

# MOVIDYN® Servo Controller

## Parameter List

Edition 07/97



16/042/95

0921 2868 / 0797



# SEW EURODRIVE

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## 1 Notes on Using the Parameter List

### 1.1 General

The MOVIDYN<sup>®</sup> servo controller parameters can be set via three different serial interfaces:

- RS-485 link to the power supply module (terminal X02)
- RS-232 link to the power supply module
  - 9-pin type D connector X01 or
  - USS11A (FIS)
- RS-232 link to the axis module option pcb

The above interfaces provide access to all adjustable parameters and process values of the unit. This requires a special software protocol, as used by the user interface MD\_SHELL. Access to the parameters is achieved by transmitting specific messages (frames) from the higher-level control system (PC, PLC, etc.) to the controller. The structure, meaning and use of these messages is described in the SEW documentation "MOVIDYN<sup>®</sup> Communications Interfaces". This document gives a description of the individual parameters only, since their description is independent of the method and means of their transmission.

### 1.2 Parameter List Structure

The different servo controller parameters and their characteristics are described in Section 3 as follows:

Index:xxx	Menu:xxx	Parameter description	
Minimum:- Maximum:-	Step size and range:-	Access: Format:	R/W A

#### Index:

Each parameter is addressed by an index which is uniquely assigned to it. The index numbers are given in decimal notation and sorted in ascending order. The indices which are given refer to communication via the serial interfaces.

If communication is via **fieldbus**, 1000<sub>dec</sub> is added to the respective index.

#### Menu:

This position gives the menu number which is assigned to the parameter in the MD\_SHELL user interface.

#### Parameter designation:

Designation and physical unit of the parameter.

#### Minimum:

Smallest possible value which the parameter can have.

**Maximum:**

Largest possible value which the parameter can have.

**Step size and range:**

Each parameter can only take certain definite values between its minimum and its maximum, i.e. the value changes in steps of a defined size. In some cases it is possible to change the value of a parameter in differently sized steps. In this case the corresponding step size is given for each range of values. If the step sizes are ignored and intermediate values are transmitted, then it is not possible to guarantee fault-free operation of the unit.

**Meaning:**

For some parameters, each numerical value indicates a specific (unit) function or a particular meaning, (e.g. terminal assignment or unit status). All the possible functions and their corresponding numerical values are listed in this part of the description.

**Access:**

Indicates the access rights to the parameter.

- “R” (“Read”) indicates that the parameter can be read.
- “W” (“Write”) indicates that the parameter can be written to.

**Format:**

Indicates the transmission format for that parameter .  
These data formats are explained in Section 2.

- “A” stands for BCD format.
- “B” stands for bit format.
- “C” stands for hex format.

**1.3 Versions / Modification Documentation**

The following list describes the changes, which have been made as a result of software extensions. The actual parameter list always comprises all the available parameters (and their ranges). It will then depend on the unit version and the options fitted whether a particular parameter can be addressed.

Edition 1 / 96	MKS 51A - ...-00 MAS 51A - ...-00	MKS 51A - ... -50 MAS 51A - ... -50
	Version 15 (without Section 3.4)	Version 71 (incl. Section 3.4)

## 2 Data Formats

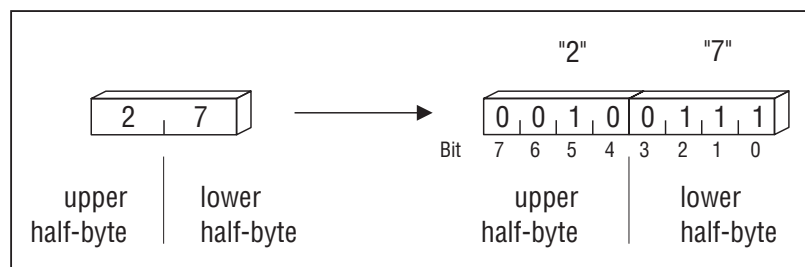
The transmission of the parameter values via the serial interfaces is made in a numerical format. All “text strings”, such as YES, NO, ON, OFF etc. are given numerical values, which are specified in the following list for each parameter.

The parameter values are transmitted by means of special data messages which are described in detail in the “MOVIDYN® Communications Interfaces” documentation. There are three different formats of data transmission:

### 2.1 Format A

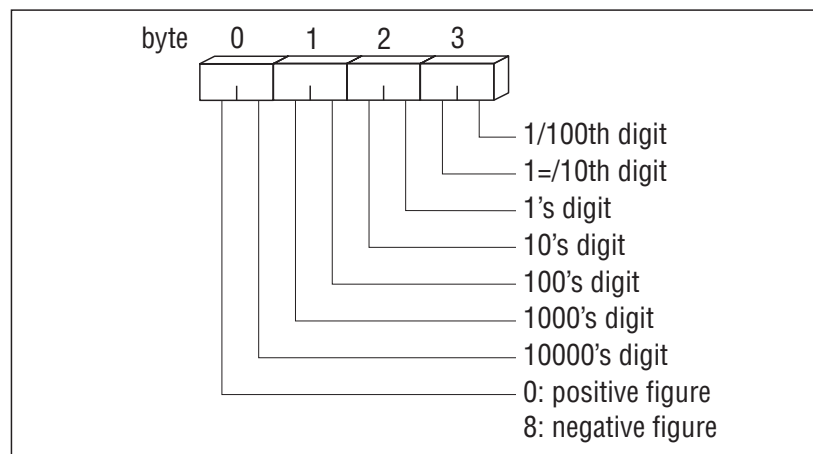
Each value takes up four bytes of a message. The representation is made in BCD (binary-coded decimal) format.

In BCD format the four bits of a byte represent a number from 0 to 9. This means that a byte can be used to represent a value between 00 and 99. The following diagram shows the value “27” in BCD format in one byte:



00258AEN

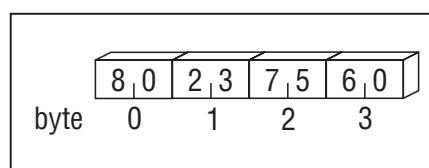
Each byte has a fixed meaning assigned to it within the 4-byte BCD representation of the parameter values:



00259AEN

#### Example 1:

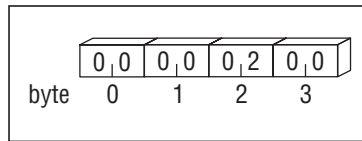
The following example shows the 4-byte BCD representation of the parameter “111 setpoint serial interface”, which is to have a value of -2375.6 rpm.



00260AEN

**Example 2:**

Terminal X21.6 is to be programmed to “/CONTROLLER INHIBIT”. This means that the numerical value 2.00 must be sent to the servo controller under index 52.



00261AEN

**2.2 Format B**

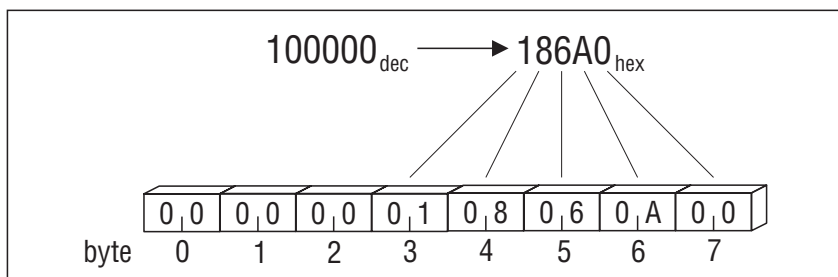
In format B the individual bits or bytes have characteristics or functions assigned to them. Parameters in this format (e.g. index 0, unit status, terminal states, etc.) are transmitted uncoded. For these parameters the exact assignment of the four data bytes is given in the parameter list.

**2.3 Format C**

Format C is used to transmit parameters with a 32-bit coded value range, using a LONG-SELECT or a LONG-DATA message as means of transmission. This format is mainly used by IPOS parameters. The original value (32 bit) is split up into half-bytes and each half-byte is then transmitted in one message byte.

**Example:**

In the example below the “PC position setpoint” parameter (index 1012) is transmitted. The setpoint is to have the value  $100000_{\text{dec}}$  increments.



00262AEN

### 3 Parameter Characteristics

#### 3.1 Standard Parameters

Index: 0	Menu: -	Unit status
Minimum: -	Step size and range:-	Access: R
Maximum: -		Format: B
The following description shows the assignment of the 4 bytes.		
Byte 3	0 "controller enabled/inhibited" signal (1: enable)	
	1 "24 Volt" signal (1: 24 volts)	
	2 -	
	3 -	
	4 -	
	5 -	
	6 -	
	7 -	
Byte 2	0 -	Unit status
	1 -	1 normal operation
	2 -	2 torque control
	3 -	3 rapid stop
	4 -	4 controller inhibit
	5 -	5 limit switch CW
	6 -	6 limit switch CCW
	7 -	7 API / APA active
	8 -	8 factory setting active
	9 -	9 hold control
	10 -	10 positioning
	11 -	11 not ready
Byte 1	0 -	
	1 -	
	2 -	
	3 -	
	4 -	
	5 -	
	6 -	
	7 -	
Byte 0	Not used	

00263AEN

Index: 1	Menu: 001	Speed [rpm]
Minimum: -	Step size and range:-	Access: R
Maximum: -		Format: A

Index: 2	Menu: 000	Current [% In]
Minimum: -	Step size and range:-	Access: R
Maximum: -		Format: A

Index: 3	Menu: 002	Heat sink temperature [°C]
Minimum: -	Step size and range:-	Access: R
Maximum: -		Format: A

<b>Index: 4</b>	<b>Menu: 003</b>	<b>Utilization [%]</b>	
Minimum: -	Step size and range:-	Access: R	
Maximum: -		Format: A	
<b>Index: 5</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 6</b>	<b>Menu: 010</b>	<b>Analogue input 1 [V]</b>	
Minimum: -	Step size and range:-	Access: R	
Maximum: -		Format: A	
<b>Index: 7</b>	<b>Menu: 020</b>	<b>Analogue input 2 [V]</b>	
Minimum: -	Step size and range:-	Access: R	
Maximum: -		Format: A	
<b>Index: 8</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 9</b>	<b>Menu: 071</b>	<b>Option pcb type</b>	
Minimum: -	<b>Meaning:</b>	Access: R	
Maximum: -	0.00 SHORT CIRCUIT	Format: A	
	1.00 invalid		
	2.00 FIELDBUS		
	3.00 API/APA12		
	4.00 invalid		
	5.00 AIO11		
	6.00 invalid		
	7.00 invalid		
	8.00 invalid		
	9.00 NO PCB FITTED		
<b>Index: 10</b>	<b>Menu: 070</b>	<b>Axis module rated current</b>	
Minimum: -	<b>Meaning:</b>	Access: R	
Maximum: -	0.00 -	Format: A	
	1.00 3A		
	2.00 60A		
	3.00 45A		
	4.00 30A		
	5.00 25A		
	6.00 15A		
	7.00 10A		
	8.00 5A		
	9.00 -		
<b>Index: 11</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 12</b>	<b>Menu: 080</b>	<b>Fault t-0</b>	
	see index 16		



<b>Index: 13</b>	<b>Menu: 081</b>	<b>Fault t-1</b>	
see index 16			
<b>Index: 14</b>	<b>Menu: 082</b>	<b>Fault t-2</b>	
see index 16			
<b>Index: 15</b>	<b>Menu: 083</b>	<b>Fault t-3</b>	
see index 16			
<b>Index: 16</b>	<b>Menu: 084</b>	<b>Fault t-4</b>	
<b>Minimum: -</b>	<b>Meaning:</b>		<b>Access: R</b>
<b>Maximum: -</b>			<b>Format: A</b>
	0.00	no fault	
	1.00	axis module overcurrent	
	2.00	reserved	
	3.00	power supply module overtemperature	
	4.00	reserved	
	5.00	communications bus link defective	
	6.00	power supply module earth fault	
	7.00	power supply module DC link fault	
	8.00	speed monitoring	
	9.00	switch S1 AIO11 set to "current"	
	10.00	IPOS: ILLOP (illegal command)	
	11.00	axis module overtemperature	
	12.00	reserved	
	13.00	reserved	
	14.00	resolver fault	
	15.00	power supply module internal 24V supply	
	16.00	reserved	
	17.00	stack overflow	
	18.00	stack underflow	
	19.00	non maskable interrupt	
	20.00	undefined operation code	
	21.00	protected instruction	
	22.00	illegal operand access	
	23.00	illegal instruction access	
	24.00	illegal bus access	
	25.00	EEPROM fault	
	26.00	external terminal	
	27.00	open-circuited or missing limit switches	
	28.00	fieldbus process data timeout	
	29.00	limit switches reversed	
	30.00	limit switch emergency stop timeout	
	31.00	short-circuit output terminals	
	32.00	reserved	
	33.00	reserved	
	34.00	fieldbus communication timeout	
	35.00	reserved	
	36.00	necessary hardware not installed	
	37.00	reserved	
	38.00	reserved	
	39.00	fault reference travel	
	40.00	boot synchronisation timeout	

41.00	servo module watchdog
42.00	positioning lag error
43.00	PC timeout
44.00	reserved
45.00	reserved
46.00	reserved
47.00	reserved
48.00	reserved
49.00	reserved
50.00	positive hardware limit switch
51.00	negative hardware limit switch
52.00	positive software limit switch
53.00	negative software limit switch
54.00	reference position not defined
55.00	machine parameter incorrect
56.00	necessary hardware not installed
57.00	program does not exist
58.00	program line number does not exist
59.00	subroutine does not exist
60.00	target position outside travel range
61.00	programmed speed greater than Vmax
62.00	flash EPROM
63.00	division by zero
64.00	subroutine nesting depth
65.00	LM628 command error
66.00	program memory full
67.00	time out in remote operation
68.00	target position not attained
69.00	no feed enable
70.00	absolute encoder interface fault SSI (coded)
71.00	CAN bus fault (coded)
72.00	index overflow (indexed addressing)
73.00	illegal command during axis movement
74.00	position outside range
75.00	reserved for further APx faults
76.00	teach error
77.00	illegal control value
78.00	software limit switch
79.00	reserved
80.00	reserved
81.00	reserved
82.00	reserved
83.00	reserved
84.00	reserved
85.00	reserved
86.00	reserved
87.00	fieldbus timeout

<b>Index: 17</b>	<b>Menu: 072</b>	<b>EPROM version number (low)</b>
<b>Minimum: -</b>	<b>Step size and range:-</b>	<b>Access: R</b>
<b>Maximum: -</b>		<b>Format: B</b>

<b>Index: 18</b>	<b>Menu: 073</b>	<b>EPROM version number (high)</b>
<b>Minimum: -</b>	<b>Step size and range:-</b>	<b>Access: R</b>
<b>Maximum: -</b>		<b>Format: B</b>

<b>Index: 19</b>	<b>Menu: 030</b>	<b>Status of terminal X21</b>
<b>Minimum: -</b>	<b>Step size and range:-</b>	<b>Access: R</b>
<b>Maximum: -</b>		<b>Format: B</b>

Terminal states are bit-coded and given in byte 3:

00264Axx

<b>Index: 20</b>	<b>Menu: -</b>	<b>Status of terminal X13</b>
<b>Minimum: -</b>	<b>Step size and range:-</b>	<b>Access: R</b>
<b>Maximum: -</b>		<b>Format: B</b>

Terminal states are bit-coded and given in byte 3:

00265Axx

Index: 21	Menu: -	Status of terminals X21 and X12
Minimum: -	Step size and range:-	Access: R
Maximum: -		Format: B
Terminal states are bit-coded and given in byte 3:		
		00266Axx

Index: 22	Menu: 004	Position [incr.]
Minimum: -	Step size and range:-	Access: R
Maximum: -		Format: A
The position is made up of the values of parameters 22 and 23. The following example shows how the position value is coded.		
Example: A value 87FE23A <sub>hex</sub> = 142,598,714 increments is sent.		
Index 23 contains the less significant word in BCD code:		
		00267AEN
Index 22 contains the more significant word:		
		00268AEN
Both figures put together give the above 87FE23A hex code.		

Index: 23	Menu: 004	Position [incr.]
see index 22		

Index: 24	Menu: -	Reserved
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Index: 25	Menu: -	Reserved
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<b>Index: 25</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>
<b>Index: 26</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>
<b>Index: 27</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>
<b>Index: 28</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>
<b>Index: 30</b>	<b>Menu: 100</b>	<b>Operating mode</b>
<b>Minimum:</b> 0.00 <b>Maximum:</b> 2.0	<b>Meaning:</b> 00.00 speed control 1.00 torque control 2.00 positioning	<b>Access:</b> R/W <b>Format:</b> A
<b>Index: 31</b>	<b>Menu: 120</b>	<b>Ramp 1 up CW [s]</b>
<b>Minimum:</b> 0.00 <b>Maximum:</b> 30.00	<b>Step size and range:</b> 0.00 - 0.50 Step 0.02 0.50 - 3.00 Step 0.10 3.00 - 10.00 Step 0.50 10.00 - 30.00 Step 2.00	<b>Access:</b> R/W <b>Format:</b> A
<b>Index: 32</b>	<b>Menu: 121</b>	<b>Ramp 1 down CW [s]</b>
see index 31		
<b>Index: 33</b>	<b>Menu: 130</b>	<b>Ramp 2 up CW [s]</b>
see index 31		
<b>Index: 34</b>	<b>Menu: 131</b>	<b>Ramp 2 down CW [s]</b>
see index 31		
<b>Index: 35</b>	<b>Menu: 140</b>	<b>Rapid stop ramp [s]</b>
see index 31		
<b>Index: 36</b>	<b>Menu: 150</b>	<b>Emergency stop ramp [s]</b>
<b>Minimum:</b> 0.00 <b>Maximum:</b> 10.00	<b>Step size and range:</b> 0.00 - 0.50 Step 0.2 0.50 - 3.00 Step 0.10 3.00 - 10.00 Step 0.50	<b>Access:</b> R/W <b>Format:</b> A
<b>Index: 37</b>	<b>Menu: 200</b>	<b>Gain speed controller</b>
<b>Minimum:</b> 0.10 <b>Maximum:</b> 32.00	<b>Step size and range:</b> 0.10 - 32.00 Step 0.01	<b>Access:</b> R/W <b>Format:</b> A

<b>Index: 38</b>	<b>Menu: 201</b>	<b>Time constant speed controller [ms]</b>
Minimum: 0.00	<b>Step size and range:</b>	<b>Access: R/W</b>
Maximum: 300.00	0.00 - 1.00 Step 1.00	<b>Format: A</b>
	1.00 - 50.00 Step 0.10	
	50.00 - 300.00 Step 1.00	
<b>Index: 39</b>	<b>Menu: 660</b>	<b>MOVIDYN<sup>®</sup> response time</b>
Minimum: 0.00	<b>Step size and range:</b>	<b>Access: R/W</b>
Maximum: 200.00	0.00 - 200.00 Step 5.00	<b>Format: A</b>
<b>Index: 40</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 41</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 42</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 43</b>	<b>Menu: 210</b>	<b>Max. speed CW [rpm]</b>
see index 44		
<b>Index: 44</b>	<b>Menu: 211</b>	<b>Max. speed CCW [rpm]</b>
Minimum: 0.00	<b>Step size and range:</b>	<b>Access: R/W</b>
Maximum: 5000.00	0.00 - 5000.00 Step 1.00	<b>Format: A</b>
<b>Index: 45</b>	<b>Menu: 212</b>	<b>Max. current CCW [%]</b>
Minimum: 45.00	<b>Step size and range:</b>	<b>Access: R/W</b>
Maximum: 150.00	45.00 - 150.00 Step 1.00	<b>Format: A</b>
<b>Index: 46</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 47</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 48</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 49</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 50</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 51</b>	<b>Menu: -</b>	<b>Reserved</b>

<b>Index: 52</b>	<b>Menu: 300</b>	<b>Programming terminal X21.6</b>	
<b>Minimum:</b> 0.00 <b>Maximum:</b> 11.00	<b>Meaning:</b>	<b>Access:</b>	<b>R/W</b> <b>Format: A</b>
	0.00 ENABLE		
	1.00 RAMP GENERATOR SELECTION		
	2.00 /CONTROLLER INHIBIT		
	3.00 HOLD CONTROL		
	4.00 /EXTERNAL FAULT		
	5.00 RESET		
	6.00 REFERENCE TRAVEL		
	7.00 EXTERNAL TRIGGER		
	8.00 NO FUNCTION		
	9.00 /LIMIT SWITCH CW		
	10.00 /LIMIT SWITCH CCW		
	11.00 REFERENCE CAM		
<b>Index: 53</b>	<b>Menu: 301</b>	<b>Programming terminal X21.7</b>	
see index 52			
<b>Index: 54</b>	<b>Menu: 302</b>	<b>Programming terminal X21.8</b>	
see index 52			
<b>Index: 55</b>	<b>Menu: 320</b>	<b>Programming terminal X21.10</b>	
<b>Minimum:</b> 0.00 <b>Maximum:</b> 17.00	<b>Meaning:</b>	<b>Access:</b>	<b>R/W</b> <b>Format: A</b>
	0.00 IxT WARNING		
	1.00 READY FOR OPERATION		
	2.00 /FAULT		
	3.00 /BRAKE		
	4.00 SPEED REFERENCE		
	5.00 CURRENT REFERENCE		
	6.00 SETPOINT/ACTUAL VALUE COMPARISON		
	7.00 MOTOR AT REST		
	8.00 NO FUNCTION		
	9.00 IN POSITION		
	10.00 POS. OUTPUT 1		
	11.00 POS. OUTPUT 2		
	12.00 POS. OUTPUT 3		
	13.00 POS. OUTPUT 4		
	14.00 POS. OUTPUT 5		
	15.00 POS. OUTPUT 6		
	16.00 POS. OUTPUT 7		
	17.00 POS. OUTPUT 8		
<b>Index: 56</b>	<b>Menu: 330</b>	<b>Programming terminal X12.1</b>	
see index 55			
<b>Index: 57</b>	<b>Menu: 331</b>	<b>Programming terminal X12.2</b>	
see index 55			

<b>Index: 58</b>	<b>Menu: 340</b>	<b>Analogue output 1 (X14.6)</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 4.00	0.00	CURRENT SETPOINT	<b>Format: A</b>
	1.00	SPEED ACTUAL VALUE	
	2.00	RAMP GENERATOR SETPOINT	
	3.00	RAMP GENERATOR ACTUAL VALUE	
	4.00	IxT UTILIZATION	
<b>Index: 59</b>	<b>Menu: 341</b>	<b>Weighting factor 1</b>	
<b>Minimum:</b> -5.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 5.00	-5.00 - 5.00	Step 0.10	<b>Format: A</b>
<b>Index: 60</b>	<b>Menu: 342</b>	<b>Analogue output 2 (X14.7)</b>	
see index 58			
<b>Index: 61</b>	<b>Menu: 343</b>	<b>Weighting factor 2</b>	
see index 59			
<b>Index: 62</b>	<b>Menu: 510</b>	<b>Speed monitoring</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	
<b>Index: 63</b>	<b>Menu: 511</b>	<b>Speed monitoring timeout [s]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 10.00	0.00 - 10.00	Step 0.10	<b>Format: A</b>
<b>Index: 64</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 65</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 66</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 67</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 68</b>	<b>Menu: 600</b>	<b>Ready signal delay [s]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 9.00	0.00 - 9.00	Step 1.00	<b>Format: A</b>
<b>Index: 69</b>	<b>Menu: 500</b>	<b>Brake function</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	



<b>Index: 70</b>	<b>Menu: 501</b>	<b>Brake reaction time [ms]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:-</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1000.00	0.00 - 1000.00	Step 1.00	<b>Format: A</b>
<b>Index: 71</b>	<b>Menu: 640</b>	<b>Parameter lock</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	
<b>Index: 72</b>	<b>Menu: 650</b>	<b>Save to EEPROM</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	
<b>Index: 73</b>	<b>Menu: 610</b>	<b>Factory setting</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	
<b>Index: 74</b>	<b>Menu: 630</b>	<b>Auto reset function</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	
<b>Index: 75</b>	<b>Menu: 631</b>	<b>Restart time to auto reset [s]</b>	
<b>Minimum:</b> 3.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 30.00	3.00 - 30.00	Step 1.00	<b>Format: A</b>
<b>Index: 76</b>	<b>Menu: 632</b>	<b>Manual reset</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00	NO	<b>Format: A</b>
	1.00	YES	
<b>Index: 77</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 78</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 79</b>	<b>Menu: 110</b>	<b>Setpoint source</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 3.00	0.00	ANALOGUE INPUT	<b>Format: A</b>
	1.00	API/APA12 OPTION PCB	
	2.00	PC INTERFACE	
	3.00	FIELD BUS	

Index: 80	Menu: 111	Setpoint serial interface	
<b>Minimum:</b> -5000.00	<b>Step size and range:</b>	<b>Access: R/W</b>	
<b>Maximum:</b> +5000.00	-5000.00 to +5000.00 Step 2.00	<b>Format: A</b>	
The value of this parameter must be interpreted differently depending on index 30, menu 100 "operating mode":			
<b>Operating mode</b>	<b>Parameter value P means</b>	<b>Formula for conversion</b>	
Speed control	Speed setpoint D [rpm]	D = P	
Torque control	Current setpoint S [%]	$S = \frac{1}{20} \cdot P$ for IPI ≤ 3000 (for IPI > 3000 S = 150)	
<b>Examples:</b>			
		<b>Value of index 80</b>	
	<b>1000.0</b>	<b>-3000.0</b>	<b>4000.0</b>
<b>Speed control</b>	1000 rpm	-3000 rpm	4000 rpm
<b>Torque control</b>	50%	-150%	150%

Index: 81	Menu: -	Remote Functions	
<b>Minimum:</b> -	<b>Step size and range:</b>	<b>Access: R/W</b>	
<b>Maximum:</b> -		<b>Format: B</b>	
The individual bits serve to activate the pertinent system function. To do this index 79 must be set to 2 ("PC INTERFACE").			
The assignment of the 4 bytes is as follows:			
Byte 3	0	enable	
	1	ramp selection	
	2	controller inhibit	
	3	hold control	
	4	external fault	
	5	reset	
	6	reference travel	
	7	external trigger for MD_SCOPE	
Byte 2	0	limit switch CW	
	1	limit switch CCW	
	2	-	
	3	-	
	4	-	
	5	-	
	6	-	
	7	-	
Byte 1:	not assigned		
Byte 2:	not assigned		

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Index: 82	Menu: -	Reserved
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<b>Index: 83</b>	<b>Menu: 620</b>	<b>Fault response</b>		
<b>Minimum:</b> 0.00		<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00		0.00	IMMEDIATE SWITCH-OFF	<b>Format: A</b>
		1.00	EMERGENCY STOP RAMP	
<b>Index: 84</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 85</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 86</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 87</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 88</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 89</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 90</b>	<b>Menu: 122</b>	<b>Ramp 1 up CCW (s)</b>		
		see index 31		
<b>Index: 91</b>	<b>Menu: 123</b>	<b>Ramp 1 down CCW (s)</b>		
		see index 31		
<b>Index: 92</b>	<b>Menu: 132</b>	<b>Ramp 2 up CCW (s)</b>		
		see index 31		
<b>Index: 93</b>	<b>Menu: 133</b>	<b>Ramp 2 down CCW (s)</b>		
		see index 31		
<b>Index: 94</b>	<b>Menu: 220</b>	<b>Gain hold controller</b>		
<b>Minimum:</b> 0.10		<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 32.00		0.10 - 32.00	Step 0.10	<b>Format: A</b>
<b>Index: 95</b>	<b>Menu: -</b>	<b>Reserved</b>		
<b>Index: 96</b>	<b>Menu: -</b>	<b>Reversal</b>		
<b>Minimum:</b> 0.00		<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00		0.00	NO	<b>Format: A</b>
		1.00	YES	
<b>Index: 97</b>	<b>Menu: 101</b>	<b>Factor for analogue setpoints</b>		
<b>Minimum:</b> 0.10		<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 10.00		0.10 - 10.00	Step 0.01	<b>Format: A</b>
<b>Index: 98</b>	<b>Menu: 310</b>	<b>Programming terminal X13.2</b>		
		see index 52		
<b>Index: 99</b>	<b>Menu: 311</b>	<b>Programming terminal X13.3</b>		

see index 52		
<b>Index: 100</b>	<b>Menu: 312</b>	<b>Programming terminal X13.4</b>
see index 52		
<b>Index: 101</b>	<b>Menu: 313</b>	<b>Programming terminal X13.5</b>
see index 52		
<b>Index: 102</b>	<b>Menu: 314</b>	<b>Programming terminal X13.6</b>
see index 52		
<b>Index: 103</b>	<b>Menu: 315</b>	<b>Programming terminal X13.7</b>
see index 52		
<b>Index: 104</b>	<b>Menu: 316</b>	<b>Programming terminal X13.8</b>
see index 52		
<b>Index: 105</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 106</b>	<b>Menu: 633</b>	<b>Response to MP reset</b>
<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 1.00	0.00 NO RESPONSE	<b>Format:</b> A
	1.00 PERFORM RESET	
<b>Index: 107</b>	<b>Menu: -</b>	<b>PC setpoint timeout [s]</b>
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 10.00	0.00 TIMEOUT INACTIVE	<b>Format:</b> A
	0.10 - 10.0 Step 0.10	
<b>Index: 108</b>	<b>Menu: 400</b>	<b>Reference speed [rpm]</b>
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 5000.00	0.00 - 5000.00 Step 1.00	<b>Format:</b> A
<b>Index: 109</b>	<b>Menu: 401</b>	<b>Hysteresis 1 [rpm]</b>
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 500.00	0.00 - 500.00 Step 1.00	<b>Format:</b> A
<b>Index: 110</b>	<b>Menu: 402</b>	<b>Delay [s]</b>
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 9.00	0.00 - 9.00 Step 1.00	<b>Format:</b> A

<b>Index: 111</b>	<b>Menu: 403</b>	<b>Signal = "1" if:</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 1.00	0.00 n < n ref	<b>Format:</b> A	
	1.00 n > n ref		
<b>Index: 112</b>	<b>Menu: 410</b>	<b>Reference current Iref/In [%]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 150.00	0.00 - 150.00 Step 1.00	<b>Format:</b> A	
<b>Index: 113</b>	<b>Menu: 411</b>	<b>Hysteresis 2 ± [%]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 10.00	0.00 - 10.00 Step 1.00	<b>Format:</b> A	
<b>Index: 114</b>	<b>Menu: 412</b>	<b>Delay [s]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 9.00	0.00 - 9.00 Step 0.10	<b>Format:</b> A	
<b>Index: 115</b>	<b>Menu: 413</b>	<b>Signal = "1" if:</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 1.00	0.00   <   ref	<b>Format:</b> A	
	1.00   >   ref		
<b>Index: 116</b>	<b>Menu: 420</b>	<b>Delay [s]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 9.00	0.00 - 9.00 Step 0.10	<b>Format:</b> A	
<b>Index: 117</b>	<b>Menu: 421</b>	<b>Signal = "1" if:</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 1.00	0.00 n <> n setp	<b>Format:</b> A	
	1.00 n = n setp		
<b>Index: 118</b>	<b>Menu: 430</b>	<b>IxT reference value [% In]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 100.00	0.00 - 100.00 Step 1.00	<b>Format:</b> A	
<b>Index: 119</b>	<b>Menu: 203</b>	<b>Feedforward threshold [rpm/ms]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 3000.00	0.00 - 3000.00 Step 2.00	<b>Format:</b> A	
<b>Index: 120</b>	<b>Menu: 204</b>	<b>Feedforward gain</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 80.00	0.00 - 1.00 Step 0.01	<b>Format:</b> A	
	1.00 - 80.00 Step 0.02		

<b>Index: 121</b>	<b>Menu: 205</b>	<b>Feedforward filter</b>
Minimum: 0.00 Maximum: 100.00	Step size and range: 0.00 - 100.00 Step 0.10	Access: R/W Format: A
<b>Index: 122</b>	<b>Menu: 206</b>	<b>Speed setpoint filter</b>
see index 121		
<b>Index: 123</b>	<b>Menu: 207</b>	<b>Speed actual value filter</b>
Minimum: 0.00 Maximum: 32.00	Step size and range: 0.00 - 1.00 Step 1.00 1.00 - 32.00 Step 0.10	Access: R/W Format: A
<b>Index: 124</b>	<b>Menu: 634</b>	<b>Axis module reset button</b>
Minimum: 0.00 Maximum: 1.00	Meaning: 0.00 ENABLED 1.00 DISABLED	Access: R/W Format: A
<b>Index: 125</b>	<b>Menu: 102</b>	<b>Offset for analogue setpoint 1 [mV]</b>
Minimum: -500.00 Maximum: +500.00	Step size and range: -500.00 - +500.00 Step 1.00	Access: R/W Format: A
<b>Index: 126</b>	<b>Menu: 202</b>	<b>D component speed controller</b>
Minimum: 0.00 Maximum: 32.00	Step size and range: 0.00 - 32.00 Step 0.10	Access: R/W Format: A
<b>Index: 127</b>	<b>Menu: -</b>	<b>Reserved</b>
<b>Index: 128</b>	<b>Menu: 332</b>	<b>Programming terminal X12.3</b>
see index 55		
<b>Index: 129</b>	<b>Menu: 333</b>	<b>Programming terminal X12.4</b>
see index 55		
<b>Index: 130</b>	<b>Menu: 334</b>	<b>Programming terminal X12.5</b>
see index 55		
<b>Index: 131</b>	<b>Menu: 335</b>	<b>Programming terminal X12.6</b>
see index 55		
<b>Index: 132</b>	<b>Menu: 208</b>	<b>7-segment test display</b>
Minimum: 0.00 Maximum: 1.00	Meaning: 0.00 OFF 1.00 ON	Access: R/W Format: A

<b>Index: 133</b>	<b>Menu: 209</b>	<b>Controller test function</b>
see index 132		

<b>Index: 165</b>	<b>Menu: 103</b>	<b>Analogue input mode 2</b>
<b>Minimum:</b> 0.00 <b>Maximum:</b> 3.00	<b>Meaning:</b> 0.00 reserved 1.00 external current limit 2.00 reserved 3.00 no function	<b>Access: R/W</b> <b>Format: A</b>

### 3.2 Fault Memory

<b>Index: 400</b>	<b>Menu: -</b>	<b>Fault t-0:</b>	<b>Standard terminals</b>
<b>Minimum:</b> - <b>Maximum:</b> -	<b>Step size and range:</b> -		<b>Access: R</b> <b>Format: A</b>

<b>Index: 401</b>	<b>Menu: -</b>	<b>Fault t-0:</b>	<b>Option terminals</b>
<b>Minimum:</b> - <b>Maximum:</b> -	<b>Step size and range:</b> -		<b>Access: R</b> <b>Format: A</b>

<b>Index: 402</b>	<b>Menu: -</b>	<b>Fault t-0:</b>	<b>Option terminals</b>
<b>Minimum:</b> - <b>Maximum:</b> -	<b>Step size and range:</b> -		<b>Access: R</b> <b>Format: A</b>

<b>Index: 403</b>	<b>Menu: -</b>	<b>Fault t-0:</b>	<b>Current [% In]</b>
<b>Minimum:</b> - <b>Maximum:</b> -	<b>Step size and range:</b> -		<b>Access: R</b> <b>Format: A</b>

<b>Index: 404</b>	<b>Menu: -</b>	<b>Fault t-0:</b>	<b>Speed [rpm]</b>
<b>Minimum:</b> - <b>Maximum:</b> -	<b>Step size and range:</b> -		<b>Access: R</b> <b>Format: A</b>

<b>Index: 405</b>	<b>Menu: -</b>	<b>Fault t-0:</b>	<b>Utilization [%]</b>
<b>Minimum:</b> - <b>Maximum:</b> -	<b>Step size and range:</b> -		<b>Access: R</b> <b>Format: A</b>

Index: 406	Menu: -	Fault t-0:	Unit status
Minimum: -	Step size and range: -		Access: R
Maximum: -			Format: B
The following description shows the assignment of the 4 bytes			
<p>Byte 3</p> <ul style="list-style-type: none"> <li>0 Signal "Servo controller enabled/disabled" (1: enable)</li> <li>1 Signal "24 Volt" (1: 24 volt)</li> <li>2 -</li> <li>3 -</li> <li>4 -</li> <li>5 -</li> <li>6 -</li> <li>7 -</li> </ul> <p>Byte 2</p> <ul style="list-style-type: none"> <li>0 } Unit status</li> <li>1 } Unit status</li> <li>2 } Unit status</li> <li>3 } Unit status</li> <li>4 } Unit status</li> <li>5 } Unit status</li> <li>6 } Unit status</li> <li>7 } Unit status</li> </ul>			
<p><b>Unit status:</b></p> <ul style="list-style-type: none"> <li>0 -</li> <li>1 normal operation</li> <li>2 torque control</li> <li>3 rapid stop</li> <li>4 controller inhibit</li> <li>5 limit switch CW</li> <li>6 limit switch CCW</li> <li>7 API / APA active</li> <li>8 factory setting active</li> <li>9 hold control</li> <li>10 positioning</li> <li>11 not ready</li> </ul>			
Byte 1 not used			00270AEN
Byte 0 not used			

Index: 407	Menu: -	Fault t-0:	Temperature [°C]
Minimum: -	Step size and range:		Access: R
Maximum: -			Format: A

Index: 408	Menu: -	Fault t-1:	Standard terminals
see index 400			

Index: 409	Menu: -	Fault t-1:	Option terminals
see index 401			

Index: 410	Menu: -	Fault t-1:	Output terminals
see index 402			

Index: 411	Menu: -	Fault t-1:	Current [% In]
see index 403			

Index: 412	Menu: -	Fault t-1:	Speed [rpm]
see index 404			

Index: 413	Menu: -	Fault t-1:	Utilization [%]
see index 405			

Index: 414	Menu: -	Fault t-1:	Unit status
see index 406			



<b>Index: 415</b>	<b>Menu: -</b>	<b>Fault t-1:</b>	<b>Temperature [°C]</b>
see index 407			
<b>Index: 416</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Standard terminals</b>
see index 400			
<b>Index: 417</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Option terminals</b>
see index 401			
<b>Index: 418</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Output terminals</b>
see index 402			
<b>Index: 419</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Current [% In]</b>
see index 403			
<b>Index: 420</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Speed [rpm]</b>
see index 404			
<b>Index: 421</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Utilization [%]</b>
see index 405			
<b>Index: 422</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Unit status</b>
see index 406			
<b>Index: 423</b>	<b>Menu: -</b>	<b>Fault t-2:</b>	<b>Temperature [°C]</b>
see index 407			
<b>Index: 424</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Standard terminals</b>
see index 400			
<b>Index: 425</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Option terminals</b>
see index 401			
<b>Index: 426</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Output terminals</b>
see index 402			
<b>Index: 427</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Current [% In]</b>
see index 403			

<b>Index: 428</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Speed [rpm]</b>
see index 404			
<b>Index: 429</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Utilization [%]</b>
see index 405			
<b>Index: 430</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Unit status</b>
see index 406			
<b>Index: 431</b>	<b>Menu: -</b>	<b>Fault t-3:</b>	<b>Temperature [°C]</b>
see index 407			
<b>Index: 432</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Standard terminals</b>
see index 400			
<b>Index: 433</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Option terminals</b>
see index 401			
<b>Index: 434</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Output terminals</b>
see index 402			
<b>Index: 435</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Current [% In]</b>
see index 403			
<b>Index: 436</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Speed [rpm]</b>
see index 404			
<b>Index: 437</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Utilization [%]</b>
see index 405			
<b>Index: 438</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Unit status</b>
see index 406			
<b>Index: 439</b>	<b>Menu: -</b>	<b>Fault t-4:</b>	<b>Temperature [°C]</b>
see index 407			

## 3.3 Fieldbus Parameters

<b>Index: 600</b>	<b>Menu: 090</b>	<b>Process data configuration</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access:</b> R/W
<b>Maximum:</b> 5.00	0.00	1PD+Parameter	<b>Format:</b> A
	1.00	1PD	
	0.00	2PD+Parameter	
	3.00	2PD	
	4.00	3PD+Parameter	
	5.00	3PD	

<b>Index: 601</b>	<b>Menu: 780</b>	<b>Setpoint description P01</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access:</b> R/W
<b>Maximum:</b> 10.00	0.00	NO FUNCTION	<b>Format:</b> A
	1.00	SPEED	
	2.00	CURRENT	
	3.00	POSITION LO	
	4.00	POSITION HI	
	5.00	MAX. SPEED	
	6.00	MAX. CURRENT	
	7.00	SLIP	
	8.00	RAMP	
	9.00	CONTROL WORD 1	
	10.00	CONTROL WORD 2	

<b>Index: 602</b>	<b>Menu: 782</b>	<b>Setpoint description P02</b>	
see index 601			

<b>Index: 603</b>	<b>Menu: 784</b>	<b>Setpoint description P03</b>	
see index 601			

<b>Index: 604</b>	<b>Menu: 781</b>	<b>Actual value description PI1</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access:</b> R/W
<b>Maximum:</b> 7.00	0.00	NO FUNCTION	<b>Format:</b> A
	1.00	SPEED	
	2.00	APPARENT CURRENT	
	3.00	ACTIVE CURRENT	
	4.00	POSITION LO	
	5.00	POSITION HI	
	6.00	STATUS WORD 1	
	7.00	STATUS WORD 2	

<b>Index: 605</b>	<b>Menu: 783</b>	<b>Actual value description PI2</b>	
see index 604			

<b>Index: 606</b>	<b>Menu: 785</b>	<b>Actual value description PI3</b>	
see index 604			

<b>Index: 607</b>	<b>Menu: 790</b>	<b>Enable fieldbus setpoints</b>	
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<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 1.00	0.00 NO	<b>Format:</b> A
	1.00 YES	

<b>Index: 608</b>	<b>Menu: 791</b>	<b>Fieldbus timeout [s]</b>	
<b>Minimum:</b> 0.01	<b>Step size and range:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 650.00	0.01 - 1.00 Step 0.01	<b>Format:</b> A	
	1.00 - 650.00 Step 1.00		
A value of 650.00 means that the timeout feature is off.			

<b>Index: 609</b>	<b>Menu: 792</b>	<b>Timeout response</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R/W	
<b>Maximum:</b> 7.00	0.00 RAPID STOP	<b>Format:</b> A	
	1.00 EMERGENCY STOP		
	2.00 IMMEDIATE SWITCH-OFF		
	3.00 RAPID STOP/FAULT		
	4.00 EMERGENCY STOP/FAULT		
	5.00 IMMEDIATE SWITCH-OFF/FAULT		
	6.00 STANDARD MODE		
	7.00 NO RESPONSE		

<b>Index: 610</b>	<b>Menu: 091</b>	<b>Fieldbus type</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>	<b>Access:</b> R	
<b>Maximum:</b> 4.00	0.00 NO FIELDBUS	<b>Format:</b> A	
	1.00 PROFIBUS		
	2.00 INTERBUS-S		
	3.00 BECKHOFF IIO		
	4.00 CAN		

<b>Index: 611</b>	<b>Menu: 092</b>	<b>Fieldbus baud rate [kB]</b>	
<b>Minimum:</b> -	<b>Step size and range:</b>	<b>Access:</b> R	
<b>Maximum:</b> -		<b>Format:</b> A	

<b>Index: 612</b>	<b>Menu: 093</b>	<b>Fieldbus address</b>	
<b>Minimum:</b> -	<b>Step size and range:</b>	<b>Access:</b> R	
<b>Maximum:</b> -		<b>Format:</b> A	

<b>Index: 613</b>	<b>Menu: 094</b>	<b>Setpoint P01 (hex)</b>	
<b>Minimum:</b> -	<b>Step size and range:</b>	<b>Access:</b> R	
<b>Maximum:</b> -		<b>Format:</b> A	

<b>Index: 614</b>	<b>Menu: 096</b>	<b>Setpoint P02 (hex)</b>	
<b>Minimum:</b> -	<b>Step size and range:</b>	<b>Access:</b> R	
<b>Maximum:</b> -		<b>Format:</b> A	

<b>Index: 615</b>	<b>Menu: 098</b>	<b>Setpoint P03 (hex)</b>	
Minimum: -		Step size and range:	Access: R
Maximum: -			Format: A
<b>Index: 616</b>	<b>Menu: 095</b>	<b>Actual value PI1 (hex)</b>	
Minimum: -		Step size and range:	Access: R
Maximum: -			Format: A
<b>Index: 617</b>	<b>Menu: 097</b>	<b>Actual value PI2 (hex)</b>	
Minimum: -		Step size and range:	Access: R
Maximum: -			Format: A
<b>Index: 618</b>	<b>Menu: 099</b>	<b>Actual value PI3 (hex)</b>	
Minimum: -		Step size and range:	Access: R
Maximum: -			Format: A
<b>Index: 619</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 620</b>	<b>Menu: 793</b>	<b>CAN synchronization ID</b>	
Minimum: 1.00		Step size and range:	Access: R/W
Maximum: 2047.00		0.00 - 2047.00 Step 1.00	Format: A

### 3.4 IPOS Parameters

<b>Index: 700</b>	<b>Menu: -</b>	<b>Reference speed 1 [rpm]</b>	
Minimum: 0.00		Step size and range:	Access: R/W
Maximum: 5000.00		0.00 - 5000.00 Step: 1.00	Format: A
<b>Index: 701</b>	<b>Menu: -</b>	<b>Reference speed 2 [rpm]</b>	
		see index 700	
<b>Index: 702</b>	<b>Menu: -</b>	<b>Reference travel type</b>	
Minimum: 0.00		Step size and range:	Access: R/W
Maximum: 5.00		0.00 - 5.00 Step:1.00	Format: A
<b>Index: 703</b>	<b>Menu: -</b>	<b>Reserved</b>	

<b>Index: 704</b>	<b>Menu: -</b>	<b>IPOS save mode</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 2.00	0.00 -		<b>Format: A</b>
	1.00 Save to EEPROM		
	2.00 Load from EEPROM		
<b>Index: 705</b>	<b>Menu: -</b>	<b>IPOS operating mode</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 5.00	0.00 STOP		<b>Format: A</b>
	1.00 START		
	2.00 BREAKPOINT (goto cursor)		
	3.00 STEP		
	4.00 MANUAL MODE		
	5.00 HALT		
<b>Index: 706</b>	<b>Menu: -</b>	<b>IPOS instruction pointer</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 510.00	0.00 - 510.00 Step 1.00		<b>Format: A</b>
<b>Index: 707</b>	<b>Menu: -</b>	<b>IPOS breakpoint</b>	
<b>Minimum:</b> 0.0	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 255.00	0.00 - 255.00 Step 1.00		<b>Format: A</b>
<b>Index: 708</b>	<b>Menu: -</b>	<b>Positioning window [incr.]</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 32767.00	0.00 - 32767.00 Step 1.00		<b>Format: A</b>
<b>Index: 709</b>	<b>Menu: -</b>	<b>Override</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00 OFF		<b>Format: A</b>
	1.00 ON		
<b>Index: 710</b>	<b>Menu: -</b>	<b>Teach terminal</b>	
<b>Minimum:</b> 0.00	<b>Step size and range:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 15.00	0.00 - 15.00 Step 1.00		<b>Format: A</b>
<b>Index: 711</b>	<b>Menu: -</b>	<b>Manual mode</b>	
<b>Minimum:</b> 0.00	<b>Meaning:</b>		<b>Access: R/W</b>
<b>Maximum:</b> 1.00	0.00 POSITION CONTROL		<b>Format: A</b>
	1.00 SPEED CONTROL		

<b>Index: 712</b>	<b>Menu: -</b>	<b>Timeout period [ms]</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 32767.00		0.00 - 32767.00 Step 1.00	<b>Format:</b> A
<b>Index: 713</b>	<b>Menu: -</b>	<b>Speed setpoint</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 3000.00		0.00 - 3000.00 Step 1.00	<b>Format:</b> A
<b>Index: 714</b>	<b>Menu: -</b>	<b>Code pointer</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 510.00		0.00 - 510.00 Step 1.00	<b>Format:</b> A
<b>Index: 715</b>	<b>Menu: -</b>	<b>Data pointer</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 255.00		0.00 - 255.00 Step 1.00	<b>Format:</b> A
<b>Index: 716</b>	<b>Menu: -</b>	<b>Position controller gain</b>	
<b>Minimum:</b> 0.10		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 32.00		0.10 - 32.00 Step 0.10	<b>Format:</b> A
<b>Index: 717</b>	<b>Menu: -</b>	<b>Positioning ramp [s]</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 10.00		0.00 - 0.50 Step 0.02	<b>Format:</b> A
		0.50 - 3.00 Step 0.10	
		3.00 - 10.00 Step 0.50	
<b>Index: 718</b>	<b>Menu: -</b>	<b>Travel speed CW [rpm]</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 5000.00		0.00 - 5000.00 Step 1.00	<b>Format:</b> A
<b>Index: 719</b>	<b>Menu: -</b>	<b>Travel speed CCW [rpm]</b>	
		see index 718	
<b>Index: 720</b>	<b>Menu: -</b>	<b>Reference axis</b>	
<b>Minimum:</b> 0.00		<b>Meaning:</b>	<b>Access:</b> R/W
<b>Maximum:</b> 1.00		0.00 NO	<b>Format:</b> A
		1.00 YES	
<b>Index: 721</b>	<b>Menu: -</b>	<b>Reference point defined</b>	
<b>Minimum:</b> 0.00		<b>Meaning:</b>	<b>Access:</b> R
<b>Maximum:</b> 1.00		0.00 NO	<b>Format:</b> A
		1.00 YES	

<b>Index: 722</b>	<b>Menu: -</b>	<b>IPOS fieldbus mode</b>	
<b>Minimum:</b> 0.00 <b>Maximum:</b> 3.00		<b>Meaning:</b> 0.00 Bus position setpoint not used 1.00 Bus position setpoint used as manual mode setpoint 2.00 Bus position setpoint used for the GOPA command 3.00 Synchronous mode	<b>Access: R/W</b> <b>Format: A</b>
<b>Index: 723</b>	<b>Menu: -</b>	<b>Feedforward [%]</b>	
<b>Minimum:</b> -150.00 <b>Maximum:</b> +150.00		<b>Step size and range:</b> -150.00 - +150.00      Step 0.10	<b>Access: R/W</b> <b>Format: A</b>
<b>Index: 724</b>	<b>Menu: -</b>	<b>Reverse direction</b>	
<b>Minimum:</b> 0.00 <b>Maximum:</b> 1.00		<b>Meaning:</b> 0.00 NO 1.00 YES	<b>Access: R</b> <b>Format: A</b>
<b>Index: 725</b>	<b>Menu: -</b>	<b>Ramp type</b>	
<b>Minimum:</b> 0.00 <b>Maximum:</b> 2.00		<b>Meaning:</b> 0.00 Linear 1.00 Sine type 2.00 Square	<b>Access: R/W</b> <b>Format: A</b>
<b>Index: 1000</b>	<b>Menu: -</b>	<b>Reference offset [incr.]</b>	
<b>Minimum:</b> $-2^{31}$ <b>Maximum:</b> $+2^{31}-1$		<b>Step size and range:</b> $-2^{31} - +2^{31}-1$ Step 1.00	<b>Access: R/W</b> <b>Format: C</b>
<b>Index: 1001</b>	<b>Menu: -</b>	<b>SW limit switch CW [incr.]</b>	
see index 1000			
<b>Index: 1002</b>	<b>Menu: -</b>	<b>SW limit switch CCW [incr.]</b>	
see index 1000			
<b>Index: 1003</b>	<b>Menu: -</b>	<b>Lag error window [incr.]</b>	
see index 1000			
<b>Index: 1004</b>	<b>Menu: -</b>	<b>Position setpoint [incr.]</b>	
see index 1000			
<b>Index: 1005</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 1006</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 1007</b>	<b>Menu: -</b>	<b>Reserved</b>	
<b>Index: 1008</b>	<b>Menu: -</b>	<b>Reserved</b>	



<b>Index: 1009</b>	<b>Menu: -</b>	<b>Actual position [incr.]</b>	
		see index 1000	
<b>Index: 1010</b>	<b>Menu: -</b>	<b>Code value</b>	
		see index 1000	
<b>Index: 1011</b>	<b>Menu: -</b>	<b>Data value</b>	
		see index 1000	
<b>Index: 1012</b>	<b>Menu: -</b>	<b>PC position setpoint [incr.]</b>	
		see index 1000	
<b>Index: 1013</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>	
<b>Index: 1014</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>	
<b>Index: 1015</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>	
<b>Index: 1016</b>	<b>Menu: -</b>	<b><i>Reserved</i></b>	
<b>Index: 1017</b>	<b>Menu: -</b>	<b>Lag distance [incr.]</b>	
<b>Minimum:</b> 0.00		<b>Step size and range:</b>	<b>Access: R</b>
<b>Maximum:</b> $2^{32}-1$		0.00 - $2^{32}-1$ Step 1.00	<b>Format: C</b>

#### 4 Parameter List Sorted by Menu Number

Menu number	Index	Parameter
000	2	Current [% In]
001	1	Speed [rpm]
002	3	Heat sink temperature [°C]
003	4	Utilization [%]
004	22 and 23	Position [increments]
005	0	Unit version
006	0	Fault code
007	0	Unit status
008	0	External 24V supply
010	6	Analogue input 1 [V]
020	7	Analogue input 2 [V]
030	19	Binary input X21.5
031	19 52	Binary input X21.6 Programming the terminal
032	19 53	Binary input X21.7 Programming the terminal
033	19 54	Binary input X21.8 Programming the terminal
040	20 98	Binary input AIO 11 (X13.2) Programming the terminal
041	20 99	Binary input AIO 11 (X13.3) Programming the terminal
042	20 100	Binary input AIO 11 (X13.4) Programming the terminal
043	20 101	Binary input AIO 11 (X13.5) Programming the terminal
044	20 102	Binary input AIO 11 (X13.6) Programming the terminal
045	20 103	Binary input AIO 11 (X13.7) Programming the terminal
046	20 104	Binary input AIO 11 (X13.8) Programming the terminal
050	21	Binary output X21.9
051	21 55	Binary output 21.10 Programming the terminal
060	21 56	Binary output AIO 11 (X12.1) Programming the terminal
061	21 57	Binary output AIO 11 (X12.2) Programming the terminal

Menu number	Index	Parameter
062	21 128	Binary output AIO 11 (X12.3) Programming the terminal
063	21 129	Binary output AIO 11 (X12.4) Programming the terminal
064	21 130	Binary output AIO 11 (X12.5) Programming the terminal
065	21 131	Binary output AIO 11 (X12.6) Programming the terminal
070	10	Axis module rated current
071	9	Option pcb type
072	17	EPROM version (low)
073	18	EPROM version (high)
080	12	Fault t-0
081	13	Fault t-1
082	14	Fault t-2
083	15	Fault t-3
084	16	Fault t-4
090	600	Process data configuration
091	610	Fieldbus type
092	611	Fieldbus baud rate [kB]
093	612	Fieldbus address
094	613	Setpoint PO1 (hex)
095	616	Actual value PI1 (hex)
096	614	Setpoint PO2 (hex)
097	617	Actual value PI2 (hex)
098	615	Setpoint PO3 (hex)
099	618	Actual value PI3 (hex)
100	30	Operating mode
101	97	Factor for analogue setpoints
102	125	Analogue setpoint offset [mV]
103	165	Mode Analogue input 2
110	79	Setpoint source
111	80	Serial interface setpoint [rpm]
120	31	Ramp 1 up CW [s]
121	32	Ramp 1 down CW [s]
122	90	Ramp 1 up CCW [s]
123	91	Ramp 1 down CCW [s]
130	33	Ramp 2 up CW [s]
131	34	Ramp 2 down CW [s]
132	92	Ramp 2 up CCW [s]

Menu number	Index	Parameter
133	93	Ramp 2 down CCW [s]
140	35	Rapid stop ramp [s]
150	36	Emergency stop ramp [s]
200	37	Speed controller gain
201	38	Speed controller time constant [ms]
202	126	D component speed controller
203	119	Feedforward threshold
204	120	Feedforward gain
205	121	Feedforward filter
206	122	Speed setpoint filter
207	123	Speed actual value filter
208	132	7-segment display
209	133	Controller test function
210	43	Max. speed CW [rpm]
211	44	Max. speed CCW [rpm]
212	45	Maximum current [% In]
220	94	Hold controller gain
300	52	Programming terminal MA (X21.6)
301	53	Programming terminal MA (X21.7)
302	54	Programming terminal MA (X21.8)
310	98	Programming terminal AIO 11 (X13.2)
311	99	Programming terminal AIO 11 (X13.3)
312	100	Programming terminal AIO 11 (X13.4)
313	101	Programming terminal AIO 11 (X13.5)
314	102	Programming terminal AIO 11 (X13.6)
315	103	Programming terminal AIO 11 (X13.7)
316	104	Programming terminal AIO 11 (X13.8)
320	55	Programming terminal MA (X21.10)
330	56	Programming terminal AIO 11 (X11.1)
331	57	Programming terminal AIO 11 (X11.2)
332	128	Programming terminal AIO 11 (X11.3)
333	129	Programming terminal AIO 11 (X11.4)
334	130	Programming terminal AIO 11 (X11.5)
335	131	Programming terminal AIO 11 (X11.6)
340	58	Programming analogue output 1 AIO 11 (X14.6)
341	59	Weighting factor 1
342	60	Programming analogue output 2 AIO 11 (X14.7)
343	61	Weighting factor 2
400	108	Reference speed [rpm]

Menu number	Index	Parameter
401	109	Hysteresis 1 [ +/--rpm]
402	110	Delay [s]
403	111	Signal = "1" if:
410	112	Reference current [% In]
411	113	Hysteresis 2 [ +/--% In]
412	114	Delay [s]
413	115	Signal = "1" if:
420	116	Delay setpoint/actual value comparison [s]
421	117	Signal = "1" if:
430	118	l x t reference value [% In]
500	69	Brake function
501	70	Brake reaction time [ms]
510	62	Speed monitoring
511	63	Speed monitoring timeout [ms]
600	68	Ready signal delay [ms]
610	73	Factory setting
620	83	Fault response
630	74	Auto reset function
631	75	Restart time to auto reset [s]
632	76	Manual reset
633	106	Response to MP reset
634	124	Reset button MA
640	71	Parameter lock
650	72	Save to EEPROM
660	39	MOVIDYN® response time [ms]
780	601	Setpoint description PO1
781	604	Actual value description PI1
782	602	Setpoint description PO2
783	605	Actual value description PI2
784	603	Setpoint description PO3
785	606	Actual value description PI3
790	607	Enable fieldbus setpoints
791	608	Fieldbus timeout [s]
792	609	Timeout response
793	620	CAN synchronization ID

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