reference Switch Position
-------------------	---------------------------

Description

The REFPOS command returns the position (20-bit, within one turn) to be used for detecting the “Reference criterion” during the homing movement. The “Reference criterion” depends on |NREF|, the type of homing movement.

- |NREF|=0,5,6 REFPOS = position for starting the homing movement
- |NREF|=1,3 REFPOS = position for detecting the rising edge of the reference switch
- |NREF|=2,4 REFPOS = position for detecting the falling edge of the reference switch
- |NREF|=7 REFPOS = position for detecting a stop ($|PE| > |PEMAX| / 2$)
- |NREF|=8 REFPOS is not altered

ASCII -Command	REMOTE
Syntax Transmit	REMOTE
Syntax Receive	REMOTE <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0 .. 1
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	228

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	No

Short Description	Status of the Hardware Enable
-------------------	-------------------------------

Description

The REMOTE command indicates the state of the hardware enable input .
 A 1 indicates a High state of the inputs (hardware enable is set), a 0 indicates a Low state.

ASCII -Command	RESPHASE
Syntax Transmit	RESPHASE [Data]
Syntax Receive	RESPHASE <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	-300 .. 50
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	229

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Resolver Phase
-------------------	----------------

Description

The resolver RESPHASE parameter is defined as the phase shift between the excitation signal and the modulated output sin- and cos- signals, related to 8 kHz modulation excitation signal.

The effective adjustable range of this parameter is between -50 and 50 degree. One special case is RESPHASE = -300, to ensures the compatibility for the hardware version using Sipex A/D converter (Serialno <= xxx230000).

The default value of RESPHASE equals zero and the real value can be determined by starting the ASCII command |CALCRP|. Please refer to the ASCII command |CALCRP|.

ASCII -Command	RK
Syntax Transmit	RK [Data]
Syntax Receive	RK <Data>
Type	Variable rw
Format	Integer16
DIM	Counts
Range	12000 ..19000
Default	16384
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	230

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Gain Adjust for Resolver Sine Signal
-------------------	--------------------------------------

Description

The RK parameter can be used to correct any amplitude difference that may exist between the sine and cosine signals from the resolver. The relationships are as follows:

- RK = 16384 no alteration of the amplitude of the sine signal
- RK < 16384 sine signal amplitude is reduced
- RK > 16384 sine signal amplitude is increased

An incorrect setting of this correction factor will result in velocity/velocity variations (ripple) which are strongly dependent on the position.

The |CALCRK| command enables an automatic determination of the correction factor RK.

This value will not be changed by a parameter download, since it only depends on the equipment.

ASCII -Command	ROFFS
Syntax Transmit	ROFFS [Data]
Syntax Receive	ROFFS <Ddata>
Type	Variable rw
Format	Integer32
DIM	µm
Range	long int
Default	0
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	52
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	231

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Reference Offset
-------------------	------------------

Description

The ROFFS parameter can have various functions, depending on the type of position sensor that is used for the position control loop.

1. Resolver or single-turn encoder (homing to reference point is possible)

The ROFFS parameter can be used to assign a freely chosen absolute position as the reference position (zero position) that will be reached at the end of a homing movement.

The scaling of the position depends on the settings for |PGEARI|, |PGEARO|, |PRBASE|.

If the resolution is set to 1 (|PGEARI|=|PGEARO|), then internal units (counts) will be used.

2. Absolute encoder (multi-turn, homing to reference point is also possible)

If the position value of the absolute encoder is to be altered, this can be done with the help of the ROFFS variable. When the amplifier is switched on, the value of the ROFFS variable is added once to the position value of the absolute encoder. Since this correction is only made when the amplifier is switched on, the parameter value must be saved in the EEPROM (using the |SAVE| command) after every alteration of the ROFFS variable, and the amplifier must then be switched off and on again (|COLDSTART| command).

Example:

If a position 10000 is shown when the amplifier is switched on, with ROFFS=0, then entering ROFFS -10000 will shift the position to the value 0.

ASCII -Command	ROFFS0
Syntax Transmit	ROFFS0 [Data]
Syntax Receive	ROFFS0 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.43
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	348

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Reference Offset for the second Encoder Feedback
-------------------	--

Description

The command ROFFS0 is a reference position of the second encoder. The position is set to this position, when a successful homing move is done. After the homing move, external position can be read by |PFB0|. This function is only available in mode |EXTPOS| 2 and 3.

ASCII -Command	ROFFS2
Syntax Transmit	ROFFS2 [Data]
Syntax Receive	ROFFS2 <Data>
Type	Variable rw
Format	Integer32
DIM	PUNIT
Range	long int
Default	0
Opmode	8
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	342

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	additional offset settings
-------------------	----------------------------

Description

SSI- Master - Slave:

This parameter gives an offset to the absolute SSI-position of the master, read by the slave. This parameter is only used while starting the reference move |NREF|=8 (move to absolute position). Starting the reference move, the absolute SSI position (|GEARMODE|=7) is read by the slave using the resolution |PGEARI| / |PGEARO|. The ROFFS2 offset is added then and move to this target position is startet.

Multiturn - Geber:

In case the feedback system is a mMultiturn type (example: EnDat), ROFFS2 can be used, to set the offset of the reference position.

example:

Jog to reference position
This position should be 500

use the ASCII commmands

```
ROFFS2 500
|SETREF|
|SAVE|
```

ASCII -Command	RS232T
Syntax Transmit	RS232T [Data]
Syntax Receive	RS232T <Data>
Type	Variable rw
Format	Integer16
DIM	Milliseconds
Range	1 .. 5000
Default	2500
Opmode	All
Drive Status	-
Start Firmware	2.40
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	232

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	RS232 Watch Dog
-------------------	-----------------

Description

If the monitoring of the serial interface is activated (RS232 watchdog), then the RS232T command can be used to set the time for the watchdog timer.
 See also |ACTRS232|

ASCII -Command	RSTFW
Syntax Transmit	RSTFW [Data]
Syntax Receive	RSTFW <Data>
Type	rw
Format	Integer8
DIM	
Range	0 .. 1
Default	0
Opmode	All
Drive Status	
Start Firmware	5.70
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	474

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	-

Short Description	
-------------------	--

Description
 The command RSTFW defines the configuration of function |RSTVAR| .

RSTFW=0 all parameter are reset to the actual default-data.

RSTFW=345 all parameter are reset to the actual default-data of firmware -version 3.45.

ASCII -Command	RSTVAR
Syntax Transmit	RSTVAR
Syntax Receive	RSTVAR
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	262
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	233

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Restore Variables (Default Values)
-------------------	------------------------------------

Description

The RSTVAR command resets all parameters/variables to the internal works (default) settings. The parameters which are stored in the EEPROM are not immediately affected by this. The default settings only become permanent when the |SAVE| command is used (save parameters in the EEPROM).

In case configuration settings had been changed |SAVE| and |COLDSTART| is required.

ASCII -Command	RXPDO1A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 1 parameter selection
-------------------	------------------------------

Description

By the command RXPDO1A the listed CANopen-PDO RX-PDO 1 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Receive-PDO 1 (2600, 0), decimal
2. COB-Identifier for Receive-PDO 1 (1400, 1), hexadecimal
3. Transmission type for Receive-PDO 1 (1400, 2), decimal
4. Inhibit time for Receive-PDO 1 (1400, 3), decimal
5. Priority group for Receive-PDO 1 (1400, 4), decimal

example

Read the actual status: Command: RXPDO1A

Write: Command: RXPDO1A 1 0x201 255 0 2, all parameter have to be set

ASCII -Command	RXPDO1B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 1 Mapping Settings
-------------------	---------------------------

Description

The CANopen-PDOs TX-PDO 1 mapping can be set by the command RX PDO 1 (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by RXPDO1A.
 To read the actual mapping the command has to be set to: RXPDO1B
 The mapping form is: 6040002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (for the exampel 6040)
- yy Hex-number for SDO subindex (for the exampel 00)
- z number for byte quantity in SDO setting (for the exampel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO1B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 1.

ASCII -Command	RXPDO2A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 2 parameter selection
-------------------	------------------------------

Description

By the command RXPDO2A the listed CANopen-PDO RX-PDO 2 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Receive-PDO 2 (2601, 0), decimal
2. COB-Identifier for Receive-PDO 2 (1401, 1), hexadecimal
3. Transmission type for Receive-PDO 2 (1401, 2), decimal
4. Inhibit time for Receive-PDO 2 (1401, 3), decimal
5. Priority group for Receive-PDO 2 (1401, 4), decimal

example

Read the actual status: Command: RXPDO2A

Write: Command: RXPDO2A 1 0x201 255 0 2, all parameter have to be set

ASCII -Command	RXPDO2B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 2 Mapping Settings
-------------------	---------------------------

Description

The CANopen-PDOs TX-PDO 2mapping can be set by the command RX PDO 2 (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by RXPDO2A.
 To read the actual mapping the command has to be set to: RXPDO2B
 The mapping form is: 6040002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (for the exampel 6040)
- yy Hex-number for SDO subindex (for the exampel 00)
- z number for byte quantity in SDO setting (for the exampel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO2B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 2.

ASCII -Command	RXPDO3A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 3 parameter selection
-------------------	------------------------------

Description

By the command RXPDO3A the listed CANopen-PDO RX-PDO 3 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Receive-PDO 3 (2602, 0), decimal
2. COB-Identifier for Receive-PDO 3 (1402, 1), hexadecimal
3. Transmission type for Receive-PDO 3 (1402, 2), decimal
4. Inhibit time for Receive-PDO 3 (1402, 3), decimal
5. Priority group for Receive-PDO 3 (1402, 4), decimal

example

Read the actual status: Command: RXPDO3A

Write: Command: RXPDO3A 1 0x201 255 0 2, all parameter have to be set

ASCII -Command	RXPDO3B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 3 Mapping Settings
-------------------	---------------------------

Description

The CANopen-PDOs TX-PDO 3 mapping can be set by the command RX PDO 3 (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by RXPDO3A.
 To read the actual mapping the command has to be set to: RXPDO3B
 The mapping form is: 6040002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (for the exampel 6040)
- yy Hex-number for SDO subindex (for the exampel 00)
- z number for byte quantity in SDO setting (for the exampel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO1B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 3.

ASCII -Command	RXPDO4A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 4 parameter selection
-------------------	------------------------------

Description

By the command RXPDO4A the listed CANopen-PDO RX-PDO 4 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Receive-PDO 4 (2603, 0), decimal
2. COB-Identifier for Receive-PDO 4 (1403, 1), hexadecimal
3. Transmission type for Receive-PDO 4 (1403, 2), decimal
4. Inhibit time for Receive-PDO 4 (1403, 3), decimal
5. Priority group for Receive-PDO 4 (1403, 4), decimal

example

Read the actual status: Command: RXPDO4A

Write: Command: RXPDO4A 1 0x201 255 0 2, all parameter have to be set

Note: Only available with |MDRV| = 0 !

ASCII -Command	RXPDO4B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	RX-PDO 4 Mapping Settings
-------------------	---------------------------

Description

The CANopen-PDOs TX-PDO 4mapping can be set by the command RX PDO 1 (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by RXPDO4A.
 To read the actual mapping the command has to be set to: RXPDO4B
 The mapping form is: 6040002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (for the exampel 6040)
- yy Hex-number for SDO subindex (for the exampel 00)
- z number for byte quantity in SDO setting (for the exampel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO1B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 4.

Note: Only available with |MDRV| = 0 !

ASCII -Command	S
Syntax Transmit	S
Syntax Receive	S
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope/Service

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	234

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Stop Motor and Disable Drive
-------------------	------------------------------

Description

The S command stops the drive (using the braking ramp |DECSTOP|). As soon as the velocity/velocity falls below the standstill threshold (|VEL0|) the output stage is disabled.
 The S command corresponds to the command |K| (or |DIS|) if the |STOPMODE| option is set to 1.

ASCII -Command	SAVE
Syntax Transmit	SAVE
Syntax Receive	SAVE
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Amplifier

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	264
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	235

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Save Data in EEPROM
-------------------	---------------------

Description

The SAVE command stores the present settings of the amplifier parameters in the serial EEPROM. At the same time, the checksum for the parameter field is updated and also saved in the serial EEPROM. The save process takes about 2 seconds. During this time, the 24V supply for the amplifier must not be switched off. If this supply voltage is switched off during the save process, this may result in invalid data (or none) being saved in the serial EEPROM. A checksum error will be detected at the next power-on of the equipment, and the fault message F09 will be generated.

Furthermore, all the amplifier parameters will be reset to the default values. In order to reset the F09 fault, the SAVE command must be used once more, and the amplifier must be switched off and on again.

A SAVE command is set, if an absolute feedback is used and a homing is executed. The reference offset is calculated and the command SAVE is set.

ASCII -Command	SCAN
Syntax Transmit	SCAN
Syntax Receive	SCAN <Data>
Type	Command
Format	<integer8> [Integer8...Integer8]
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Communication

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	237

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Detect CAN Stations
-------------------	---------------------

Description

For a CAN network with several drives connected, there is an option for using a serial connection to one of the devices (master) to communicate with all the other amplifiers. To do this, the SCAN command is initiated on the master device, which performs an automatic detection of all the drivess that are connected. The response to the SCAN command contains the total number and a list of the addresses of all the drive devices that have been detected.

The time taken to carry out this command is strongly dependent on the baud rate (|CBAUD|) that is has been set for CAN, and is in the range from 1 second (at 1 Mbaud/1 Mbps) to 37 seconds (at 10Kbaud/10 kbps).

With drive 400, the communication is not done via CAN, but via an internal serial link. The behavior is the same.

ASCII -Command	SCANX
Syntax Transmit	SCANX
Syntax Receive	
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	-
Drive Status	-
Start Firmware	4.74
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	406

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.5
EEPROM	-

Short Description	Restart Kommunikation of Drive 400
-------------------	------------------------------------

Description

SCANX restarts the communication inside the Drive 400 system and starts also the automatic address selection of the Drive 400 Slaves. This command is accepted only from the Drive 400 Master module.
 At the startup of the master, this command is automatically started to make the address selection. If a slave is reset, this command can be used to restart the communication.

ASCII -Command	SDUMP
Syntax Transmit	SDUMP
Syntax Receive	SDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	238

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	List Speed/Velocity Limits
-------------------	----------------------------

Description
 Outputs a list of the speed/velocity limits.

ASCII -Command	SERCERR
Syntax Transmit	SERCERR
Syntax Receive	SERCERR <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	0 .. 8
Default	0
Opmode	All
Drive Status	-
Start Firmware	
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Display Error State of Object SERCOS
-------------------	--------------------------------------

Description

The command SERERR displays an error generated by an wrong access with the command |SERCOS| to an IDN. See also object |SERCOS|.

ASCII -Command	SERCLIST
Syntax Transmit	SERCLIST [Data]
Syntax Receive	SERCLIST <Data>
Type	Variable rw
Format	Integer32
DIM	
Range	0 .. 8
Default	0
Opmode	All
Drive Status	-
Start Firmware	
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Set Sercos IDN Pointer
-------------------	------------------------

Description

The command SERCLIST enables the access to an element of the IDN list. After that, the IDN can be read by command |SERCOS|. See also object |SERCOS|.

ASCII -Command	SERCOS
Syntax Transmit	SERCOS [Data]
Syntax Receive	SERCOS <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 8
Default	0
Opmode	All
Drive Status	-
Start Firmware	
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Read the Data of an Sercos IDN
-------------------	--------------------------------

Description
 Gives the contents of an Sercos IDN. Write access changes the selected number of the IDN, read access gives the contents of the selected IDN. If the selected IDN is a list, only the list value where |SERCLIST| points to is displayed. If SERCOS generates an error (e.g. wrong IDN number), |SERCERR| is set to "1" and a value of "0" is displayed.

ASCII -Command	SERCSET
Syntax Transmit	SERCSET [Data]
Syntax Receive	SERCSET <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	Long Int
Default	0
Opmode	All
Drive Status	-
Start Firmware	
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	43 + P3028
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	401

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	No

Short Description	Set Sercos Settings
-------------------	---------------------

Description

The object SERCSET gives the possibility to change some of the Sercos settings. Changes have to be saved in the EEPROM and effect at the next start-up of the drive. The not described bits effect other Sercos settings. In so far, this command should only be used in combination with the MMI. See also Sercos IDN Manual.

- Bit 0: Hardware Limit Switch Effect (P-IDN 3015)
- Bit 1: |CLRFAULT| Command Effect (P-IDN 3016)
- Bit 4: Polarity Target Position (S-IDN 55)
- Bit 6: Polarity Actual Position 1 (S-IDN 55)
- Bit 7: Polarity Actual Position 2 (S-IDN 55)
- Bit 12: Polarity Target Speed (S-IDN 43)
- Bit 14: Polarity Actual Speed (S-IDN 43)

Bit 17 =1 EtherCAT synchronisation error monitoring (ERRCODE F28) switched off
 The synchronisations-warning n17 is already active.

ASCII -Command	SERIALNO
Syntax Transmit	SERIALNO
Syntax Receive	SERIALNO <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	10 ASCII characters
Default	Factory default
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	239

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Drive Serial Number
-------------------	---------------------

Description
 The serial number of the drive amplifier.

ASCII -Command	SETREF
Syntax Transmit	SETREF
Syntax Receive	SETREF
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	240

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Set Reference Point
-------------------	---------------------

Description

The SETREF command is used to declare the present position as the reference point (i.e. the actual position is set to the value of |ROFFS|) and to set the bit that permits the execution of motion blocks.
 The SETREF command corresponds to the execution of a homing to a reference with |NREF|=0.

ASCII -Command	SETROFFS
Syntax Transmit	SETROFFS
Syntax Receive	-
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	241

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Automatic setting of ROFFS
-------------------	----------------------------

Description

The command SETROFFS automatically changes the reference offset variable |ROFFS| according to the actual position (|PFB|). This enables a automatic setting of ROFFS according to the mechanical requirements.

Example 1:

|ROFFS|=0 |PFB|=100
to SETROFFS |ROFFS|=-100

Example 2:

|ROFFS|=100 |PFB|=70
to SETROFFS |ROFFS|=30

ASCII -Command	SETVCT
Syntax Transmit	SETVCT [Data]
Syntax Receive	SETVCT <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0 .. 7
Default	0
Opmode	0, 1
Drive Status	-
Start Firmware	2.42
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	309

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Select a VCT Entry
-------------------	--------------------

Description

The SETVCT command can be used to activate an entry in the VC table (velocity command / current limit). The VC table contains 8 velocity/current pairs (VCT entries). When a VCT entry is activated, the velocity value that has been entered is taken as a digital velocity command (only possible with |OPMODE|=0). The current value from the VCT entry is taken as the current limit. With analog velocity command provision (|OPMODE|=1) the velocity command is ignored, but the current value is still used as the current limit.

If the SETVCT command is entered without additional parameters, the number of the presently active VCT entry is shown.

See also description of the |VCTAB| command.

ASCII -Command	SLEN
Syntax Transmit	SLEN [Data]
Syntax Receive	SLEN <Data>
Type	Variable rw
Format	Integer8
DIM	m
Range	0 .. 45
Default	5
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	242

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Sercos Optical Range
-------------------	----------------------

Description

This parameter can be used to set the optical range (in meters) for a standardized 1mm² plastic optical fiber cable.

ASCII -Command	SLOTIO
Syntax Transmit	SLOTIO
Syntax Receive	SLOTIO <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	243

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.8
EEPROM	No	

Short Description	I/O-Expansion Card: I/O States
-------------------	--------------------------------

Description

The SLOTIO command returns the states of the inputs and outputs on the I/O-expansion card (slot card) in the format Hxxxxxxxx

Bit number	Bit combination	Input/Output	Description
0	0x00000001	Input	Bit 0 Motion block number (A0)
1	0x00000002	Input	Bit 1 Motion block number (A1)
2	0x00000004	Input	Bit 2 Motion block number (A2)
3	0x00000008	Input	Bit 3 Motion block number (A3)
4	0x00000010	Input	Bit 4 Motion block number (A4)
5	0x00000020	Input	Bit 5 Motion block number (A5)
6	0x00000040	Input	Bit 6 Motion block number (A6)
7	0x00000080	Input	Bit 7 Motion block number (A7)
8	0x00000100	Input	Reference switch
9	0x00000200	Input	Acknowledge Contouring error
10	0x00000400	Input	Start next motion block
11	0x00000400	Input	Start jog mode
12	0x00001000	Input	Continue a motion block
13	0x00002000	Input	Start motion block no. A0 ... A7
14	0x00004000	Output	“In-Position” signal
15	0x00008000	Output	“In-Position2” signal (next)
16	0x00010000	Output	Contouring error
17	0x00020000	Output	“Position register 1” signal
18	0x00040000	Output	“Position register 2” signal
19	0x00080000	Output	“Position register 3” signal
20	0x00100000	Output	“Position register 4” signal
21	0x00200000	Output	“Position register 5” signal
22	0x00400000	Status	24Volt - On
23	0x00800000	Status	Slot fault
24...31			Reserve

ASCII -Command	SMNUMBER
Syntax Transmit	SMNUMBER [Data]
Syntax Receive	SMNUMBER <Data>
Type	Variable r
Format	Integer16
DIM	-
Range	0 .. 32767
Default	0
Opmode	-
Drive Status	-
Start Firmware	4.74
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	405

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object	1.5
EEPROM	No

Short Description	Stored Motor Number in the feedback Device
-------------------	--

Description

SMNUMBER gives the motor number, that is stored in the feedback device (EnDAT or HIPERFACE).

This Object makes sense with |FBTYPE| = 2 or 4, otherwise "0" is returned.

ASCII -Command	SPHAS
Syntax Transmit	SPHAS
Syntax Receive	SPHAS <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	244

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Sercos Phase
-------------------	--------------

Description

Shows the present Sercos phase.

- Phase 0 Close ring and reset
- Phase 1 Drive identification
- Phase 2 Communication initialization
- Phase 3 Parameter initialization
- Phase 4 Ready for operation

ASCII -Command	SPSET
Syntax Transmit	SPSET [Data]
Syntax Receive	SPSET <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2, 3
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.81
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	245

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Enable for S-curve
-------------------	--------------------

Description

The SPSET variable generates an enable for the S-curve (= sin² ramp) for executing internal motion tasks (OPMODE=8).

SPSET=0 Motion blocks are carried out exclusively with trapeze-form ramps.

SPSET=1 Motion blocks are carried out with ramps which are defined within the motion tasks.

With sin² curves, following motion tasks with flying change of the velocity are always executed with intermediate stop. A change of this variable from 1 to 0 means that all the S-curve motion tasks will be executed as trapeze-form motion tasks, without having to modify any elements of the motion tasks.

SPSET=2 The same as SPSET=1, except the motion blocks are always carried out with ramps which are defined within the motion tasks and the acc/dec is not changed if e.g. |PVMAX| is changed. Especially with very small moves, the time to get to the next position was very long. (3.42)

With sin² curves, following motion tasks with flying change of the speed are always executed with intermediate stop. A change of this variable from 1 to 0 means that all the S-curve motion tasks will be executed as trapeze-form motion tasks, without having to modify any elements of the motion tasks.

SPSET=3 (starting with firmware 4.91)

Sin² motion tasks can be run more dynamically (trajectory is updated every 250µs instead of 1ms) and with speed and current feed forward. The result is, that the position error while moving is much smaller and the transient oscillation at the end of the move is much better. Speed feed forward can be set by |GPFV| and current feed forward by |GPFIT|.

Sin² motion tasks, that were programmed with SPSET=1 have the same function under SPSET=3.

To select this curve generator, the Sin² table has to be in the Flash. Other shapes cannot be used.

SPSET=4 (starting with firmware 5.41)

In Addition to SPSET=3, SPSET=4 enables a table that is similar to the sin² table, but also the deviation of the acceleration is continual. This helps in case of very low frequency ringing mechanics.

ASCII -Command	SRND
Syntax Transmit	SRND [Data]
Syntax Receive	SRND <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	-
Default	- 2^31
Opmode	-
Drive Status	-
Start Firmware	2.45
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	311

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Start Position of Modulo Axes
-------------------	-------------------------------

Description

The SRND parameter is used to define the start of the range of movement for a modulo axes (|POSCNFG|=2). The end of the range can be set by the |ERND| command. All positioning operations are made in the positioning range <SRND...|ERND|-1>. The entry for SRND is made in SI units (taking account of |PGEARI|, |PGEARO|).

The data are used after a reset of the drive.

ASCII -Command	SSIGRAY
Syntax Transmit	SSIGRAY [Data]
Syntax Receive	SSIGRAY <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	246

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	Select SSI Code
-------------------	-----------------

Description

The SSIGRAY command can be used to define the format to be used for the output of the SSI information on connector X5 (Drive 400 X4).

SSIGRAY=0 binary code

SSIGRAY=1 Gray code

ASCII -Command	SSIINV
Syntax Transmit	SSIINV [Data]
Syntax Receive	SSIINV <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	247

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	SSI Clock
-------------------	-----------

Description

The behavior of the SSI interface at X5 (Drive 400 X4).
 The SSIINV command has different interpretations, depending on whether the SSI is configured as an output or an input.

- SSI output (|GEARMODE| != 7, |ENCMODE| = 2)
 SSIINV=0 normal clock level
 SSIINV=1 inverted clock level
- SSI read-in (|GEARMODE| = 7, |ENCMODE| = 2)
 SSIINV=0 MSB transmitted first
 SSIINV=1 LSB transmitted first

ASCII -Command	SSIMODE
Syntax Transmit	SSIMODE [Data]
Syntax Receive	SSIMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	-
Start Firmware	2.12
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	248

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	SSI Mode
-------------------	----------

Description

The SSIMODE parameter defines the type of SSI output or SSI read-in procedure at connector X5 (Drive 400 X4).

1. SSI output (|GEARMODE|<>7, |ENCMODE|=2)

With SSI output it is possible to switch between single-turn and multi-turn output (from firmware version 2.12).

SSIMODE 0 single-turn

SSIMODE 1 multi-turn

To switch over from 12 Bit Format per rev to 15 Bit Format per rev, set |FPGA|=4.

2. SSI read-in

When reading in an SSI value (|GEARMODE|=7,|ENCMODE|=2)

it is possible to use the SSIMODE parameter to define the position within the SSI bit-stream which is used for transmitting the alarm bit.

SSIMODE=0 no alarm bit

SSIMODE=1 alarm bit first

SSIMODE=2 alarm bit last

ASCII -Command	SSIOUT
Syntax Transmit	SSIOUT [Data]
Syntax Receive	SSIOUT <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0 .. 31
Default	0
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Encoder

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	249

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	SSI Baud Rate
-------------------	---------------

Description

The SSIOUT command has different interpretations, depending on whether the SSI is configured as an output or an input at X5 (Drive 400 X4).

1. SSI output (|GEARMODE| != 7, |ENCMODE| = 2)
 SSIOUT = 0 baud rate 200 kbaud
 SSIOUT = 1 baud rate 1 Mbaud

2. SSI read-in (|GEARMODE| = 7, |ENCMODE| = 2)
 SSIOUT = number of data bits (25)

ASCII -Command	SSTAT
Syntax Transmit	SSTAT
Syntax Receive	SSTAT <Data>
Type	Variable ro
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.67
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	95
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	250

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Sercos Status
-------------------	---------------

Description

Presents the actual status of the Sercos interface, as a text string.

ASCII -Command	STAGECODE
Syntax Transmit	-
Syntax Receive	STAGECODE <Data>
Type	Variable r
Format	Integer8
DIM	-
Range	1, 2, ..., 19
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.62
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	386

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	-

Short Description	Power Stage Identification
-------------------	----------------------------

Description

Give the identification of the power stage-

STAGECODE=0	not allowed (Hardware error)
STAGECODE=1	SR601
STAGECODE=2	SR603
STAGECODE=3	SR606
STAGECODE=4	SR610
STAGECODE=5	SR614
STAGECODE=6	SR620
STAGECODE=7	SR640
STAGECODE=8	SR670
STAGECODE=9	SR610/30
STAGECODE=10	Reserve
STAGECODE=11	Reserve
STAGECODE=12	Reserve
STAGECODE=13	Reserve
STAGECODE=14	Reserve
STAGECODE=15	Reserve
STAGECODE=16	SR403
STAGECODE=17	SR406
STAGECODE=18	Reserve
STAGECODE=19	Reserve

ASCII -Command	STAT
Syntax Transmit	STAT
Syntax Receive	STAT
Type	Variable ro
Format	Integer16
DIM	-
Range	int (=Word)
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	251

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Drive Status Word
-------------------	-------------------

Description

The STAT command provides a 16-bit status word in hexadecimal format (Hxxxx).

Bit Value Interpretation

- 0 0x0001 =0 if output stage is enabled
=1 output stage disabled
- 1 0x0002 =0 if controller is ready for operation (BTB)
=1 fault present
- 2 0x0004 reserve
- 3 0x0008 =1 if service function is active
=0 no service function active
- 4 0x0004 reserve
- 5 0x0020 =1 after a hardware reset, is cancelled by |CLRHR|
- 6 0x0040 =1 configuration variable was altered (|SAVE| and |COLDSTART|)
=0 no configuration variable altered
- 7 0x0080 =1 safety relay is active (AS-Option)
=0 safety relay is not active
- 8 0x0100 =1 discrepancy between RAM and EEPROM parameters (cancelled by |SAVE| command).
=0 RAM and EEPROM parameters are the same
- 9 0x0200 =1 slot-expansion card is available
=0 slot-expansion card is not available
- 10 0x0400 =1 RAM parameter modified (cancelled by |DUMP| command)
=0 no change in RAM parameters since the last |DUMP|.
- 11...15 Reserve

Bits 5, 6, 8 and 10 are used for an external signal that internal parameters have been changed

Bit 5 hardware reset

Bit 5 is set if the parameters are copied from the serial EEPROM to the RAM (this happens after a hardware reset of a LOAD command). If this bit is set, all the parameters should be requested by the parameterization software (|DUMP| command) and bit 5 should be cancelled by the |CLRHR| command.

Bit 6 configuration variable was altered

Any alteration of a configuration variable (a variable that makes it necessary to recompile the macro, i.e. to reset the amplifier) means that this bit will be set to 1. If this bit is set, the parameterization software should generate a |SAVE| / |COLDSTART| command (controller reset) at a suitable moment. Bit 6 is only cancelled by a hardware reset (|COLDSTART|).

Bit 8 discrepancy between EEPROM and RAM parameters

Any alteration of a RAM parameter means that this bit is set to 1. If this bit is set, the parameterization software should generate a |SAVE| command (save the data in the EEPROM) at a suitable moment (e.g. on exiting the program). This bit is cancelled by a |SAVE| command.

Bit 10 RAM parameters modified

Any alteration of a RAM parameter through a parameterization channel other than the RS232 means that this bit is set to 1. If this bit is set, the parameterization software should generate a |DUMP| command (read all data) at a suitable moment. This bit is

cancelled by a |DUMP| command.

ASCII -Command	STATCODE
Syntax Transmit	STATCODE
Syntax Receive	STATCODE <Data>
Type	Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	862

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Plain Text Warnings
-------------------	---------------------

Description

The warnings are displayed as plain text.

ASCII -Command	STATCODE *
Syntax Transmit	STATCODE *
Syntax Receive	STATCODE <Data>
Type	Command
Format	Integer32
DIM	-
Range	0 .. 0xFFFFFFFF
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	-

Short Description	Status Variable "Warnings"
-------------------	----------------------------

Description

The STATCODE * command returns the internal warnings in the form of a bit-variable. The assignments for the individual bits can be seen in the following table.

Bit	Display	Meaning
0 / 0x00000001	n01	=1 I2T Threshold override
1 / 0x00000002	n02	=1 Regen message
2 / 0x00000004	n03	=1 Contouring error
3 / 0x00000008	n04	=1 watchdog limit reached
4 / 0x00000010	n05	=1 Line phase missing
5 / 0x00000020	n06	=1 Software limit switch 1 active
6 / 0x00000040	n07	=1 Software limit switch 2 active
7 / 0x00000080	n08	=1 Wrong motion task started
		MJOG activates the warning, if ACCR or DECR value is out of range
		See also DRVCNFG Bit 7
8 / 0x00000100	n09	=1 Reference point not set
9 / 0x00000200	n10	=1 PSTOP active
10 / 0x00000400	n11	=1 NSTOP active
11 / 0x00000800	n12	=1 Default motor settings loaded
12 / 0x00001000	n13	=1 Slot warning (I/O extension board)
13 / 0x00002000	n14	=1 Calculation of MPHASE active (FBTYPE =7)
14 / 0x00004000	n15	=1 Wrong VCT entry started
15 / 0x00008000	n16	Is active, if one or more of the warnings n17...n31 are active.
16 / 0x00010000	n17	=1
		The mode synchronization SYNCSRC is selected but the drive isn't in synchronies cycle
17 / 0x00020000	n18	Using Multiturn encoder feedback, a overrun over the maximum number of resolutions (+/- 2048) was detected (starting with firmware 4.91)
18	n19	The motion task ramps are limited (range overflow on motion task data)

19	n20	Wrong GMT data
20	n21	PLC program error (for details see plc code)
21	n22	max. motortemperatur reached (the user can shut down the process before the temperature error will interrupt the process immediately)
22	n23 ..n31	Reserved
31 / 0x80000000	n32	=1 Beta version of the firmware

ASCII -Command	STATIO
Syntax Transmit	STATIO
Syntax Receive	STATIO <Data>
Type	Variable ro
Format	7 x Integer8
DIM	-
Range	0,1 (=State)
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Digital I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	252

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	I/O Status
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Description

The STATIO command returns the actual state of the digital inputs and outputs of the servo amplifier, in the following sequence.
IN1 IN2 IN3 IN4 ENABLE OUT1 OUT2

A 0 at the appropriate position means that the corresponding input/output is in the Low state, a 1 signifies the High state.

ASCII -Command	STATUS
Syntax Transmit	STATUS
Syntax Receive	STATUS <Data>
Type	Variable ro
Format	Integer16 Integer32 Integer16 Integer16 Integer16
DIM	-
Range	int (=Word); long int (=DoubleWord)
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Drive Status

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	253

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Detailed Amplifier Status
-------------------	---------------------------

Description

The STATUS command returns the detailed status information in the form of a 5 status variables in hexadecimal format.

Word no. 1 Format Hxxxx

Bit 0 =0 if hardware enable is set (ENABLE input = 24V)

Bit 1 =0 if software enable is set

Bit 2 reserve

Bit 3 =0 if amplifier is ready for operation (BTB / no fault)

Word no. 2 Format Hxxxx

Bits 0 ... 31 fault variable (see |ERRCODE|)

Word no. 3 Format Hxxxx

Word no. 4 Format Hxxxx

=0 no service function active

=1 service function "constant current/velocity" is active

=2 jog mode |MJOX| is active

Word no. 5 Format Hxxxx

Bit Value Interpretation

0 0x0001 =1 motion block / homing movement / jog mode is active

1 0x0002 =1 reference point set

2 0x0004 =1 reference switch occupied (home position)

3 0x0008 =1 IN-POSITION signal

4 0x0010 =1 position has been latched (positive edge)

5 0x0020 =1 homing in progress

6 0x0040 =1 jog mode is running

7 0x0080 =1 position has been latched (negative edge)

8 ... 15 reserve

ASCII -Command	STEP
Syntax Transmit	STEP [Data]
Syntax Receive	STEP <Data>
Type	Command
Format	Integer16 Float Integer16 Float
DIM	Milliseconds (DurationN) / rpm (velocityN)
Range	Duration:0 to 32767; velocity:-VLIM to +VLIM
Default	Duration:1000; velocity1/2: 100/-100
Opmode	0
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope/Service

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	Service Operation (STEP Command)
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Description

The STEP command is used to implement a service function through the operating mode “digital velocity control” (OPMODE|=0). The command can be used in the following forms.

1. STEP

The command provides the present settings for the service function.

2. STEP T1 V1

A digital command V1 (RPM) is provided for time T1 (in msec). After T1 has elapsed, the digital command is set to 0.

3. STEP T1 V1 T2 V2

A digital command V1 (RPM) is provided for time T1 (in msec). After T1 has elapsed, a digital command V2 (RPM) is provided for time T2 (in msec). After T2 has elapsed, the T1/V1 cycle starts again. This command can be used to create an endless reversing operation.

e.g. STEP 1000 500 1000 -500

The service operation can always be cancelled by using the |STOP| command.

The “digital velocity control” operating mode is a precondition for implementing the STEP command.

ASCII -Command	STOP
Syntax Transmit	STOP
Syntax Receive	STOP
Type	Command
Format	-
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	254

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	-

Short Description	Stop Motion Task
-------------------	------------------

Description

The STOP command breaks off the drive movement. The response of the drive varies according to the operating mode that is valid at the moment.

1. |OPMODE|=0 (digital velocity control)

The STOP command has the effect of setting the velocity command to 0.

The drive brakes along the preset braking ramp for the velocity control loop (|DEC|).

2. |OPMODE|=2 (digital current control)

The STOP command has the effect of setting the current command to 0.

The drive coasts down.

3. |OPMODE|=8 (internal motion tasks)

The STOP command has the effect of breaking off the present motion task (jog mode / homing movement).

The drive brakes along the decel ramp that is defined in the motion task. The motion task can be restarted by |CONTINUE| or digital input defined with |INxMODE|=22.

The STOP command has no function in the |OPMODE|=1,3,4,5,6,7 operating modes.

ASCII -Command	STOPMODE
Syntax Transmit	STOPMODE [Data]
Syntax Receive	STOPMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	255

Data Type BUS/DPR	Integer8
Weighting 10 ³	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Brake Response for Disable
-------------------	----------------------------

Description

STOPMODE defines the response of the drive to a disabling of the output stage.

The following settings are possible:

STOPMODE=0 the output stage is immediately disabled, and the drive coasts down.

STOPMODE=1 the drive is run down under velocity control to velocity 0 (|DECDIS| ramp). When the velocity falls below the standstill threshold |VEL0|, the output stage is disabled.

The output stage will also be disabled if the |VEL0| velocity is not reached within 5 seconds (a 5-second time-out).

ASCII -Command	SWCNFG
Syntax Transmit	SWCNFG [Data]
Syntax Receive	SWCNFG <Data>
Type	Variable rw
Format	Unsigned16
DIM	-
Range	0 .. 65536
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.30
Configuration	<input checked="" type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3004
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	256

Data Type BUS/DPR	Unsigned16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Configuration of Position Registers 1 ... 4
-------------------	---

Description

6 position registers (|SWE0| ... |SWE5|) are available for monitoring functions, that can be configured as software limit-switches or cam contacts (position switches).

Registers |SWE1| ... |SWE4| can be configured with the help of the SWCNFG configuration parameter.

Registers |SWE0| and |SWE5| can be configured with the help of the |SWCNFG2| parameter.

A corresponding cam register SWExN is assigned to each position register SWEx.

The cam registers are only used if the cam function is activated.

The SWCNFG variable can be considered as a bit-variable. The individual bits are interpreted as follows:

- Bit 0 =0 Position/cam register |SWE1| is not active
=1 Position/cam register |SWE1| is active
- Bit 1 =0 Signal on going above the position (|PFB| > |SWE1|)
Signal if |SWE1| < |PFB| < |SWE1N| and cam function is activated
=1 Signal on going below the position (|PFB| < |SWE1|)
Signal if |SWE1| > |PFB| > |SWE1N| and cam function is activated
- Bit 2 =0 |SWE1| functions as signal threshold
=1 |SWE1| functions as software limit-switch 1 (left)
Das Setzen des Referenzpunktes ist je nach |FBTYPE| mit |SETREF| oder |MH| erforderlich
- Bit 3 =1 Cam function for |SWE1| / |SWE1N|
- Bit 4 =0 Position/cam register |SWE2| is not active
=1 Position/cam register |SWE2| is active
- Bit 5 =0 Signal on going above the position (|PFB| > |SWE2|)
Signal if |SWE2| < |PFB| < |SWE2N| and cam function is activated
=1 Signal on going below the position (|PFB| < |SWE2|)
Signal if |SWE2| > |PFB| > |SWE2N| and cam function is activated
- Bit 6 =0 |SWE2| functions as signal threshold
=2 |SWE2| functions as software limit-switch 2 (right)
- Bit 7 =1 Cam function for |SWE2| / |SWE2N|
- Bit 8 =0 Position/cam register |SWE3| is not active
=1 Position/cam register |SWE3| is active
- Bit 9 =0 Signal on going above the position (|PFB| > |SWE3|)
Signal if |SWE3| < |PFB| < |SWE3N| and cam function is activated
=1 Signal on going below the position (|PFB| < |SWE3|)
Signal if |SWE3| > |PFB| > |SWE3N| and cam function is activated
- Bit 10 Reserve
- Bit 11 =1 Cam function for |SWE3| / |SWE3N|
- Bit 12 =0 Position/cam register |SWE4| is not active
=1 Position/cam register |SWE4| is active
- Bit 13 =0 Signal on going above the position (|PFB| > |SWE4|)
Signal if |SWE4| < |PFB| < |SWE4N| and cam function is activated
=1 Signal on going below the position (|PFB| < |SWE4|)

Signal if |SWE4| > |PFB| > |SWE4N| and cam function is activated
Bit 14 Reserve
Bit 15 =1 Cam function for |SWE4| / |SWE4N|

The cam function is activated with the help of the cam bits (bits 3/7/11/15 of SWCNFG and bits 3/7 of |SWCNFG2|).
If a cam bit is set, a cam signal is generated if the actual position lies between the positions SWEx and SWExN (x = 0 ... 5). The polarity of the cam signal can be defined by the direction bit (bits 1/5/9/13 of SWCNFG and bits 1/5 of |SWCNFG2|).

Output of the position signal through a digital output.

- If an I/O-expansion card (slot card) is available, the individual position signals are generated at the following outputs.

SWE0: Next-InPos X11B.4
SWE1: PosReg1 X11B.6
SWE2: PosReg2 X11B.7
SWE3: PosReg3 X11B.8
SWE4: PosReg4 X11B.9
SWE5: Reserve X11B.10

The "Next-InPos" and "SWE0-signal" functions use the same output X11B.4, so they must not be used simultaneously. If position register SWE0 has been configured, then the "Next-InPos" function is inhibited through the I/O card. If necessary, this function can be diverted to a digital output on the motherboard (O1MODE=16 or O2MODE=16).

- if no I/O card is available, then the individual position signals can be given out through the outputs on the motherboard.

SWE0: OxDxMODE=28 x=1,2
SWE1: OxDxMODE=12 x=1,2
SWE2: OxDxMODE=13 x=1,2
SWE3: OxDxMODE=14 x=1,2
SWE4: OxDxMODE=15 x=1,2
SWE5: OxDxMODE=29 x=1,2

All position signals are recorded in a status register, regardless of the outputs via the digital outputs, and can be read out through the serial interface as well as through the CAN/PROFIBUS interface.

SWE0: Bit 21 (0x00200000) of DRVSTAT
SWE1: Bit 22 (0x00400000) of DRVSTAT
SWE2: Bit 23 (0x00800000) of DRVSTAT
SWE3: Bit 24 (0x01000000) of DRVSTAT
SWE4: Bit 25 (0x02000000) of DRVSTAT
SWE5: Bit 27 (0x08000000) of DRVSTAT

ASCII -Command	SWCNFG2
Syntax Transmit	SWCNFG2 [Data]
Syntax Receive	SWCNFG <Data>
Type	Variable rw
Format	Unsigned16
DIM	-
Range	0 .. 65535
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.71
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	257

Data Type BUS/DPR	Unsigned16
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Configuration of Position Registers 0 and 5
-------------------	---

Description

The configuration variable SWCNFG2 can be used to define the function of position registers 0 and 5. The SWCNFG2 variable can be considered as a bit-variable. The individual bits are interpreted as follows:

- Bit 0 =0 Position/cam register |SWE0| is not active
=1 Position/cam register |SWE0| is active
- Bit 1 =0 Signal on going above the position (|PFB| > |SWE0|)
Signal if |SWE0| < |PFB| < |SWE0N| and cam function is activated
=1 Signal on going below the position (|PFB| < |SWE0|)
Signal if |SWE0| > |PFB| > |SWE0N| and cam function is activated
- Bit 2 Reserve
- Bit 3 =1 Cam function for |SWE0| / |SWE0N|
- Bit 4 =0 Position/cam register |SWE5| is not active
=1 Position/cam register |SWE5| is active
- Bit 5 =0 Signal on going above the position (|PFB| > |SWE5|)
Signal if |SWE5| < |PFB| < |SWE5N| and cam function is activated
=1 Signal on going below the position (|PFB| < |SWE5|)
Signal if |SWE5| > |PFB| > |SWE5N| and cam function is activated
- Bit 6 Reserve
- Bit 7 =1 Cam function for |SWE5| / |SWE5N|

see also description of |SWCNFG|

ASCII -Command	SWE0
Syntax Transmit	SWE0 [Data]
Syntax Receive	SWE0 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	258

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 0
-------------------	---------------------

Description

The variable SWE0 contains the position value for position register 0.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE0[increments] = SWE0[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE0N
Syntax Transmit	SWE0N [Data]
Syntax Receive	SWE0N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	259

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 0 (Cam)
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Description

The variable SWE0N contains the cam position value for position register 0.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE0N[increments] = SWE0N[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE1
Syntax Transmit	SWE1 [Data]
Syntax Receive	SWE1 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	50
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	260

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 1
-------------------	---------------------

Description

The variable SWE1 contains the position value for position register 1.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE1[increments] = SWE1[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE1N
Syntax Transmit	SWE1N [Data]
Syntax Receive	SWE1N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	261

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 1 (Cam)
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Description

The variable SWE1N contains the cam position value for position register 1.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE1N[increments] = SWE1N[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE2
Syntax Transmit	SWE2 [Data]
Syntax Receive	SWE2 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	49
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	262

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 2
-------------------	---------------------

Description

The variable SWE2 contains the position value for position register 2.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE2[increments] = SWE2[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE2N
Syntax Transmit	SWE2N [Data]
Syntax Receive	SWE2N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	263

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Position register 2 (Cam)
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Description

The variable SWE2N contains the cam position value for position register 2.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE2N[increments] = SWE2N[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE3
Syntax Transmit	SWE3 [Data]
Syntax Receive	SWE3 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	264

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 3
-------------------	---------------------

Description

The variable SWE3 contains the position value for position register 3.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE3[increments] = SWE3[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE3N
Syntax Transmit	SWE3N [Data]
Syntax Receive	SWE3N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	265

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 3 (Cam)
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Description

The variable SWE3N contains the cam position value for position register 3.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE3N[increments] = SWE3N[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE4
Syntax Transmit	SWE4 [Data]
Syntax Receive	SWE4 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.30
Configuration	<input type="checkbox"/>
Function Group	Position Data

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	266

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 4
-------------------	---------------------

Description

The variable SWE4 contains the position value for position register 4.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE4[increments] = SWE4[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE4N
Syntax Transmit	SWE4N [Data]
Syntax Receive	SWE4N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	267

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 4 (Cam)
-------------------	---------------------------

Description

The variable SWE4N contains the cam position value for position register 4.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE4N[increments] = SWE4N[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE5
Syntax Transmit	SWE5 [Data]
Syntax Receive	SWE5 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	268

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 5
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Description

The variable SWE5 contains the position value for position register 5.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE5[increments] = SWE5[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SWE5N
Syntax Transmit	SWE5N [Data]
Syntax Receive	SWE5N <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.71
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	269

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Position register 5 (Cam)
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Description

The variable SWE5N contains the cam position value for position register 5.
 The scaling of the position depends on the |PGEARI| / |PGEARO| / |PRBASE| parameters, and is calculated according to the following formula:

$$SWE5N[increments] = SWE5N[input] * |PGEARO| / |PGEARI|$$

1048576 increments/turn for |PRBASE|=20
 65536 increments/turn for |PRBASE|=16

see also description of |SWCNFG|

ASCII -Command	SYNCSRC
Syntax Transmit	SYNCSRC [Data]
Syntax Receive	SYNCSRC <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0, 1, 2, 3
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.78
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	387

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Source for Fieldbus Synchronization
-------------------	-------------------------------------

Description

This parameter defines the source for the synchronization of the control loops to the external fieldbus. Synchronization via CAN needs a special hardware PLL which is included in a special |FPGA| program, enabled by |FPGA|=3.

- 0: No synchronization
- 1: (reserved) synchronization via Sercos
- 2: Synchronization via KS3000 Fire-Wire option board
- 3: Synchronization via CANopen
- 4: Old DPR card
- 5: New DPR card (example EtherCAT)

ASCII -Command	T
Syntax Transmit	T [Data]
Syntax Receive	T <Data>
Type	Command
Format	Float
DIM	Amperes
Range	-DIPEAK .. DIPEAK
Default	-
Opmode	2
Drive Status	Enabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Oscilloscope/Service

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	270

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	-

Short Description	Digital Current command
-------------------	-------------------------

Description

The “T” command can be used to define a constant current command <i> (in A).
 This current command remains effective until a new T / |STOP| / |OPMODE| command is executed.

ASCII -Command	TASK
Syntax Transmit	TASK
Syntax Receive	TASK <Data>
Type	Variable ro
Format	String
DIM	-
Range	max 80 ASCII Characters
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	271

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Task Workload
-------------------	---------------

Description

The TASK command shows the loading for the individual firmware tasks. The figures signify the number of functions performed per millisecond.

ASCII -Command	TBRAKE
Syntax Transmit	TBRAKE [Data]
Syntax Receive	TBRAKE <Data>
Type	Variable rw
Format	Integer16
DIM	ms
Range	10 .. 10000
Default	100
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	366

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Disable Delaytime with Holding Brake
-------------------	--------------------------------------

Description

TBRAKE defines the added time the drive remains enabled (power stage enabled) after a normal HW or SW disable. This allows time for the holding brake to engage. TBRAKE must be set to 1. This is especially useful in vertical applications to help prevent the load from moving when the drive is disabled. See the installation manual for brake engage/disengage timing operation

Braking diagram >> |BRAKE|

ASCII -Command	TBRAKE0
Syntax Transmit	TBRAKE0 [Data]
Syntax Receive	TBRAKE0 <Data>
Type	Variable rw
Format	Integer16
DIM	ms
Range	-10 .. 10000
Default	20
Opmode	All
Drive Status	-
Start Firmware	3.46/4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	367

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Enable Delaytime with Holding Brake
-------------------	-------------------------------------

Description
 The parameter TBRAKE0 defines the delay time for the motor's brake to be disengaged after the drive is enabled (hardware/software enable). During this time the internal velocity command is set to 0. After this time the brake is disengaged, a command is accepted, and the motor can run. If the TBRAKE0 is set to values <0, the internal command is activated before the holding brake is open (to make it compatible to older firmware versions <3.46) See the installation manual for brake engage/disengage timing operation

Important !
 If the value TBRAKE0 is too big, this can cause on a vertical axis a fall down.

Braking diagram >> |BRAKE|

ASCII -Command	TEMPE
Syntax Transmit	TEMPE
Syntax Receive	TEMPE <Data>
Type	Variable ro
Format	Integer32
DIM	Centigrade Degrees
Range	-20 .. 90
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	272

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Ambient Temperature
-------------------	---------------------

Description
 Displays the present internal temperature in °C.

ASCII -Command	TEMPH
Syntax Transmit	TEMPH
Syntax Receive	TEMPH <Data>
Type	Variable ro
Format	Integer32
DIM	Centigrade Degrees
Range	-20 .. 90
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	384
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	273

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Heat Sink Temperature
-------------------	-----------------------

Description
 Displays the present heat sink temperature in °C.

ASCII -Command	TEMPM
Syntax Transmit	TEMPM
Syntax Receive	TEMPM <Data>
Type	Variable ro
Format	Integer32
DIM	Ohm
Range	0 .. 10000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	274

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Motor Temperature
-------------------	-------------------

Description

Indicates the motor temperature, in the form of the resistance of the temperature sensor (in ohms).

ASCII Object Reference SERVOSTAR™ 400/600

ASCII -Command	TEMPMW
Syntax Transmit	TEMPMW [Data]
Syntax Receive	TEMPMW <Data>
Type	rw
Format	Float
DIM	Ohm (KOhm)
Range	0.0 ... 6000.0
Default	0.0 (off)
Opmode	All
Drive Status	-
Start Firmware	5.96 / 6.25
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	2.1
EEPROM	Yes

Short Description	Motor temperature warning
-------------------	---------------------------

Description

The motor warning temperature for generate a fieldbus warning and displaying a n22 warning.
 Entry in ohms above 6000 entry in Kilohms below.

ASCII -Command	TIMEMBP
Syntax Transmit	TIMEMBP [Data]
Syntax Receive	TIMEMBP <Data>
Type	Variable rw
Format	Integer16
DIM	10 ms
Range	1 .. 6000
Default	100
Opmode	All
Drive Status	-
Start Firmware	4.04
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	402

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Number of Data Words (Command) at Modbus+
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Description

This parameter defines the time-out of the Modbus communication in 10ms steps. If the drive gets no interrupt from the board in that time, the drive is disabled and the communication in |MBPDRVSTAT| is displayed as faulty.

ASCII -Command	TRJSTAT
Syntax Transmit	TRJSTAT
Syntax Receive	TRJSTAT <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	0 .. 0xFFFFFFFF
Default	-
Opmode	All
Drive Status	-
Start Firmware	2.03
Configuration	<input type="checkbox"/>
Function Group	Drive Status2

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	275

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.5
EEPROM	No

Short Description	Status2 Information
-------------------	---------------------

Description

The TRJSTAT command returns the internal status information in hexadecimal format. The status information is primarily used for internal functions. Only the bits that are marked by an "*" can be used for external functions (control system). Bits 16 ... 20 are also mirrored in the |DRVSTAT| status variable.

Bit	Significance	Meaning
0	0x00000001	=1 the output INPOS2 is updated every msec
1	0x00000002	=1 At the end of the actual motion task, the drive outputs no IN-POSITION signal (a motion task sequence was activated).
2*	0x00000004	=1 Toggle Bit "Motion task finished". Is toggled at the end of a motion task. The toggling of the Bit is done, if the target position is reached and the profile generator is switched off. This is different to the functionality of the IN-POSITION Bit. When the drive is switched on, this Bit is set to low. (Firmware 3.41)
3...15		Reserved
16*	0x00010000	=1 Motion task active (position control) Is set, if a motion task is started(motion task, Jog, Homing). Is cleared, if a motion task has finished or is stopped (STOP).
17*	0x00020000	=1 Reference point is set, if the homing move has successfully finished or if the feedback device is a multiturn encoder. Is cleared, when a homing move is started.
18*	0x00040000	see also bit no. 21 =1 Home position Is high, if the homing switch is active, otherwise low.
19*	0x00080000	=1 In-Position Is set, if the difference between the actual position and the target position is smaller than PEINPOS . Is cleared, if the distance is greater.

20*	0x00100000	=1 Position latch activated (positive latch) Is set, if a positive edge at Latch input 2 (configured by IN2MODE =26) was detected. Is cleared, if the position is read by LATCH16 / LATCH32 .
21*	0x00200000	=1 Homing move is active Is set, if a Homing move was started. Is cleared, if the homing move is successful or stopped (STOP).
22*	0x00400000	=1 Jog move active Is set, if a Jog move is started. Is cleared, if the Jog move is stopped.
23	0x00800000	=1 Position latch activated (negative latch) Is set, if a negative edge at Latch input 2 (configured by IN2MODE =26) was detected. Is cleared, if the position is read by LATCH16N / LATCH32N .
24	0x01000000	=1 Emergency stop active Is set, if an emergency stop has occurred (DEC-phase after an error, active hardware limit switches, Input configured as Emergency stop with level low.
25	0x02000000	=1 position latch at input1 (positive transition), if a rising edge at input 1 is detected, when input1 is defined as latch input (IN1MODE =26). Is reset, if the latched position is read by LATCHX16 or LATCHX32 . (4.61 Firmware)
26	0x04000000	=1 position latch at input1 (negative transition), if a falling edge at input 1 is detected, when input1 is defined as latch input (IN1MODE =26). Is reset, if the latched position is read by LATCHX16N or LATCHX32N . (4.61 Firmware)
27		This bit shows the end of a homing process (FW >= 4.93) = 0 When starting a motion task or a reference movement = 1 At the end of a homing procedure.
28		=1 REFDONE The Bit is set if the homing is finished (reference position found and speed = 0.
29		Reserved
30		Reserved
31		Reserved

ASCII -Command	TRUN
Syntax Transmit	TRUN
Syntax Receive	TRUN <Data>
Type	Variable ro
Format	String
DIM	hhhhh:mm
Range	00000:00 to 99999:45
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.9
EEPROM	Yes	

Short Description	Run-time counter
-------------------	------------------

Description

The run-time counter shows the operating life of the amplifier (if the 24V is applied) in minutes.
 The internal resolution of the run-time counter is 1 second.
 Since the run-time counter value is included in the serial EEPROM of the amplifier, it is only updated in the EEPROM every 8 minutes. So switching off the 24V supply can cause a loss in the record of up to 8 minutes.

ASCII -Command	TRUNS
Syntax Transmit	TRUN
Syntax Receive	
Type	Variable ro
Format	String
DIM	hhhhh:mm
Range	00000:00 to 99999:45
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	276

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Run-time counter in s
-------------------	-----------------------

Description

|FW|>=6.57

The run-time counter shows the operating life of the amplifier (if the 24V is applied) in seconds.

The internal resolution of the run-time counter is 1 second.

Since the run-time counter value is included in the serial EEPROM of the amplifier, it is only updated in the EEPROM every 8 minutes. So switching off the 24V supply can cause a loss in the record of up to 8 minutes.

ASCII -Command	TXPDO1A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO1 Mapping - Setup
-------------------	-------------------------

Description

By the command TXPDO1A the listed CANopen-PDO TX-PDO 1 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Transmit -PDO 1 (2A00, 0), decimal
2. COB-Identifier for Transmit-PDO 1 (1400, 1), hexadecimal
3. Transmission type for Transmit-PDO 1 (1400, 2), decimal
4. Inhibit time for Transmit-PDO 1 (1400, 3), decimal
5. Priority group for Transmit-PDO 1 (1400, 4), decimal

example

Read the actual status: Command: TXPDO1A

Write: Command: TXPDO1A 1 0x201 255 0 2 0xFFFFFFFF 0xFFFFFFFF,
 all parameter have to be set

ASCII -Command	TXPDO1B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO1 Mapping - Setup
-------------------	-------------------------

Description

The CANopen-PDOs TX-PDO 1 mapping can be set by the command TXPDO1B (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by TXPDO1A.
 To read the actual mapping the command has to be set to: TXPDO1B
 The mapping form is: TXPDO1B 6041002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (im Beispiel 6040)
- yy Hex-number for SDO subindex (im Beispiel 00)
- z number for byte quantity in SDO setting (im Beispiel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO1B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 1.

ASCII -Command	TXPDO2A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO2 Mapping - Setup
-------------------	-------------------------

Description

By the command TXPDO2A the listed CANopen-PDO TX-PDO 2 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Transmit -PDO 2 (2A01, 0), decimal
2. COB-Identifier for Transmit-PDO 2 (1801, 1), hexadecimal
3. Transmission type for Transmit-PDO 2 (1801, 2), decimal
4. Inhibit time for Transmit-PDO 2 (1801, 3), decimal
5. Priority group for Transmit-PDO 2 (1801, 4), decimal

example

Read the actual status: Command: TXPDO2A

Write: Command: TXPDO2A 1 0x201 255 0 2 0xFFFFFFFF 0xFFFFFFFF,
 all parameter have to be set

ASCII -Command	TXPDO2B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO2 Mapping - Setup
-------------------	-------------------------

Description

The CANopen-PDOs TX-PDO 2mapping can be set by the command TXPDO2B (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by TXPDO2A.
 To read the actual mapping the command has to be set to: TXPDO2B
 The mapping form is: TXPDO2B 6041002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (im Beispiel 6040)
- yy Hex-number for SDO subindex (im Beispiel 00)
- z number for byte quantity in SDO setting (im Beispiel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO2B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 2.

ASCII -Command	TXPDO3A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO3 Mapping - Setup
-------------------	-------------------------

Description

By the command TXPDO3A the listed CANopen-PDO TX-PDO 3 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Transmit -PDO 3 (2A02, 0), decimal
2. COB-Identifier for Transmit-PDO 3 (1802, 1), hexadecimal
3. Transmission type for Transmit-PDO 3 (1802, 2), decimal
4. Inhibit time for Transmit-PDO 3 (1802, 3), decimal
5. Priority group for Transmit-PDO 3 (1802, 4), decimal

example

Read the actual status: Command: TXPDO3A

Write: Command: TXPDO3A 1 0x201 255 0 2 0xFFFFFFFF 0xFFFFFFFF,
 all parameter have to be set

ASCII -Command	TXPDO3B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO3 Mapping - Setup
-------------------	-------------------------

Description

The CANopen-PDOs TX-PDO 3mapping can be set by the command TXPDO3B (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by TXPDO3A.
 To read the actual mapping the command has to be set to: TXPDO3B
 The mapping form is: TXPDO3B 6041002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (im Beispiel 6040)
- yy Hex-number for SDO subindex (im Beispiel 00)
- z number for byte quantity in SDO setting (im Beispiel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO3B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 3.

ASCII -Command	TXPDO4A
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO4 Mapping - Setup
-------------------	-------------------------

Description

By the command TXPDO4A the listed CANopen-PDO TX-PDO 4 parameter can be selected (in brackets: corresponding SDOs by controlling via CAN):

1. Selection of the used PDO-Mappings for Transmit -PDO 4 (2A03, 0), decimal
2. COB-Identifier for Transmit-PDO 4 (1803, 1), hexadecimal
3. Transmission type for Transmit-PDO 4 (1803, 2), decimal
4. Inhibit time for Transmit-PDO 4 (1803, 3), decimal
5. Priority group for Transmit-PDO 4 (1803, 4), decimal

example

Read the actual status: Command: TXPDO4A

Write: Command: TXPDO4A 1 0x201 255 0 2 0xFFFFFFFF 0xFFFFFFFF,
 all parameter have to be set

Note: Only available with |MDRV| = 0 !

ASCII -Command	TXPDO4B
Syntax Transmit	RXPDO1A [Data]
Syntax Receive	RXPDO1A <Data>
Type	Variable rw
Format	Single Line Multi String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	5.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	Single Line Multi String
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	TX-PDO4 Mapping - Setup
-------------------	-------------------------

Description

The CANopen-PDOs TX-PDO 1 mapping can be set by the command TXPDO1B (in brackets: corresponding SDOs):
 This is only possible, if free PDO mapping was selected, for example by TXPDO1A.
 To read the actual mapping the command has to be set to: TXPDO1B
 The mapping form is: TXPDO1B 6041002

The format is different to the bus format. The syntax of the mapping-values xxxxyyz is:

- xxxx Hex-number for SDO index (im Beispiel 6040)
- yy Hex-number for SDO subindex (im Beispiel 00)
- z number for byte quantity in SDO setting (im Beispiel 2 Byte = 16 Bit)

The input of free mappable PDO is analog to the output, for example: TXPDO1B 6041002 6061001 for CANopen status word setting and the CANopen-OPMODE via TX-PDO 1.

Note: Only available with |MDRV| = 0 !

ASCII -Command	UCOMP
Syntax Transmit	UCOMP [Data]
Syntax Receive	UCOMP <Data>
Type	Variable rw
Format	Integer32
DIM	PUNIT
Range	long int
Default	0
Opmode	8
Drive Status	-
Start Firmware	2.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	305

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Backlash Compensation
-------------------	-----------------------

Description

For many applications it is necessary to approach motion block positions from one direction only (to avoid backlash errors arising from the interplay of the rack and pinion). To do this, at the start of a motion block the target position for the motion block is shifted by a correction value, and the motion block is only started for the real target value when this corrected position has been reached. The behavior of this function is controlled by the UCOMP parameter. The value of this parameter is the size of the correction, the sign shows the direction in which the correction is to be made. If the sign is positive, the correction is only made for positive velocities (i.e. the target position is always approached from the right), if it is negative, the correction is only made for negative velocities. This function is switched off if UCOMP is set to 0 (default setting).

e.g.

1. Actual position = 0, target position = 1000, UCOMP = 100 -> the drive moves to position 1100, reverses, and stops at position 1000.
2. Actual position = 1000, target position = 0, UCOMP = 100 -> the drive moves directly to position 0
3. Actual position = 1000, target position = 0, UCOMP = -100 -> the drive moves to position -100, reverses, and stops at position 0.

ASCII -Command	UID
Syntax Transmit	UID [Data]
Syntax Receive	UID <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	Int
Default	0
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	278

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	User-ID
-------------------	---------

Description

The UID variable is used to distinguish customers. Many customers already have numbers assigned.

ASCII -Command	UID1
Syntax Transmit	UID1 [Data]
Syntax Receive	UID1 <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	long int
Default	0
Opmode	-
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	308

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Unused Variable for Customer use
-------------------	----------------------------------

Description

The UID1 variable is used to store customer informations. This variable is not affected and does not affect the firmware.

ASCII -Command	UPDATE
Syntax Transmit	UPDATE [Data]
Syntax Receive	UPDATE
Type	Command
Format	-
DIM	Name
Range	ALL,USER,TABLE,PROG,PORDER,MBASE,Lookup
Default	-
Opmode	All
Drive Status	Disabled
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	-

Short Description	Program Update via RS232
-------------------	--------------------------

Description

The UPDATE command makes it possible to program the internal Flash EEPROM via the serial interface.

Procedure for a software update:

1. Connect the amplifier to the serial interface of a PC.
2. Start the terminal program HINT2.EXE COM2: 9600 (the computer should be booted in DOS mode).
This establishes the connection between the PPC and the command interpreter of the Drive. To check the connection, enter the LIST command. The response should be a list of all the available commands, shown on the screen.
3. Enter the command |UPDATE| ALL xxxx in the command line.
xxxx - Name of the firmware file that is to be programmed. Take care that the file xxx for programming is in the active directory. If no file name is entered, then the name ALL is used as a default.

Attention !!! When the drive is programmed with ALL, the loaded motion tasks are deleted. Save motion tasks before programming the firmware.

The programming takes about 40 minutes.

The addresses that are programmed are displayed during the programming procedure. If the display remains static, but the download has not been completed (this problem has been observed on several PCs), then operate the ENTER key. The programming will then carry on.
 If the programming procedure is interrupted, then the amplifier will report this in the monitor program at the next power-on (a “-” sign in the first position of the display).

In this case, the download can be restarted by the following command sequence:

X: xxxx
 xxxx - Name of the firmware file to be programmed.

Procedure for loading a motor database:

A standard motor database is included as a subset of the firmware. If a customer-specific motor database is required, then it can be loaded after the firmware has been programmed.

This requires the following command:

|UPDATE| MBASE xxxx

xxxx - Name of the motor database file that is to be programmed. Take care that the file xxx for programming is in the active directory. If no file name is entered, then the name MBASE is used as a default.

ASCII -Command	UVLTMODE
Syntax Transmit	UVLTMODE [Data]
Syntax Receive	UVLTMODE <Data>
Type	Variable rw
Format	Integer8
DIM	-
Range	0, 1
Default	1
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	1.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	279

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	Yes	

Short Description	Undervoltage Mode
-------------------	-------------------

Description
 The configuration variable UVLTMODE activates or inhibits the undervoltage monitoring of the amplifier.
 If the monitoring is activated (UVLTMODE=1), then the fault message F05 (undervoltage) is generated as soon as the DC-bus voltage falls below the undervoltage threshold |VBUSMIN| and the output stage is eabled.

ASCII -Command	V
Syntax Transmit	V
Syntax Receive	V <Data>
Type	Variable ro
Format	Integer32
DIM	MUNIT
Range	-15000 .. 15000
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	40
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	280

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Actual Velocity
-------------------	-----------------

Description
 The present velocity of the motor.

ASCII -Command	VBUS
Syntax Transmit	VBUS
Syntax Receive	VBUS <Data>
Type	Variable ro
Format	Integer32
DIM	Volts
Range	0 .. 900
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	380
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	282

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	DC-bus voltage
-------------------	----------------

Description

The present voltage of the DC-bus.

ASCII -Command	VBUSBAL
Syntax Transmit	VBUSBAL [Data]
Syntax Receive	VBUSBAL <Data>
Type	Variable rw
Format	Integer16
DIM	-
Range	0, 1, 2
Default	2
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	283

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Maximum Line Voltage
-------------------	----------------------

Description

This setting is for the maximum permissible voltage for the motor. For instance, if a motor that is rated for a 400V supply is connected to the amplifier, then the setting must be VBUSBAL = 1 (400V). This sets regen and overvoltage thresholds in the amplifier to acceptable values for the motor. This ensures that the motor windings are not damaged.

If several amplifiers are connected to the supply with the DC-buses in parallel, then they must all have the same value for VBUSBAL. It must therefore be set to suit the motor with the lowest voltage rating.

- VBUSBAL=0 (230 V) |VBUSMAX|=450V
- VBUSBAL=1 (400 V) |VBUSMAX|=800V
- VBUSBAL=2 (480 V) |VBUSMAX|=900V

The setting for the drive 40xM is limited to 0 (230V). The default setting is also 0.
 The setting for the drive 44xM is limited to 0 (400V). The default setting is also 1.

VBUSBAL also changes |DICONT| and |DIPEAK| at following drive types (starting with firmware 4.94):

VBUSBAL = 0

- 443 |DICONT| = 3 |DIPEAK| = 9
- 446 |DICONT| = 6 |DIPEAK| = 12

VBUSBAL = 1

- 443 |DICONT| = 2 |DIPEAK| = 6
- 446 |DICONT| = 4 |DIPEAK| = 8

VBUSBAL = 2

- 443 not possible
- 446 not possible

ASCII -Command	VBUSMAX
Syntax Transmit	VBUSMAX
Syntax Receive	VBUSMAX <Data>
Type	Variable ro
Format	Integer32
DIM	Volts
Range	450, 800, 900
Default	
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	284

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Maximum DC-bus Voltage
-------------------	------------------------

Description

The VBUSMAX parameter shows the value for the monitoring threshold for the fault message F02 (overvoltage). This fault message is generated as soon as the DC-bus voltage goes above the value of VBUSMAX. The VBUSMAX threshold depends on the setting for |VBUSBAL|.

- |VBUSBAL|=0 (230 V) VBUSMAX=450V
- |VBUSBAL|=1 (400 V) VBUSMAX=800V
- |VBUSBAL|=2 (480 V) VBUSMAX=900V

ASCII -Command	VBUSMIN
Syntax Transmit	VBUSMIN [Data]
Syntax Receive	VBUSMIN <Data>
Type	Variable rw
Format	Integer16
DIM	Volts
Range	30 .. 800
Default	100
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	285

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Minimum DC-bus Voltage
-------------------	------------------------

Description

VBUSMIN defines the lower threshold for monitoring the DC-bus voltage. The fault message F05 (undervoltage) is generated as soon as the DC-bus voltage goes below this threshold. Undervoltage monitoring is only active under the following conditions.

1. Output stage is enabled
2. Monitoring is activated |UVLTMODE|=1
3. MAINSBTB function is not active (|OxMODE|<3)
4. The switch-off of the monitoring function by a digital input (|INxMODE|=21) is not active.

ASCII -Command	VBW
Syntax Transmit	VBW
Syntax Receive	VBW
Type	Command
Format	-
DIM	-
Range	0
Default	0
Opmode	0
Drive Status	Enabled
Start Firmware	2.44
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	1.3
EEPROM	-

Short Description	Generate Bode Diagram
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Description

VBW [fmin] [fmax] [sample]

Velocity BandWidth

Using the function VBW the Drive calculates a velocity loop Bode plot. Default are 50 samples (sample) between 20 Hz (fmin) and 500 Hz (fmax). Output are the gain in db and the phase shift in degree of the open loop and the closed loop of the velocity controller. It is necessary to set |GVFR| to 1 to get the open loop result. Using |MSG| 2 the results are immediately shown. Standard is to query the data with the |GET| command. To use the function VBW the drive should be in |OPMODE| 0 and enabled. The shaft will move only a few degree. In case of resonance load velocity overshoot can cause a Fault which can result in an uncontrolled coasting of the motor.

ASCII -Command	VCMD
Syntax Transmit	VCMD
Syntax Receive	VCMD <Data>
Type	Variable ro
Format	Float
DIM	MUNIT
Range	-VMAX .. VMAX
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Actual values

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	286

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	No

Short Description	Internal Velocity command in RPM
-------------------	----------------------------------

Description

The VCMD variable contains the internal velocity command (after the ramp generator) in RPM.
 Depending on the operating mode that is set (|OPMODE|=0), this value is either provided directly and digitally (fieldbus, slot card) or derived from the analog velocity command (|OPMODE|=1).
 For operating modes that do not use a velocity control loop (|OPMODE|=2,3) the VCMD variable has the value V of the actual velocity.

ASCII -Command	VCOMM
Syntax Transmit	VCOMM [Data]
Syntax Receive	VCOMM <Data>
Type	Variable rw
Format	Float
DIM	rpm
Range	0 .. 1.2 * MSPEED
Default	1500
Opmode	All
Drive Status	-
Start Firmware	3.35
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	346

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.4
EEPROM	Yes	

Short Description	Velocity Threshold for Commutation error
-------------------	--

Description

The command VCOMM defines the threshold for the commutation error function. The definition of an commutation error is that the sign of the actual current has the right relationship to the sign of the change of the velocity of the motor. This indicates a run-away of the motor and causes a disable of the output stage.

This commutation error is supervised, if the actual velocity is above the VCOMM threshold. To disable the function, VCOMM has to be set to |VLIM|.

ASCII -Command	VCTAB
Syntax Transmit	VCTAB [Data]
Syntax Receive	VCTAB <Data> <Data> <Data>
Type	Variable rw
Format	Integer8 Integer16 Integer32
DIM	-
Range	0 .. 7, 0 .. +/- VLIM, +/- IPEAK
Default	0
Opmode	0, 1
Drive Status	-
Start Firmware	2.42
Configuration	<input type="checkbox"/>
Function Group	-

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	No

Short Description	Define a VCT Entry
-------------------	--------------------

Description

The VCTAB command is used for the definition /display of the VC table (velocity/current table). The VC table contains 8 velocity/current pairs (VCT entries).

A VCT entry can be activated either from the digital inputs or by an ASCII or SDO command. When a VCT entry is activated, the velocity value that has been entered is taken as a digital velocity command (only possible with |OPMODE|=0). The current value from the VCT entry is taken as the current limit. With analog velocity command provision (|OPMODE|=1), the velocity command is ignored, but the current value is still used as the current limit. The VC table is not saved in the serial EEPROM, but in the Flash EEPROM (motion task segment). For this reason, changes to the table entries can only be made while the output stage is disabled.

The VCTAB command can be used in one of three different forms:

1. VCTAB nr vsetp ilimit
 This command initializes the VCT entry “nr” with the velocity command “vsetp” and the current limit “ilimit”.
 nr <0 ... 7>
 vsetp <-16000 RPM ... 16000 RPM>
 ilimit <0 100000 mA>

The command can only be used in this form while the output stage is disabled.

2. VCTAB nr
 This command is used to output the contents of the VCT entry “nr”.
 The output is made in the format VCTAB nr vsetp ilimit.

3. VCTAB
 This command is used to output the contents of the VCT table via the RS232 interface.
 The output consists of 8 lines in the following form:
 VCTAB nr vsetp ilimit

See also description of the |SETVCT| and |INxMODE| commands.

ASCII -Command	VDUMP
Syntax Transmit	VDUMP
Syntax Receive	VDUMP <Data>
Type	Multi-line Return Command
Format	String
DIM	-
Range	-
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	287

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	-

Short Description	List all Velocity Controller Variables
-------------------	--

Description
 A listing of all the parameters for the velocity control loop.

ASCII -Command	VELO
Syntax Transmit	VELO [Data]
Syntax Receive	VELO <Data>
Type	Variable rw
Format	Float
DIM	-
Range	
Default	5
Opmode	All
Drive Status	
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	288

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Standstill Threshold
-------------------	----------------------

Description

The VELO (Velocity "0") parameter defines the velocity threshold (in RPM) for the standstill signal. The standstill signal is required for the following functions:

1. Standstill signal in the status register |DRVSTAT|.
2. If motor brake is used (|MBRAKE| = 1), the brake will only engage if actual speed < VELO (when the drive is externally disabled)
3. If the |ACTFAULT| option is activated (active braking in the event of a fault), or the |STOPMODE| option (active braking if the output stage is disabled), then the standstill threshold defines the velocity below which the output stage will actually be disabled.

ASCII -Command	VER
Syntax Transmit	VER [*]
Syntax Receive	VER <Data>
Type	Variable ro
Format	String
DIM	-
Range	max 50 ASCII Characters
Default	-
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Basic Setup

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input type="checkbox"/>
PROFIBUS	<input type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10^3	

Last Change of this Object		1.3
EEPROM	No	

Short Description	Firmware Version
-------------------	------------------

Description

The command VER returns the version designation and the date of creation for the firmware.
 The expanded form of the command (VER *) returns a version list for the various firmware and hardware components.

- Version of the basic firmware
- Hardware revision
- CPLD version
- FPGA version (this version designation labels the type of FPGA program that is loaded, and can vary according to the equipment configuration), see [FPGA], [GEARMODE].
- CAN: firmware version
- Version of the motor database (MDB)
- Profibus/Sercos firmware version

ASCII -Command	VEXTRES
Syntax Transmit	VEXTRES [Data]
Syntax Receive	VEXTRES <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0 .. 127
Default	1
Opmode	All
Drive Status	-
Start Firmware	4.74
Configuration	<input type="checkbox"/>
Function Group	--

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	404

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object		1.6
EEPROM	Yes	

Short Description	Adjustment of the speed of the external Encoder
-------------------	---

Description

VEXTRES is used if |EXTPOS| = 1 (position information of an external encoder for the position controller), and |VMIX| is < 1 (the speed of the external encoder is also used for the speed controller). It gives the gear factor to the drive.

VEXTRES changes the scaling of the speed of an external encoder.

For example:

1. Gearing factor 12 : 1, means 1 motor turn for 12 encoder turns, then VEXTRES = 12
2. Gearing factor 1 : 12, means 12 motor turn for 1 encoder turns, then VEXTRES = 0.083

VEXTRES can have up to 3 fractional digits.

ASCII -Command	VF
Syntax Transmit	VF
Syntax Receive	VF <Data>
Type	Variable ro
Format	Float
DIM	(>MUNIT)
Range	-15000 .. 15000
Default	-
Opmode	All
Drive Status	-
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	353

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.5
EEPROM	No

Short Description	Actual Velocity in Floating Point Format
-------------------	--

Description
 The present velocity of the motor in floating point format.

ASCII -Command	VJOG
Syntax Transmit	VJOG [Data]
Syntax Receive	VJOG <Data>
Type	Variable rw
Format	Integer32
DIM	see VUNIT
Range	0 ... VLIM/VLIMN
Default	10000
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	289

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Speed for Jog Mode
-------------------	--------------------

Description

VJOG is effectively an endless motion task (OPMODE 8 only), and is implemented by the internal position control loop. The sign for the speed indicates the direction for jog operation. The scaling of the velocity is given in position control loop units, and depends on the |PGEARI| and |PGEARO| parameters.

ASCII -Command	VLIM
Syntax Transmit	VLIM [Data]
Syntax Receive	VLIM <Data>
Type	Variable rw
Format	Float
DIM	(> VUNIT)
Range	0.0 .. MSPEED
Default	3000
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	91
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	290

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Max. Velocity
-------------------	---------------

Description

The VLIMN parameter defines the maximum velocity for the negative direction (velocity control loop) in units defined by |VUNIT|. VLIM is also used for limiting the following parameters:

1. |MVANGLB| <= 0.9*VLIM
2. |MSPEED| >= VLIM
3. |PVMAX| <= (VLIM * |PGEARI| * 2^|PRBASE|) / (60 * |PGEARO|)

When used together with the |VLIMN| parameter, it is possible to implement a directionally-dependent rotational velocity limit. The VLIM command determines the maximum velocity for both positive and negative directions. By making a subsequent entry for |VLIMN|, the limit for the negative direction can be set separately.

ASCII -Command	VLIMN
Syntax Transmit	VLIMN [Data]
Syntax Receive	VLIMN <Data>
Type	Variable rw
Format	Float
DIM	(> VUNIT)
Range	0.0 .. MSPEED
Default	3000
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	39
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	291

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Max. Negative Velocity
-------------------	------------------------

Description

The VLIMN parameter defines the maximum velocity for the negative direction (velocity control loop) in units defined by |VUNIT|. VLIMN is also used for limiting |PVMAXN|:
 $PVMAXN \leq (VLIMN * |PGEARI| * 2^{PRBASE}) / (60 * |PGEARO|)$

When used together with the |VLIM| parameter, it is possible to implement a directionally-dependent rotational velocity limit. The |VLIM| command determines the maximum velocity for both positive and negative directions. By making a subsequent entry for VLIMN, the limit for the negative direction can be set separately.

ASCII -Command	VLO
Syntax Transmit	VLO [Data]
Syntax Receive	VLO <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 5.0
Default	1.0
Opmode	All
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	317

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Software Resolver/Digital Converter Feedforward
-------------------	---

Description

VLO is a parameter of the Luenberger Velocity Observer. To reduce the delay of the derivation (the observer can be served with the torque component of the current. The effective inertia is estimated by the gain of the velocity loop |GV|. Setting VLO to zero the acceleration will not influence the observer. With a value of 1 the acceleration is full enabled. With VLO 0.5 the observer will use 50% of the acceleration torque. Reducing VLO can result in an instable velocity loop.

ASCII Object Reference SERVOSTAR™ 400/600

ASCII -Command	VMAX
Syntax Transmit	VMAX
Syntax Receive	VMAX <Data>
Type	Variable ro
Format	Float
DIM	RPM
Range	00 .. 12000.0
Default	-
Opmode	0, 1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in			
MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	292

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.8
EEPROM	No

Short Description	Maximum System Speed
-------------------	----------------------

Description

VMAX returns the maximum speed that can be reached by the amplifier/motor combination as set by ([MSPEED]).

ASCII -Command	VMIX
Syntax Transmit	VMIX [Data]
Syntax Receive	VMIX <Data>
Type	Variable rw
Format	Float
DIM	-
Range	0.0 .. 1.0
Default	1.0
Opmode	All
Drive Status	-
Start Firmware	1.78
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	293

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Velocity Mix: Feedback / external Encoder
-------------------	---

Description

If an external encoder is used for position control |EXTPOS|=1 the commutation and speed control uses the feedback device of the motor (feedback device selected by |FBTYPE|).

VMIX sets the ratio of the motor feedback and external device used by the speed controller.

e.g.

VMIX=1.0 Velocity exclusively from the feedback device selected by |FBTYPE| (100 %)

VMIX=0.5 50 % feedback device selected by |FBTYPE| / 50 % external encoder

VMIX is available if |FILTMODE| = 0 or 1.

VMIX is available only in position mode |OPMODE| = 8

ASCII -Command	VMUL
Syntax Transmit	VMUL [Data]
Syntax Receive	VMUL <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 65535
Default	1
Opmode	All
Drive Status	-
Start Firmware	1.73
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	294

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Velocity Scale Factor
-------------------	-----------------------

Description
 VMUL is required by many fieldbus systems (PROFIBUS >>> Jogmode and homing,CANBUS >>> Jogmode and Motion Task 0), since some fieldbus protocols only permit speed values in 16-bit format.The VMUL parameter is used to scale the speed (position control loop) for jog mode and motion tasks. This scaling factor can then be used to expand the 16-bit speed value from the fieldbus to give the internal 32-bit value.

See also: manual for PROFIBUS, CANBUS

ASCII -Command	VOSPD
Syntax Transmit	VOSPD [Data]
Syntax Receive	VOSPD <Data>
Type	Variable rw
Format	Float
DIM	rpm
Range	0.0 .. 1.2*MSPEED
Default	3600
Opmode	All
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	velocity

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3021
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	295

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.3
EEPROM	Yes

Short Description	Overspeed
-------------------	-----------

Description
 The VOSPD parameter sets the overspeed threshold. As soon as the actual velocity exceeds this limit, the fault message F08 (overspeed) is generated and the output stage is disabled.

ASCII -Command	VREF
Syntax Transmit	VREF [Data]
Syntax Receive	VREF <Data>
Type	Variable rw
Format	Integer32
DIM	(> PUNIT)
Range	0 ... VLIM/VLIMN
Default	10000
Opmode	8
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Setting-up Mode

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	41
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	296

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	Yes

Short Description	Speed for Homing
-------------------	------------------

Description

The VREF is used to define the velocity value (VREF>0) for homing to a reference. The direction of the reference is taken from the |DREF| variable.
 The scaling of the velocity is given in position control loop units, and depends on the |PGEARI| and |PGEARO| parameters.

ASCII -Command	VREF0
Syntax Transmit	VREF0 [Data]
Syntax Receive	VREF0 <Data>
Type	Variable rw
Format	Float
DIM	%
Range	0.01 .. 2.0
Default	0.125
Opmode	8
Drive Status	-
Start Firmware	4.78
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	408

Data Type BUS/DPR	Integer32
Weighting 10 ³	*

Last Change of this Object	1.5
EEPROM	Yes

Short Description	Homing Mode Reduction factor
-------------------	------------------------------

Description

The parameter VREF0 reduces the homing speed, after the load reaches e.g. the reference switch, while searching for a zero pulse. The selection of the source of the zero pulse can be selected by [REFMODE]. The second homing speed can be reduced by VREF0 in % of [VREF].

Example 1:

[REFMODE]=1 Zero pulse via digital input 1
 [NREF]=1 Homing move with reference switch with zero pulse
 [VREF]=10000 Homing speed 10000 µm/sec
 VREF0=0.2 Reduction of the speed to 2000 µm/sec

Starting a homing move, the drive starts to find the reference switch with the speed of 10000 µm/sec. If the reference switch was found, the speed is reduced to 2000 µm/sec and then the search for the zero pulse is started. If the zero pulse was recognised at digital input 1 (high level), the homing move is stopped.

Example 2:

[REFMODE]=2 Zero pulse via digital input 2
 [NREF]=5 Zero pulse in one turn of the motor
 [VREF]=10000
 VREF0=0.2

The criteria for the search of the zero pulse is fulfilled, so the reference move is directly started with 2000 µm/sec.

ASCII -Command	VSCALE1
Syntax Transmit	VSCALE1 [Data]
Syntax Receive	VSCALE1 <Data>
Type	Variable rw
Format	Integer16
DIM	(>VUNIT)
Range	-15000 .. 15000
Default	3000
Opmode	1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	297

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	analog input 1 Velocity Scaling Factor
-------------------	--

Description

If the analog input 1 is used as the command input for velocity control, then the VSCALE1 parameter can be used to set the scaling of the input voltage.
 A 10V velocity command input at input analog input 1 produces a velocity of VSCALE1.

ASCII -Command	VSCALE2
Syntax Transmit	VSCALE2 [Data]
Syntax Receive	VSCALE2 <Data>
Type	Variable rw
Format	Integer16
DIM	(> VUNIT)
Range	-15000 .. 15000
Default	3000
Opmode	1
Drive Status	-
Start Firmware	1.20
Configuration	<input type="checkbox"/>
Function Group	Analog I/O

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	298

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	analog input 2 Velocity Scaling Factor
-------------------	--

Description

If the analog input 2 is used as the command input for velocity control, then the VSCALE2 parameter can be used to set the scaling of the input voltage.
 A 10V velocity command input at analog input 2 produces a velocity of VSCALE2.

ASCII -Command	VSTFR
Syntax Transmit	VSTFR [Data]
Syntax Receive	VSTFR <Data>
Type	Variable rw
Format	Float
DIM	VUNIT
Range	0 .. 230 UPM
Default	0
Opmode	0,1,4,5,6,7,8
Drive Status	-
Start Firmware	4.96
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	421

Data Type BUS/DPR	Integer32
Weighting 10^3	*

Last Change of this Object	1.7
EEPROM	Yes

Short Description	Velocity for max. Friction Compensation
-------------------	---

Description

VSTFR gives the velocity, where the |ISTFR| is added to the velocity controller. The friction compensation is enabled by |ISTFR|.

- V=0 -> IFRICT = 0
- V= 50% of VSTFR -> IFRICT = 50% of |ISTFR|
- V>=VSTFR -> IFRICT = |ISTFR|
- V= -50% of VSTFR -> IFRICT = -50% of |ISTFR|
- V<=-VSTFR -> IFRICT = -|ISTFR|

ASCII -Command	VUNIT
Syntax Transmit	VUNIT [Data]
Syntax Receive	VUNIT <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 8
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	4.00
Configuration	<input checked="" type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	351

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.8
EEPROM	Yes

Short Description	Systemwide Definition of Velocity / Speed
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Description

VUNIT gives the systemwide definition of velocity / speed resolution. This parameter effects all parameters that are related to the velocity and the position controller.

VUNIT = 0 the speed controller uses RPM and the position controller uses µm/sec.
This setting was standard for firmware < 4.00.

- VUNIT = 1 Unit = RPM
- VUNIT = 2 Unit = Rad/Sec
- VUNIT = 3 Unit = Degree/Sec
- VUNIT = 4 Unit = internal Counts/250 µsec
- VUNIT = 5 Unit = |PUNIT| / Sec
- VUNIT = 6 Unit = |PUNIT| / Min
- VUNIT = 7 Unit = 1000 * |PUNIT| / Sec
- VUNIT = 8 Unit = 1000 * |PUNIT| / Min

Remark:

- All parameters that are related to velocity controller have a fixed format of 32 Bit with 3 fractional digits. This causes a problem with some of the VUNIT settings (especially VUNIT=6), related to the resolution of the position controller (|PGEARI|), that not the full range of speed can be used. Under this condition, a different setting of VUNIT is necessary.
- All parameters that are related to speed controller have a fixed format of 32 Bit with no fractional digits. This causes a problem with some of the VUNIT settings (especially VUNIT=3) to give fractional digits. Under this condition, a different setting of VUNIT is necessary.

Definition of the Calculation factors

- VUNIT=1 1 RPM = 1048576*32/(4000*60) ≈~ 139.8 Counts
- VUNIT=2 1 Rad/sec = 1048576*32/(4000*2*PI) ≈~ 1335 Counts
- VUNIT=3 1 Deg/sec = 1048576*32/(4000*360) ≈~ 23.3 Counts
- VUNIT=4 1 internal Counts/250µs = 32 Counts
- VUNIT=5 1 |PUNIT| / sec = |PGEARO| / (125 * |PGEARI|)
- VUNIT=6 1 |PUNIT| / min = (|PGEARO| * 60) / (125 * |PGEARI|)
- VUNIT=7 1000 |PUNIT| / sec = |PGEARO| / (125 * |PGEARI| * 1000)
- VUNIT=8 1000 |PUNIT| / min = (|PGEARO| * 60) / (125 * |PGEARI| * 1000)

ASCII -Command	WMASK
Syntax Transmit	WMASK [Data]
Syntax Receive	WMASK <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 4294967295 (1 Bit is 1 warning)
Default	0
Opmode	All
Drive Status	-
Start Firmware	2.49
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input checked="" type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	318

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.7
EEPROM	No

Short Description	Warning as Fault Mask
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Description

The WMASK parameter can be used to reconfigure a warning to the fault message F24. WMASK is a bit-variable, with bit assignments that correspond to the |STATCODE *| status variable. The bit that is set within the WMASK variable means that the corresponding warning bit in the |STATCODE *| variable should generate an F24 fault message, as well as a warning. Unlike warnings, a fault message results in the disabling of the output stage, and the opening of the RTO contact.

A reconfiguration can be especially relevant for changing a following error n03 (this is normally indicated as a warning) to a fault. The value has to be entered in decimal.

See also |LASTWMASK|

ASCII -Command	WPOS
Syntax Transmit	WPOS
Syntax Receive	WPOS <Data>
Type	Variable ro
Format	Integer8
DIM	-
Range	0, 1, 2
Default	0
Opmode	All
Drive Status	Disabled + Reset (Coldstart)
Start Firmware	3.20
Configuration	<input checked="" type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3041
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	310

Data Type BUS/DPR	Integer8
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	No

Short Description	Enable Position Registers
-------------------	---------------------------

Description

In addition to the existing software limit-switches/position thresholds (|SWCNFG| / |SWCNFG2|) there is additional option for monitoring positions using WPOS.

Unlike |SWCNFG| / |SWCNFG2| this monitoring function operates in a deterministic manner. Going above/below a position is detected and signaled within 1 millisecond. With WPOS the position monitoring can be done either continuously or once.

The fast position registers are enabled by WPOS.

WPOS=0 Position register disabled

WPOS=1 Position register enabled, no spontaneous CAN message on change of status.

WPOS=2 Position register enabled, spontaneous CAN message on change of status (this setting is only via CAN-Bus possible).

????????????????????????????????

Changes to the WPOS variable between 0 and >0 can only be made offline (|SAVE| and |COLDSTART|), a change between 1 and 2 can also be made online.

????????????????????????????????

There are 16 position registers P1 ... P16, that can be configured with the help of 3 control variables. The state of each position register is indicated through a status variable. All control/status variables are 32-bit, only the lower 16 bits (bits 0 ... 15) are used for the position registers P1 ... P16.

Control variables:

|WPOSE| Enable/disable a position register

Bit=0 the corresponding position register is not monitored

Bit=1 the position register is monitored

|WPOSP| Polarity for the position signaling

Bit=0 Position signal is generated on going above/beyond (overrun) the position

Bit=1 Position signal is generated on going below/behind (underrun) the position

|WPOSX| – Type of position monitoring

Bit=0 position is monitored continuously

Bit=1 position is monitored once. When the position signal is generated, the corresponding enable bit (WPOSE) is set to 0, so that the monitoring is disabled for this position register,

Status variable:

|POSRSTAT| (z_data.Posrstat) – Position signaling

Bit=0 position signaling inactive

Bit=1 position signaling active (position overrun for |WPOSP|=0 or underrun for |WPOSP|=1).

Position register:

The position registers 1 to 16 can be accessed by the ASCII command P1 ... P16. Position values are displayed in the same units as the position control loop (|PGEARI| / |PGEARO| conversion).

The variables that are required for the fast position registers (|WPOSE|, |WPOSP|, |WPOSX|, P1 ... P16) can be saved in the serial EEPROM by using the SAVE command. Those position registers P1 ... P16 which are not used should be set to 0 (since the default value for a position register is 0, no space will be occupied in the serial EEPROM).

The individual position signals from the status register |POSRSTAT| can be output from the digital outputs of the motherboard.

|OxMODE|=40

This function is used to produce the result of a logical OR operation (on the bit-variable |POSRSTAT| and a bit-mask from the auxiliary variable |OxTRIG|) at the digital output x.

|OxMODE|=41

This function is used to produce the result of a logical AND operation (on the bit-variable |POSRSTAT| and a bit-mask from the auxiliary variable |OxTRIG|) at the digital output x.

ASCII -Command	WPOSE
Syntax Transmit	WPOSE
Syntax Receive	WPOSE <Data>
Type	Variable ro
Format	Integer32
DIM	-
Range	0 ..65535
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3042
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	319

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object		1.6
EEPROM	No	

Short Description	Enable Fast Position Registers 1 ... 16
-------------------	---

Description

The bit-variable WPOSE is used to configure the fast position registers P1 ... P16 individually. The WPOSE variable can be considered as a 32-bit variable, whereby the lower 16 bits (bits 0 ... 15) are used for the configuration of the position registers P1 ... P16.

- Bit=0 the corresponding position register is not monitored
 - Bit=1 the position register is monitored
- See also |WPOS|

ASCII -Command	WPOSP
Syntax Transmit	WPOSP [Data]
Syntax Receive	WPOSP <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 65535
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3043
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	320

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	No

Short Description	Polarity of Fast Position Registers 1 ... 16
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Description

The bit-variable WPOSP is used to configure the fast position registers P1 ... P16 individually. The WPOSP variable can be considered as a 32-bit variable, whereby the lower 16 bits (bits 0 ... 15) are used for the configuration of the position registers P1 ... P16.

- Bit=0 Position signal is generated on going above/beyond (overrun) the position
- Bit=1 Position signal is generated on going below/behind (underrun) the position

See also |WPOS|

ASCII -Command	WPOSX
Syntax Transmit	WPOSX [Data]
Syntax Receive	WPOSX <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 65535
Default	0
Opmode	All
Drive Status	-
Start Firmware	3.20
Configuration	<input type="checkbox"/>
Function Group	-

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input checked="" type="checkbox"/>

SERCOS IDN:	P 3044
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	321

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.6
EEPROM	No

Short Description	Mode of Fast Position Registers 1 ... 16
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Description

The bit-variable WPOSX can be used to configure the fast position registers P1 ... P16 individually. The WPOSX is a 32-bit variable variable, only the lower 16 bits (bits 0 ... 15) are used for the configuration of the position registers P1 ... P16.

Bit=0 position is monitored continuously

Bit=1 position is monitored once. If the position signal is reached, the corresponding enable bit (!WPOSE!) is set to 0, and the monitoring is disabled for this position register,

See also |WPOS|

ASCII -Command	WSAMPL
Syntax Transmit	WSAMPL [Data]
Syntax Receive	WSAMPL <Data>
Type	Variable rw
Format	Integer32
DIM	-
Range	0 .. 2^31-1
Default	0
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	465

Data Type BUS/DPR	Integer32
Weighting 10^3	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Minimum Move of W&S Mode
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Description

WSAMPL sets the minimum movement for W&S - function in |FBTYPE| = 7 and 8. The units are internal counts. If WSAMPL = 0, the calculation is automatically done with |ENCLINES|.

see also |WSLOOP|

ASCII -Command	WSLOOP
Syntax Transmit	WSLOOP [Data]
Syntax Receive	WSLOOP <Data>
Type	rw
Format	Integer16
DIM	-
Range	1 ... 50
Default	5
Opmode	AI
Drive Status	-
Start Firmware	5.82
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	482

Data Type BUS/DPR	Integer16
Weighting 10^3	

Last Change of this Object	2.0
EEPROM	Yes

Short Description	
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Description
 Max. number of Wake&Shake repeats |MPHASE| is calculated as mean value of all W&S repeats

see also |WSAMPL|

ASCII -Command	WSTIME
Syntax Transmit	WSTIME [Data]
Syntax Receive	WSTIME <Data>
Type	Variable rw
Format	Integer16
DIM	msec
Range	0 .. 100
Default	0
Opmode	All
Drive Status	-
Start Firmware	5.41
Configuration	<input type="checkbox"/>
Function Group	

Available in

MMI	<input type="checkbox"/>	CAN-Bus	<input checked="" type="checkbox"/>
PROFIBUS	<input checked="" type="checkbox"/>	Sercos	<input type="checkbox"/>

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	464

Data Type BUS/DPR	Integer16
Weighting 10 ³	

Last Change of this Object	1.9
EEPROM	Yes

Short Description	Action Time of the W&S - Funktion
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Description

WSTIME defines the operation time of the W&S - function in |FBTYPE| = 7 and 8. The different current vectors are switched on for this time and the move distance is proportional to the WSTIME value. See also |WSAMPL|. If WSTIME is set to "0", the calculation depends on the value of |GV| and is done automatically.

These are

|GV|<=200 --> 1 msec scan

|GV|<=450 --> 2 msec scan

|GV|<=800 --> 3 msec scan

ASCII -Command	ZERO
Syntax Transmit	ZERO [Data]
Syntax Receive	ZERO <Data>
Type	w
Format	-
DIM	-
Range	-
Default	
Opmode	2
Drive Status	
Start Firmware	4.00
Configuration	<input type="checkbox"/>
Function Group	

Available in
 MMI CAN-Bus
 PROFIBUS Sercos

SERCOS IDN:	
CAN Object No:	
PROFIBUS PNU:	
DPR Objekt Nr:	

Data Type BUS/DPR	-
Weighting 10 ³	

Last Change of this Object	-
EEPROM	-

Short Description	Automatic commutation angle measurement
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Description

The command ZERO starts the automatic commutation angle measurement.
 The motor shaft should be free of load and be able to rotate.
 The value |REFIP2| can additional be used to set the motor current for this measurement.

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Europe

Danaher Motion Customer Support Europe

E-Mail support_dus.germany@danahermotion.com

Internet www.DanaherMotion.net

Tel.: +49(0)203 - 99 79 - 0

Fax: +49(0)203 - 99 79 - 216

North America

Danaher Motion Customer Support North America

Internet www.DanaherMotion.com

E-Mail DMAC@danahermotion.com

Phone: +1 - 540 - 633 - 3400

Fax: +1 - 540 - 639 - 4162

