



# IO-Link Parameter Datasheet

Roller drive control

**ICA-8DIO4M1-G20-IO**

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## General Information

Device Identification		Features	
Vendor ID	1 (0x0001)	Data Storage	Yes
Device ID	984066 (0x0F0402)	Block Parameterization	Yes
Additional Device ID	984065 (0x0F0401)		

  

Communication Characteristics		Profile	
IO-Link revision	V1.1 (specification V1.1.2)	Identification and Diagnosis	16384 (0x4000)
IO-Link backward compatibility	n/a		
Data transmission rate	COM3 (230.4 kbit/s)		
Min. cycle time	1.0 ms		
Process data input	8 byte		
Process data output	6 byte		
SIO mode support	no		
Compatible master port type	Class A, Class B		

## Supported Product Variants

Product ID	Product Name	Description	Connector
70110940	ICA-8DIO4M1-G20-IO (STD)	Roller drive control, 4 motor control channels, 8 digital input/outputs, M12 3-pin	Pigtail, M12, 3-pin

## Connection

Connection Diagram	Description
	<p><b>Pigtail, M12, 3-pin</b></p> <p>1: Brown - +24V 3: Blue - 0V 4: Black - C/Q</p>

## Process Data

### Process Data Input

Sub	Name	Data type	Length	Bitoffs.	Value	Unit	Description
.1	IN1 – Input 1 Status	Boolean	1 bit	0	<i>false</i> <i>true</i>		Indication of the current input status according to logic configuration. <i>Low</i> <i>High</i>
.2	IN2 – Input 2 Status	Boolean	1 bit	1			<i>See subindex 1</i>
.3	IN3 – Input 3 Status	Boolean	1 bit	2			<i>See subindex 1</i>
.4	IN4 – Input 4 Status	Boolean	1 bit	3			<i>See subindex 1</i>
.5	IN5 – Input 5 Status	Boolean	1 bit	4			<i>See subindex 1</i>
.6	IN6 – Input 6 Status	Boolean	1 bit	5			<i>See subindex 1</i>
.7	IN7 – Input 7 Status	Boolean	1 bit	6			<i>See subindex 1</i>
.8	IN8 – Input 8 Status	Boolean	1 bit	7			<i>See subindex 1</i>
.9	M1-FUSE - Motor 1 Fuse Failure	Boolean	1 bit	16	<i>false</i> <i>true</i>		Indication of the current fuse failure status of motor. <i>Inactive</i> <i>Active</i>
.10	M2-FUSE - Motor 2 Fuse Failure	Boolean	1 bit	17			<i>See subindex 9</i>
.11	M3-FUSE - Motor 3 Fuse Failure	Boolean	1 bit	18			<i>See subindex 9</i>
.12	M4-FUSE - Motor 4 Fuse Failure	Boolean	1 bit	19			<i>See subindex 9</i>
.13	M1-ERR – Motor 1 Error	Boolean	1 bit	20	<i>false</i> <i>true</i>		Indication of the current error status of motor. <i>Inactive</i> <i>Active</i>
.14	M2-ERR – Motor 2 Error	Boolean	1 bit	21			<i>See subindex 13</i>
.15	M3-ERR – Motor 3 Error	Boolean	1 bit	22			<i>See subindex 13</i>
.16	M4-ERR – Motor 4 Error	Boolean	1 bit	23			<i>See subindex 13</i>
.17	CNTZC – Counter Zero-Cross	Boolean	1 bit	24	<i>false</i> <i>true</i>		Indication that the counter has changed its sign since last reset. <i>Inactive</i> <i>Active</i>
.18	CNTOF – Counter Overflow	Boolean	1 bit	25	<i>false</i> <i>true</i>		Indication that counter had an overflow since last reset. <i>Inactive</i> <i>Active</i>
.19	CNTUF – Counter Underflow	Boolean	1 bit	26	<i>false</i> <i>true</i>		Indication that counter had an underflow since last reset. <i>Inactive</i> <i>Active</i>
.20	CNTREV – Counter Direction Change	Boolean	1 bit	27	<i>false</i> <i>true</i>		Indication that counter has changed its direction since last reset. <i>Inactive</i> <i>Active</i>
.24	MCRDY – Motor Control Ready	Boolean	1 bit	31	<i>false</i> <i>true</i>		Indication that the motor control section is powered and ready. <i>Inactive</i> <i>Active</i>
.25	Counter Value	Integer	32 bit	32	-2147483648 ..2147483647		Shows the current value of counter.

NOTE: The process data input content can be accessed for e.g observation purposes over parameter 'Process Data Input' at index 40 (0x28)

Process Data Output							
Sub	Name	Data type	Length	Bitoffs.	Value	Unit	Description
.1	OUT1 – Output 1 Control	Boolean	1 bit	0	false true		Set output according to logic configuration.  Inactive Active
.2	OUT2 – Output 2 Control	Boolean	1 bit	1			See subindex 1
.3	OUT3 – Output 3 Control	Boolean	1 bit	2			See subindex 1
.4	OUT4 – Output 4 Control	Boolean	1 bit	3			See subindex 1
.5	OUT5 – Output 5 Control	Boolean	1 bit	4			See subindex 1
.6	OUT6 – Output 6 Control	Boolean	1 bit	5			See subindex 1
.7	OUT7 – Output 7 Control	Boolean	1 bit	6			See subindex 1
.8	OUT8 – Output 8 Control	Boolean	1 bit	7			See subindex 1
.9	CNTRES - Counter Reset	Boolean	1 bit	8	false true		Resets counter on 0-to-1 transition.  No action Execute
.10	CNTEN – Counter Enable	Boolean	1 bit	9	false true		Release the counter operation.  Disabled Enabled
.11	CNTDIR – Counter Direction	Boolean	1 bit	10	false true		Set the counter up/down operation.  Up Down
.12	CNTRZC – Reset Counter Zero Cross	Boolean	1 bit	11	false true		Resets the counter zero crossing flag on a 0-to-1 transition.  No action Execute
.13	CNTROF – Reset Counter Overflow	Boolean	1 bit	12	false true		Resets the counter overflow flag on a 0-to-1 transition.  No action Execute
.14	CNTRUF – Reset Counter Underflow	Boolean	1 bit	13	false true		Resets the counter underflow flag on a 0-to-1 transition.  No action Execute
.15	CNTRREV – Reset Counter Reverted	Boolean	1 bit	14	false true		Resets the counter reverted flag on a 0-to-1 transition.  No action Execute
.16	CNTPRE – Preset Counter	Boolean	1 bit	15	false true		Presets the counter to the configured value on a 0-to-1 transition.  No action Execute
.21	M1-RUNC – Motor 1 Run Control	Boolean	1 bit	16	false true		Set the motor on/off.  Off On
.22	M1-DIRC – Motor 1 Direction Control	Boolean	1 bit	17	false true		Set the motor direction left/right.  Left Right
.23	M1-BRKC – Motor 1 Brake Control	Boolean	1 bit	18	false true		Set the brake control on/off.  Off On
.24	M1-SPDC – Motor 1 Speed Control	Boolean	1 bit	19	false true		Set the motor speed according to parameter Speed1/2.  Speed 1 Speed 2

Process Data Output							
Sub	Name	Data type	Length	Bitoffs.	Value	Unit	Description
.28	M1-POUTC – Motor 1 Power Out Control	Boolean	1 bit	23	<i>false</i> <i>true</i>		Set the power output on motor port pin 2 according to logic, if configured.  <i>Inactive</i> <i>Active</i>
.41	M2-RUNC – Motor 2 Run Control	Boolean	1 bit	24			See subindex 21
.42	M2-DIRC – Motor 2 Direction Control	Boolean	1 bit	25			See subindex 22
.43	M2-BRKC – Motor 2 Brake Control	Boolean	1 bit	26			See subindex 23
.44	M2-SPDC – Motor 2 Speed Control	Boolean	1 bit	27			See subindex 24
.48	M2-POUTC – Motor 2 Power Out Control	Boolean	1 bit	31			See subindex 28
.61	M3-RUNC – Motor 3 Run Control	Boolean	1 bit	32			See subindex 21
.62	M3-DIRC – Motor 3 Direction Control	Boolean	1 bit	33			See subindex 22
.63	M3-BRKC – Motor 3 Brake Control	Boolean	1 bit	34			See subindex 23
.64	M3-SPDC – Motor 3 Speed Control	Boolean	1 bit	35			See subindex 24
.68	M3-POUTC – Motor 3 Power Out Control	Boolean	1 bit	39			See subindex 28
.81	M4-RUNC – Motor 4 Run Control	Boolean	1 bit	40			See subindex 21
.82	M4-DIRC – Motor 4 Direction Control	Boolean	1 bit	41			See subindex 22
.83	M4-BRKC – Motor 4 Brake Control	Boolean	1 bit	42			See subindex 23
.84	M4-SPDC – Motor 4 Speed Control	Boolean	1 bit	43			See subindex 24
.88	M4-POUTC – Motor 4 Power Out Control	Boolean	1 bit	47			See subindex 28

NOTE: The process data output content can be accessed for e.g observation purposes (read only) over parameter 'Process Data Output' at index 41 (0x29)

## Parameter Data

Identification								
Index	Parameter	Access	Data type	Length	Default	Description	DS	R
16 (0x10)	Vendor Name	ro	String	13 byte	Pepperl+Fuchs	The vendor name that is assigned to a Vendor ID.		
17 (0x11)	Vendor Text	ro	String	29 byte	www.pepperl-fuchs.com/io-link	Additional information about the vendor.		
18 (0x12)	Product Name	ro	String	max. 30 byte	See table Supported Product Variants	Complete product name.		
19 (0x13)	Product ID	ro	String	8 byte	See table Supported Product Variants	Vendor-specific product or type identification (e.g., item number or model number).		
20 (0x14)	Product Text	ro	String	max. 30 byte	Roller drive control	Additional product information for the device.		
21 (0x15)	Serial Number	ro	String	14 byte	<serial number>	Unique, vendor-specific identifier of the individual device.		
22 (0x16)	Hardware Revision	ro	String	7 byte	HW**.**	Unique, vendor-specific identifier of the hardware revision of the individual device.		
23 (0x17)	Firmware Revision	ro	String	7 byte	FW**.**	Unique, vendor-specific identifier of the firmware revision of the individual device.		
24 (0x18)	Application Specific Tag	rw	String	max. 32 byte	Your automation, our passion.	Possibility to mark a device with user- or application-specific information.	Y	F
25 (0x19)	Function Tag	rw	String	max. 32 byte	***	Possibility to mark a device with function-specific information.	Y	F
26 (0x1A)	Location Tag	rw	String	max. 32 byte	***	Possibility to mark a device with location-specific information.	Y	F
191 (0xBF)	Product URI	ro	String	max. 64 byte	https://pefu.de/<serial number>	Provides a unique instance identification compliant to DIN-SPEC 91406.		

Diagnosis											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
36 (0x24)	Device Status	ro	UInteger	8 bit		0	0 1 2 3 4		Indicator for the current device condition and diagnosis state. <i>Device is OK</i> <i>Maintenance required</i> <i>Out of specification</i> <i>Functional check</i> <i>Failure</i>		F
37 (0x25)	Detailed Device Status	ro	Array <sup>S0</sup>	15 byte					List of all currently pending events in the device.		F
.1	Element 1		Octetstr	3 byte	96	0					
.2	Element 2		Octetstr	3 byte	72	0					
.3	Element 3		Octetstr	3 byte	48	0					
.4	Element 4		Octetstr	3 byte	24	0					
.5	Element 5		Octetstr	3 byte	0	0					
216 (0xD8)	MCC1 Operation Monitor	ro	Record <sup>S0</sup>	12 byte					Shows the motor operation information since last maintenance reset.		
.1	Runtime	ro	UInteger	32 bit	64	0	0 .. 2 <sup>30</sup> -1	h	Shows the runtime in hours since the last maintenance reset for this motor port.		
.2	Run Cycles	ro	UInteger	32 bit	32	0	0 .. 2 <sup>32</sup> -1		Shows the run cycles since the last maintenance reset for this motor port.		
.3	Error Count	ro	UInteger	32 bit	0	0	0 .. 2 <sup>32</sup> -1		Shows the count of errors since the last maintenance reset for this motor port.		
217 (0xD9)	MCC2 Operation Monitor	ro	Record <sup>S0</sup>	12 byte					See index 216		
218 (0xDA)	MCC3 Operation Monitor	ro	Record <sup>S0</sup>	12 byte					See index 216		
219 (0xDB)	MCC4 Operation Monitor	ro	Record <sup>S0</sup>	12 byte					See index 216		
224 (0xE0)	Operating Hours	ro	UInteger	32 bit			0 .. 2 <sup>30</sup> -1	h	Shows the overall hours of operation since initial commissioning.		
225 (0xE1)	Temperature Indicator	ro	UInteger	8 bit		0	0 1 2 3 4		Indicates the operation at ambient temperatures close to or in excess of specification limits. <i>Operating condition OK</i> <i>Close to upper limit</i> <i>Upper limit exceeded</i> <i>Close to lower limit</i> <i>Lower limit exceeded</i>		
226 (0xE2)	Temperature Monitor	ro	Record <sup>S0</sup>	10 byte					Contains parameters showing current and past conditions of temperature exposure since initial commissioning.		
.1	Overtemperature Operating Hours	ro	UInteger	32 bit	48		0 .. 2 <sup>30</sup> -1	h	Shows the overall hours of powered operation above the specified temperature limit since initial commissioning.		
.2	Overtemperature Exceeded Counter	ro	UInteger	16 bit	32		0 .. 2 <sup>16</sup> -1		Shows the number of transitions to operating temperatures above the specified limit in powered operation since initial commissioning.		
.3	Maximum Operating Temperature	ro	Integer	8 bit	24		-40 .. 125	°C	Shows the maximum observed temperature in powered operation since initial commissioning.		
.4	Minimum Operating Temperature	ro	Integer	8 bit	16		-40 .. 125	°C	Shows the minimum observed temperature in powered operation since initial commissioning.		
.5	Operating Temperature - Control	ro	Integer	8 bit	8		-40 .. 125	°C	Shows the currently observed operating temperature of the device in the motor control section.		

Diagnosis											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
.6	Operating Temperature - Communication	ro	Integer	8 bit	0		-40 .. 125	°C	Shows the currently observed operating temperature of the device in the communication section.		
228 (0xE4)	MCC Diag MReq	ro	Record <sup>50</sup>	4 byte					Shows the alarm states for maintenance requests.		
.1	MCC1 Runtime Alarm	ro	Boolean	1 bit	0		false true		Indicates that the configured maintenance runtime interval has been exceeded at this port.  <i>Inactive</i> <i>Active</i>		
.2	MCC1 Run Cycles Alarm	ro	Boolean	1 bit	1		false true		Indicates that the configured maintenance run cycle interval has been exceeded at this port.  <i>Inactive</i> <i>Active</i>		
.3	MCC1 Error Count Alarm	ro	Boolean	1 bit	2		false true		Indicates that the configured maintenance error count interval has been exceeded at this port.  <i>Inactive</i> <i>Active</i>		
.5	MCC2 Runtime Alarm	ro	Boolean	1 bit	4				See subindex 1		
.6	MCC2 Run Cycles Alarm	ro	Boolean	1 bit	5				See subindex 2		
.7	MCC2 Error Count Alarm	ro	Boolean	1 bit	6				See subindex 3		
.9	MCC3 Runtime Alarm	ro	Boolean	1 bit	8				See subindex 1		
.10	MCC3 Run Cycles Alarm	ro	Boolean	1 bit	9				See subindex 2		
.11	MCC3 Error Count Alarm	ro	Boolean	1 bit	10				See subindex 3		
.13	MCC4 Runtime Alarm	ro	Boolean	1 bit	12				See subindex 1		
.14	MCC4 Run Cycles Alarm	ro	Boolean	1 bit	13				See subindex 2		
.15	MCC4 Error Count Alarm	ro	Boolean	1 bit	14				See subindex 3		
229 (0xE5)	MCC Diag Port	ro	Record <sup>50</sup>	4 byte					Shows the alarm states of the motor ports.		
.1	MCC1 Fuse Defect	ro	Boolean	1 bit	0		false true		Indicates that the fuse at this port is defect. The port cannot be used anymore.  <i>Inactive</i> <i>Active</i>		
.2	MCC1 Output Overload	ro	Boolean	1 bit	1		false true		Indicates that the power output at this port is overloaded.  <i>Inactive</i> <i>Active</i>		
.5	MCC2 Fuse Defect	ro	Boolean	1 bit	4				See subindex 1		
.6	MCC2 Output Overload	ro	Boolean	1 bit	5				See subindex 2		
.9	MCC3 Fuse Defect	ro	Boolean	1 bit	8				See subindex 1		
.10	MCC3 Output Overload	ro	Boolean	1 bit	9				See subindex 2		
.13	MCC4 Fuse Defect	ro	Boolean	1 bit	12				See subindex 1		
.14	MCC4 Output Overload	ro	Boolean	1 bit	13				See subindex 2		

Diagnosis											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
230 (0xE6)	IOC Diag Port	ro	Record <sup>SO</sup>	4 byte					Shows the alarm states of the I/O ports.		
.1	IOC1/2 Supply Overload Alarm	ro	Boolean	1 bit	0		false true		Indicates that the power supply for these ports is overloaded.  Inactive Active		
.2	IOC1 Overload Alarm	ro	Boolean	1 bit	1		false true		Indicates that the ouput at this I/O is overloaded.  Inactive Active		
.3	IOC2 Overload Alarm	ro	Boolean	1 bit	2		false true		Indicates that the ouput at this I/O is overloaded.  Inactive Active		
.5	IOC3/4 Supply Overload Alarm	ro	Boolean	1 bit	4				See subindex 1		
.6	IOC3 Overload Alarm	ro	Boolean	1 bit	5				See subindex 2		
.7	IOC4 Overload Alarm	ro	Boolean	1 bit	6				See subindex 3		
.9	IOC5/6 Supply Overload Alarm	ro	Boolean	1 bit	8				See subindex 1		
.10	IOC5 Overload Alarm	ro	Boolean	1 bit	9				See subindex 2		
.11	IOC6 Overload Alarm	ro	Boolean	1 bit	10				See subindex 3		
.13	IOC7/8 Supply Overload Alarm	ro	Boolean	1 bit	12				See subindex 1		
.14	IOC7 Overload Alarm	ro	Boolean	1 bit	13				See subindex 2		
.15	IOC8 Overload Alarm	ro	Boolean	1 bit	14				See subindex 3		
231 (0xE9)	Module Diag	ro	Record <sup>SO</sup>	1 byte					Shows the alarm states of module functions.		
.1	Motor Power Fail Alarm	ro	UInteger	1 bit	0		false true		Indicates that the motor power supply PWR is below the specified voltage or disconnected.  Inactive Active		



Parameterization & Configuration											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
64 (0x40)	MCC1 Param	rw	Record	4 byte					Defines the operation parameter for the motor control channel MCC.	Y	FA
	.1 Speed 1	rw	UInteger	8 bit	24	100	0 .. 100	%	Defines the motor speed (in percent) selected by process data control signal SPDC=Speed 1.	Y	FA
	.2 Speed 2	rw	UInteger	8 bit	16	50	0 .. 100	%	Defines the motor speed (in percent) selected by process data control signal SPDC=Speed 2.	Y	FA
	.3 Ramp Up	rw	UInteger	8 bit	8	0	0 .. 5100 (0 .. 255)	ms	Defines the motor ramp up slope (time in 20 ms steps). (Calculation: gradient 20.0, offset 0.00)	Y	FA
	.4 Ramp Down	rw	UInteger	8 bit	0	0	0 .. 5100 (0 .. 255)	ms	Defines the motor ramp down slope (time in 20 ms steps). (Calculation: gradient 20.0, offset 0.00)	Y	FA
65 (0x41)	MCC2 Param	rw	Record	4 byte					See index 64	Y	FA
66 (0x42)	MCC3 Param	rw	Record	4 byte					See index 64	Y	FA
67 (0x43)	MCC4 Param	rw	Record	4 byte					See index 64	Y	FA
72 (0x48)	MCC1 Config	rw	Record	5 byte					Defines the configuration parameter for the motor control channel MCC.	Y	FA
	.1 Output Mode	rw	UInteger	8 bit	32	0	0 1		Defines the output mode as motor control or digital output. <i>Digital output</i> <i>Motor control</i>	Y	FA
	.2 Output Logic	rw	UInteger	8 bit	24	0	0 1		Defines the output logic for the digital output. <i>High active</i> <i>Low active</i>	Y	FA
	.3 Error Logic	rw	UInteger	8 bit	16	0	0 1		Defines the logic of the error signal input. <i>High active</i> <i>Low active</i>	Y	FA
	.4 Speed Range Min	rw	UInteger	8 bit	8	20	0 .. 13.6 (0 .. 136)	V	Defines the voltage level for maximum speed in 0.1 V steps. (Calculation: gradient 0.1, offset 0.00)	Y	FA
	.5 Speed Range Max	rw	UInteger	8 bit	0	100	0 .. 13.6 (0 .. 136)	V	Defines the voltage level for maximum speed in 0.1 V steps. (Calculation: gradient 0.1, offset 0.00)	Y	FA
73 (0x49)	MCC2 Config	rw	Record	5 byte					See index 72	Y	FA
74 (0x4A)	MCC3 Config	rw	Record	5 byte					See index 72	Y	FA
75 (0x4B)	MCC4 Config	rw	Record	5 byte					See index 72	Y	FA
80 (0x50)	MCC1 ConfigMReq	rw	Record	12 byte					Defines the configuration parameter for the maintenance request features of the motor control channel MCC.	Y	FA
	.1 Runtime Interval	rw	UInteger	32 bit	64	0	1 .. 1000000 0	h	Defines the motor runtime interval for a maintenance request warning. <i>Disabled</i>	Y	FA
	.2 Run Cycle Interval	rw	UInteger	32 bit	32	0	1 .. 2 <sup>32</sup> -1 0		Defines the motor run cycle interval for a maintenance request warning. <i>Disabled</i>	Y	FA

Parameterization & Configuration											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
.3	Error Count Interval	rw	UInteger	32 bit	0	0	1 .. 2 <sup>32</sup> -1  0		Defines the motor error count interval for a maintenance request warning. <i>Disabled</i>	Y	FA
81 (0x51)	MCC2 ConfigMReq	rw	Record	12 byte					See index 80	Y	FA
82 (0x52)	MCC3 ConfigMReq	rw	Record	12 byte					See index 80	Y	FA
83 (0x53)	MCC4 ConfigMReq	rw	Record	12 byte					See index 80	Y	FA
88 (0x58)	IOC1 Config	rw	Record	3 byte					I/O port configuration.	Y	FA
.1	I/O Mode	rw	UInteger	8 bit	16	0	0 1		Defines the I/O mode as digital input or digital output. <i>Digital input</i> <i>Digital output</i>	Y	FA
.2	I/O Logic	rw	UInteger	8 bit	8	0	0 1		Defines the logic for the digital input/output. <i>High active</i> <i>Low active</i>	Y	FA
.3	Input Filter	rw	UInteger	8 bit	0	0	0 1 2 3 4 5		Defines a filter time for signals from the digital input. <i>Disabled</i> <i>0.5 ms</i> <i>1.0 ms</i> <i>2.0 ms</i> <i>3.0 ms</i> <i>5.0 ms</i>	Y	FA
89 (0x59)	IOC2 Config	rw	Record	3 byte					See index 88	Y	FA
90 (0x5A)	IOC3 Config	rw	Record	3 byte					See index 88	Y	FA
91 (0x5B)	IOC4 Config	rw	Record	3 byte					See index 88	Y	FA
92 (0x5C)	IOC5 Config	rw	Record	3 byte					See index 88	Y	FA
93 (0x5D)	IOC6 Config	rw	Record	3 byte					See index 88	Y	FA
94 (0x5E)	IOC7 Config	rw	Record	3 byte					See index 88	Y	FA
95 (0x5F)	IOC8 Config	rw	Record	3 byte					See index 88	Y	FA
96 (0x60)	Module Config	rw	Record	6 byte					Defines general configuration setting for module functions.	Y	FA
.1	Encoder Input Mode	rw	UInteger	8 bit	40	0	0 1		Defines if IO1 and IO2 are used as encoder inputs. <i>Encoder on IO1</i> <i>Encoder on IO1, IO2</i>	Y	FA
.2	Compensation	rw	UInteger	8 bit	32	0	0 1		Defines if speed compensation is active for all motor ports. <i>Off</i> <i>On</i>	Y	FA
.3	Counter Preset Value	rw	Integer	32 bit	0	0	-2 <sup>31</sup> .. 2 <sup>31</sup> -1		Defines the preset value for the counter.	Y	FA
120 (0x78)	Event Config	rw	Record <sup>50</sup>	2 byte					Enable or disable different event sources.	Y	FA
.1	Warning – Motor maintenance diagnosis	rw	Boolean	1 bit	0	0	0 1		Enabled: an event is generated, if any of the configured motor maintenance limits is exceeded. <i>Disabled</i> <i>Enabled</i>	Y	FA
.2	Warning – Motor power fail	rw	Boolean	1 bit	1	0	0 1		Enabled: an event is generated, if the power supply for the motor is insufficient. <i>Disabled</i> <i>Enabled</i>	Y	FA

Parameterization & Configuration											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
.3	Warning – Power output overload	rw	Boolean	1 bit	2	0	0 1		Enabled: an event is generated, if any output on pin 2 of the motor connection is overloaded.  Disabled Enabled	Y	FA
.4	Warning – I/O port overload	rw	Boolean	1 bit	3	0	0 1		Enabled: an event is generated, if any output of the I/O ports is overloaded.  Disabled Enabled	Y	FA
127 (0x7F)	Indication Control	rw	Record <sup>S0</sup>	1 byte					Provides control functions for diagnosis purposes for indicators or display.	Y	FA
.1	Locator Indication	rw	Boolean	1 bit	0	0	0 1		Enables a defined flashing pattern of the indicator LEDs for better spotting of a device in field applications.  Disabled Enabled	Y	FA
12 (0x0C)	Device Access Locks	rw	Record <sup>S0</sup>	2 byte					The access to the device parameters can be restricted by setting appropriate flags within this parameter.	Y	FA
.1	Data Storage	rw	Boolean	1 bit	0	0	0 1		This lock prevents the write access to the device parameters via the data storage mechanism. <b>Note: This feature is implemented only for compatibility reasons. Do not set this flag to 'Locked', as this will inhibit the function Data Storage between master and device and lead to unintended system behavior.</b>  Unlocked Locked	Y	FA

Observation											
Index .sub	Parameter	Access	Data type	Length	Bitoffs.	Default	Value	Unit	Description	DS	R
36 (0x24)	Device Status	ro	UInteger	8 bit		0			Indicator for the current device condition and diagnosis state. <i>See Diagnosis – Device Status</i>		F
40 (0x28)	PD Input	ro	Record <sup>S0</sup>	8 byte					Last valid process input data of the device. <i>See Process Data Input</i>		
41 (0x29)	PD Output	ro	Record <sup>S0</sup>	6 byte					Last valid process output data written to the device. <i>See Process Data Output</i>		

NOTE 1: The parameter data provide the attributes DS (Data Storage) and R (Reset behavior). The following rules apply:  
DS: Parameter marked with 'Y' (yes) are exchanged with the master via the data storage mechanism.  
R: Parameter marked with 'F' are reset to the default value upon reception of the command 'Restore Factory Settings'.  
R: Parameter marked with 'A' are reset to the default value upon reception of the command 'Application Reset'.

NOTE 2: Parameter with datatype Record or Array, which are marked with 'S0' can only be accessed over subindex 0 (whole parameter object). Subindex access to single items is not possible.

## Command Interface

Index	Parameter	Access	Data type	Length	Value	Description
2 (0x02)	System Command	wo	UInteger	8 bit	See command value	Command interface for applications. A positive acknowledge indicates the complete and correct finalization of the requested function.

Command Value	Command	Description
129 (0x81)	Application Reset	The parameter of the technology-specific application are set to default values. Identification parameter remain unchanged. An upload to the data storage of the master will be executed, if activated in the port configuration of the master.
130 (0x82)	Restore Factory Settings	The parameter of the device are reset to factory settings. Note: A download of the data storage may be executed on the next power cycle and overwrite the factory default settings!
176 (0xB0)	Reset maintenance motor 1	Reset maintenance counter.
177 (0xB1)	Reset maintenance motor 2	Reset maintenance counter.
178 (0xB2)	Reset maintenance motor 3	Reset maintenance counter.
179 (0xB3)	Reset maintenance motor 4	Reset maintenance counter.

## Error Codes

Code	Additional code	Name	Description
128 (0x80)	17 (0x11)	Index not available	Read or write access attempt to a non-existing index.
128 (0x80)	18 (0x12)	Subindex not available	Read or write access attempt to a non-existing subindex of an existing index.
128 (0x80)	32 (0x20)	Service temporarily not available	Parameter not accessible due to the current state of the technology-specific application.
128 (0x80)	33 (0x21)	Service temporarily not available - local control	Parameter not accessible. The device is currently in an ongoing, locally controlled operation.
128 (0x80)	34 (0x22)	Service temporarily not available - device control	Parameter not accessible. The technology-specific application is currently in a remotely triggered operation.
128 (0x80)	35 (0x23)	Access denied	Write access to a read-only parameter or read access to write-only parameter.
128 (0x80)	48 (0x30)	Parameter value out of range	Written parameter value is outside of the permitted value range.
128 (0x80)	49 (0x31)	Parameter value above limit	Written parameter value is above its specified value range.
128 (0x80)	50 (0x32)	Parameter value below limit	Written parameter value is below its specified value range.
128 (0x80)	51 (0x33)	Parameter length overrun	Written parameter is longer than specified.
128 (0x80)	52 (0x34)	Parameter length underrun	Written parameter is shorter than specified.
128 (0x80)	53 (0x35)	Function not available	Written command is not supported by the technology-specific application.
128 (0x80)	54 (0x36)	Function temporarily unavailable	Written command is unavailable due to the current state of the technology-specific application.
128 (0x80)	64 (0x40)	Invalid parameter set	Written single parameter value collides with other existing parameter settings.
128 (0x80)	65 (0x41)	Inconsistent parameter set	Parameter set inconsistencies at the end of block parameter transfer. Device plausibility check failed.

## Event Codes

Code	Type	Name	Description
36097 (0x8D01)	Warning	Motor maintenance diagnosis	The limit for a configured maintenance cycle has been reached. Check motor channel and execute required maintenance actions.
36163 (0x8D43)	Warning	Ambient temperature outside specified temperature range	Check load conditions of the device or heating sources in the device environment.
36176 (0x8D50)	Warning	Motor power fail	Motor power fail or under voltage. Check connection and power supply.
36177 (0x8D51)	Warning	Power output overload	Overload on power output detected. Check diagnosis information for details.
36178 (0x8D52)	Warning	I/O port overload	Overload on I/O port detected. Check I/O port diagnosis information for details and cables, connections and connected devices at corresponding port.