IO-Link data table

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycle time	2.3 ms
SIO mode	Supported
Length process data	8 Bit
Vendor ID	297 (0x0129)
Device ID	113 (0x000071)
Data storage	Supported
Specification IO-Link	1.1

PROCESS DATA

SMART - SENSOR PROFILE

Byte 0								Byte 1							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
MSB D7	D6	D5	D4	D3	D2	D1	LSB D0	X	X	X	X	X	Quality bit	Switching Q2	Switching Q1

Signal quality [0...100]

Quality bit

Switching Q2

Switching Q1

IDENTIFICATION DATA

Index (dec/hex)	Access[1]	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
16 / 0x10	R	StringT	64 Bytes	0	Schneider Electric	-	Vendor Name	The vendor name that is assigned to a Vendor ID
17 / 0x11	R	StringT	64 Bytes	0	Life Is On	-	Vendor Text	Additional information about the vendor.
18 / 0x12	R	StringT	64 Bytes	0	XUT8ALAY	-	Product Name	Complete product name.
19 / 0x13	R	StringT	64 Bytes	0	XUT8ALAYL2, XUT8ALAYP02	-	Product ID	Vendor-specific product or type identification (e.g., item number or model number).
20 / 0x14	R	StringT	64 Bytes	0	PHOTO SUB BGS IOL 2M CABLE, PHOTO SUB BGS IOL 200MM PIGTAIL	-	Product Text	The parameter Product Text contains additional product information for the device.
21 / 0x15	R	StringT	16 Bytes	0	-	-	Serial Number	Unique, vendor-specific identifier of the individual device.
22 / 0x16	R	StringT	64 Bytes	0	-	-	Hardware Revision	Unique, vendor-specific identifier of the hardware revision of the individual device (For example: HW-V1.0).
23 / 0x17	R	StringT	64 Bytes	0	-	-	Firmware Revision	Unique, vendor-specific identifier of the firmware revision of the individual device (For example: FW-V1.0).

DIRECT PARAMETERS

Index (dec/hex)	Access[1]	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
0 / 0x00	R/W	UIntegerT	128 Bit	0	-	-	Direct Parameters - Page 1	Contain the required parameters defining the communication characteristics and identifiers for device validation.
	R	UIntegerT	8 Bit	1	-	-	Reserved	-
			8 Bit	2	-	-	Master Cycle Time	Communication: Current communication cycle duration used by the master. This value defines the process data cycle.
			8 Bit	3	-	-	Min Cycle Time	Communication: Minimum communication cycle duration supported by the device. This value defines the lowest possible process data cycle.
			8 Bit	4	-	-	M-Sequence Capability	Communication: Information on the structure and the supported features of the communication messages.
			8 Bit	5	17	-	IO-Link Revision ID	Communication: Revision Identification for the currently used communication protocol revision.
			8 Bit	6	-	-	Process Data Input Length	Communication: Information on Length and characteristics of the process input data (Process Data from Device to Master).
			8 Bit	7	-	-	Process Data Output Length	Communication: Information on Length of the process output data (Process Data from Master to Device).
			8 Bit	8	-	-	Vendor ID 1	Identification: Highest byte of the Vendor ID. Combined with the parameter Vendor ID 2, this parameter defines the 16-bit value of the unique Vendor ID as assigned by the IO-Link Community.
			8 Bit	9	-	-	Vendor ID 2	Identification: Lowest byte of the Vendor ID. Combined with the parameter Vendor ID 1, this parameter defines the 16-bit value of the unique Vendor ID as assigned by the IO-Link Community.
			8 Bit	10	-	-	Device ID 1	Identification: Highest byte of the Device ID. Combined with the parameters Device ID 2 and 3, this parameter defines the 24-bit value of the vendorspecific Device ID.
			8 Bit	11	-	-	Device ID 2	Identification: Middle byte of the Device ID. Combined with the parameters Device ID 1 and 3, this parameter defines the 24-bit value of the vendorspecific Device ID.
			8 Bit	12	-	-	Device ID 3	Identification: Lowest byte of the Device ID. Combined with the parameters Device ID 1 and 2, this parameter defines the 24-bit value of the vendorspecific Device ID.
			8 Bit	13	-	-	Reserved	-
			8 Bit	14	-	-	Reserved	-
			8 Bit	15	-	-	Reserved	-
	W	UIntegerT	8 Bit	16	-	-	System Command	Application: Command interface for devices without ISDU support. Validity and execution of commands are not confirmed.

(1) R = Read / W = Write

© 2024 TMSS France. All Rights Reserved.

SYSTEM COMMAND

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
2 / 0x02	W	UIntegerT	8 Bit	0	-	160 = Emitter OFF 161 = Emitter ON 162 = Reset swit-ching-channel 175 = Detect sensor 128 = Device Reset 130 = Restore Factory Settings	System command	160: Led emission OFF to test if the sensor output switches ON (or OFF if set in NC) 161: Led emission ON which is the normal sensor usage 162: Reset of current switching channel 175: Select the way to identify the sensor using their LEDs 1x activated - sensor flashes 60 s 2x activated - permanent flashing 3x activated - stop permanent flashing 128: Shutdown sensor with 200ms delay / Restart the sensor 130: Restore factory settings

DETECTION PARAMETERS (1/2)

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
					System Command			
2 / 0x02	W	UIntegerT	8 Bit	0	-	64 = Teach Apply 65 = Single value teach - switchpoint 1 66 = Single value teach - switchpoint 2 67 = Two value teach - teachpoint 1 for switchpoint 1 68 = Two value teach - teachpoint 2 for switchpoint 1 69 = Two value teach - teachpoint 1 for switchpoint 2 70 = Two value teach - teachpoint 2 for switchpoint 2 71 = Dynamic teach - switchpoint 1 - start 72 = Dynamic teach - switchpoint 1 - stop 73 = Dynamic teach - switchpoint 2 - start 74 = Dynamic teach - switchpoint 2 - stop 79 = Teach-in cancel	System command	64: Adopt teach values on sensor 65: Fix the switching point 1 on the detected target 66: Fix the switching point 2 on the detected target In static mode: 67: Teach the target 1 of the switchpoint 1 68: Teach the target 2 of the switchpoint 1 The switching point will be fixed between the Targets 1 and 2 In static mode: 69: Teach the target 1 of the switchpoint 2 70: Teach the target 2 of the switchpoint 2 The switching point will be fixed between the Targets 1 and 2 In dynamic mode: 71: Start the teach process of the switchpoint 1 72: Stop the teach process of the switchpoint 1 The switching point is fixed between the target and the background In dynamic mode: 73: Start the teach process of the switchpoint 2 74: Stop the teach process of the switchpoint 2 The switching point is fixed between the target and the background 79: Before applying the teach (using the value 64) it's possible to cancel it
					Parameter			
58 / 0x3A	R/W	UIntegerT	8 Bit	1	0	0 = Q1, 2 = Q2	Teach channel	Select the teach channel
59 / 0x3B	R	UIntegerT	8 Bit	0	-	-	Teach-in-status	The parameter "Teach-in Status" provides feedback on the status and the results of the teach-in process
		UIntegerT	4 Bit	1	0	0 = Idle 1 = Teach successful 2 = Teach successful 3 = Teach successful 4 = Wait for command 5 = Busy 7 = Error	Teach status	Indicates the status of the teach-in process
		Boolean	1 Bit	2	0	false = -, true = Teach successful	Teach flag SP1 -> TP1	Teach flag for SP1 TP1 (subindex access not supported)
		Boolean	1 Bit	3	0	false = -, true = Teach successful	Teach flag SP1 -> TP2	Teach flag for SP1 TP2 (subindex access not supported)
		Boolean	1 Bit	4	0	false = -, true = Teach successful	Teach flag SP2 -> TP1	Teach flag for SP2 TP1 (subindex access not supported)
		Boolean	1 Bit	5	0	false = -, true = Teach successful	Teach flag SP2 -> TP2	Teach flag for SP2 TP2 (subindex access not supported)
196 / 0xC4	R/W	UIntegerT	8 Bit	1	10	10...90	Signal quality level	This value indicates the level at which the signal quality bit changes state. If the signal quality is lower than the signal quality level, the quality bit in the process data is set.

(1) R = Read / W = Write

DATA PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
36 / 0x24	R	UIntegerT	8 Bit	0	-	0 = Device is OK, 1 = Maintenance required, 2 = Out of specification, 3 = Functional check, 4 = Failure	Device Status	Indicator for the current device condition and diagnosis state.
37 / 0x25	R	StringT	3 Bytes	-			Detailed Device Status	List of all currently pending events in the device.
88 / 0x58	R	UIntegerT	64 Bit	0	-	-	Operating data	The 2 following parameters indicate the operating hours counter and the switch cycle counter.
			32 Bit	1	-	-	Counter operating hours	Number of operating hours. The data can be only read; no reset possible
			32 Bit	2	-	-	Counter switch cycle	Number of output change status (On & Off)
95 / 0x5F	R	StringT	560 Bit	0	-	-	Typelabel	Sensor datasheet
			10 Bytes	1	10...70 mm	-	Measurement range	Read the sensor nominal sensing distance
			1 Byte	2	-	-	Resolution	Not applicable
			1 Byte	3	-	-	Linearity	Not applicable
			1 Byte	4	-	-	Hysteresis	Not applicable
			24 Bytes	5	Laser red 655nm, class 1	-	Type of light and laser class	Type of emited light
			8 Bytes	6	<= 12 mA	-	No-load current	Read the sensor nominal no-load current
			10 Bytes	7	<= 1000 Hz	-	Switching frequency	Read the sensor nominal switching frequency
			1 Byte	8	-	-	Warm-up time	Not applicable
			12 Bytes	9	-20...+50 °C	-	Ambient temperature	Read the sensor nominal operating temperature
			1 Byte	10	-	-	Output signal	Not applicable
			1 Byte	11	-	-	Repeatability	Not applicable

FUNCTION PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
12 / 0x0C	R/W	Boolean	16 Bit	0	-	-	Device Access Locks	The access to the device parameters can be restricted by setting appropriate flags within this parameter.
				1	0	false = Unlocked, true = Locked	Parameter Write Access	This lock prevents the write access to all read/write parameters of the device except for the parameter 'Device Access Locks'.
				2	0	false = Unlocked, true = Locked	Data Storage	This lock prevents the write access to the device parameters via the data storage mechanism.
				3	-	-	Local Parameterization	This lock prevents the device settings from being changed via local operating elements on the device. (subindex access not supported)
				4	0	false = Unlocked, true = Locked	Local User Interface	This lock prevents the access to the device settings and display via a local user interface. The user interface is disabled.
24 / 0x18	R/W	StringT	32 Bytes	0	"***...***"	-	Application-specific Tag	Possibility to mark a device with user- or application-specific information.
25 / 0x19	R/W	StringT	32 Bytes	0	"***...***"	-	Function Tag	The parameter Function Tag is dedicated for the user application. It can be used to set role of the device.
26 / 0x1A	R/W	StringT	32 Bytes	0	"***...***"	-	Location Tag	The parameter Location Tag is dedicated for the user application. It can be used to set the location of the device.
208 / 0xD0	R/W	UIntegerT	80 Bit	0	-	-	Smartfunctions switching Q1	Define smartfunctions switching values Q1
			16 Bit	1	0	0...65535	Counter	Switching only every nth defined cycle
			16 Bit	2	0	0...65535	On-delay	In ms, adjustable in 1 ms
			16 Bit	3	0	0...65535	Off-delay	In ms, adjustable in 1 ms
			16 Bit	4	0	0...65535	Impulse	In ms, adjustable in 1 ms
			16 Bit	5	0	0...500	Monitoring frequency	In 1/10 Hz, adjustable in 0.1 Hz steps
209 / 0xD1	R/W	UIntegerT	80 Bit	0	-	-	Smartfunctions switching Q2	Define smartfunctions switching values Q2
			16 Bit	1	0	0...65535	Counter	Switching only every nth defined cycle
			16 Bit	2	0	0...65535	On-delay	In ms, adjustable in 1 ms
			16 Bit	3	0	0...65535	Off-delay	In ms, adjustable in 1 ms
			16 Bit	4	0	0...65535	Impulse	In ms, adjustable in 1 ms
			16 Bit	5	0	0...500	Monitoring frequency	In 1/10 Hz, adjustable in 0.1 Hz steps

(1) R = Read / W = Write

OUTPUT PARAMETERS

Index (dec/hex)	Access(1)	Data type	Length	Sub-index	Default value	Value Range	Object Name	Description
60 / 0x3C	R/W	UIntegerT	32 Bit	0	-	-	Define switching output Q1	Defines the switching point of switching output Q1
			16 Bit	1	100	100...750	Switchpoint 1	Needed for single, window and two-point mode, in 1/10 mm (e.g. 10 mm = 100 1/10 mm)
			16 Bit	2	100	100...750	Switchpoint 2	Needed for window and two-point mode, in 1/10 mm (e.g. 10 mm = 100 1/10 mm)
61 / 0x3D	R/W	UIntegerT	16 Bit	0	-	-	Set-Up switching output Q1	Configure switching output Q1
			8 Bit	1	1	0 = NO, 1 = NC	NO / NC	The parameter "NO / NC" defines whether the switching information is transmitted in inverted or not inverted manner. Select the output function between NO (Normally Open) and NC (Normally Closed).
			8 Bit	2	1	0 = Off 1 = Single Point Mode 2 = Window Mode 3 = Two Point Mode	Switching mode	This parameter allows to select the detection mode of switching output
			8 Bit	3	0	0 = not adjustable	Hysteresis	The parameter "Hysteresis" defines whether a hysteresis is associated with the Switchpoint 1 and Switchpoint 2. The layout of the hysteresis in respect to Switchpoint 1 and Switchpoint 2, for example symmetrical, right-aligned, or left-aligned, etc. is manufacturer/vendor specific. It cannot be defined in the FunctionClass. The interpretation of the hysteresis values (relative or absolute) is also manufacturer/vendor specific.
62 / 0x3E	R/W	UIntegerT	32 Bit	0	-	-	Define switching output Q2	Defines the switching point of switching output Q2
			16 Bit	1	100	100...750	Switchpoint 1	Needed for single, window and two-point mode, in 1/10 mm (e.g. 10 mm = 100 1/10 mm)
			16 Bit	2	100	100...750	Switchpoint 2	Needed for window and two-point mode, in 1/10 mm (e.g. 10 mm = 100 1/10 mm)
63 / 0x3F	R/W	UIntegerT	16 Bit	0	-	-	Set-Up switching output Q2	Configure switching output Q2
			8 Bit	1	1	0 = NO, 1 = NC	NO / NC	The parameter "NO / NC" defines whether the switching information is transmitted in inverted or not inverted manner. Select the output function between NO (Normally Open) and NC (Normally Closed).
			8 Bit	2	1	0 = Off 1 = Single Point Mode 2 = Window Mode 3 = Two Point Mode	Switching mode	This parameter allows to select the detection mode of switching output
			8 Bit	3	0	0 = not adjustable	Hysteresis	The parameter "Hysteresis" defines whether a hysteresis is associated with the Switchpoint 1 and Switchpoint 2. The layout of the hysteresis in respect to Switchpoint 1 and Switchpoint 2, for example symmetrical, right-aligned, or left-aligned, etc. is manufacturer/vendor specific. It cannot be defined in the FunctionClass. The interpretation of the hysteresis values (relative or absolute) is also manufacturer/vendor specific.
213 / 0xD5	R/W	UIntegerT	8 Bit	0	-	-	Function Q1	-
			8 Bit	1	2	0 =NPN ,1 = PNP, 2 = Autodetect	PNP / NPN	Define the output function type of the sensor (NPN / Autodetect / PNP).
221 / 0xDD	R/W	UIntegerT	8 Bit	0	-	-	Function control input	-
			8 Bit	1	1	0 = Control input disable 1 = Control input enable	Control input	Enable the Input white wire or disable it

EVENTS

Code (dec/hex)	Warning	Name	Description
20480 / 0x5000	Error	Device hardware fault	Exchange device
20497 / 0x5011	Error	Non-volatile memory loss	Check batteries
16384 / 0x4000	Error	Temperature fault	Overload
16912 / 0x4210	Warning	Device temperature overrun	Clear source of heat
16928 / 0x4220	Warning	Device temperature underrun	Insulate device

(1) R = Read / W = Write