



ODS110L1.3/L(C/V)T-M12

50139833 DOC DS IO-Link ODS110 LCVT

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycle time	2.7 ms
SIO mode	supported
Length process data	24 Bit
Vendor ID	338/0x0152
Device ID	2174/0x00087E 2175/0x00087F
Data storage	supported
Specification IO-Link	1.1

PROCESS DATA																										
SMART SENSOR PROFILE																										
Byte 0								Byte 1								Byte 2										
7	6	5	4	3	2	1	0	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	MSB D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	LSB D0	Signal quality	Switching output Q ₂	Switching output Q ₁			
Signal quality 0 ... 100 %								Process value - distance in mm, characteristic curve not adjustable																		
Signal quality score - adjustable via index 0xC4																										
Switching output 2 - virtual switching output																										
Switching output 1 - corresponds to switching output Q in SIO-mode																										

MEASUREMENT OUTPUT																							
Byte 0								Byte 1								Byte 2							
7	6	5	4	3	2	1	0	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	MSB D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	LSB D0
Signal quality 0 ... 100 %								Process value - distance in mm, characteristic curve adjustable, averaging rate applicable															

IDENTIFICATION DATA						
Index dec / hex	Access	Data type	Length	Description	Comment	
16 / 0x10	Read	String	Max. 64 Byte	Vendor name	Leuze electronic GmbH+Ko.KG	
17 / 0x11				Vendor text	www.leuze.com	
18 / 0x12				Product name	ODS110L1.3/L(C/V)T-M12	
19 / 0x13				Product ID	50138063 / 50138065	
20 / 0x14				Product text	Optical distance sensor	
23 / 0x17				Firmware revision	1.0	

SMART SENSOR PROFILE PARAMETER								
Index in dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment
12 / 0x0C	Read / write	Uint	16 Bit		0x00 0x00	D1, D3	Lock functions	D1 - data storage lock D3 - local user interface lock
24 / 0x18	Read / write	StringT	32 characters		**** ... ****		Application text	Free text, e.g. item designation
58 / 0x3A	Read / write	Uint	8 Bit		0	0 ... 2	Teach-channel	0/1 = switching channel 1 2 = switching channel 2
59 / 0x3B	Read	Uint	8 Bit				Teach-in status	
Define switching output Q ₁								
60 / 0x3C	Read / write	Uint	16 Bit	1	300	100 ... 5000	Switchpoint 1	Needed for single, window and two-point mode, indicated in mm
				2	3000	100 ... 5000	Switchpoint 2	Needed for window and two-point mode, indicated in mm
Set-up switching output Q ₁								
61 / 0x3D	Read / write	Uint	8 Bit	1	0	0, 1	NO / NC	0 = NO, 1 = NC
				2	2	0 ... 3	Switching mode	0 - disable 1 - single-point mode 2 - window mode ¹⁾ 3 - two-point mode ¹⁾
			16 Bit	3	0	0	Hysteresis	Not adjustable
Define switching output Q ₂ – only virtual via IO-Link								
62 / 0x3E	Read / write	Uint	16 Bit	1	300	100 ... 5000	Switchpoint 1	Needed for single, window and two-point mode, indicated in mm
				2	3000	100 ... 5000	Switchpoint 2	Needed for window and two-point mode, indicated in mm
Set-up switching output Q ₂ – only virtual via IO-Link								
63 / 0x3F	Read / write	Uint	8 Bit	1	0	0, 1	NO / NC	0 = NO, 1 = NC
				2	0	0 ... 3	Switching mode	0 - disable 1 - single-point mode 2 - window mode ¹⁾ 3 - two-point mode ¹⁾
			16 Bit	3	0	0	Hysteresis	Not adjustable

PARAMETER								
Index dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment
88 / 0x58	Read	Uint	32 Bit	1			Read operating data	
				2			Counter operating hours	No reset possible
							Counter switch cycle	No reset possible
95 / 0x5F	Read	String		1	100 ... 5000 mm		Read sensor characteristics	
				2	< 5 mm		Measurement range	
				3	± 30 mm		Resolution Q _A	
				4	20 mm		Linearity Q _A	
				5	Laser, red 655 nm class 1		Hysteresis Q _A / Q	
				6	≤ 60 mA		Type of light	
				7	≤ 250 Hz		No-load current	
				8	20 min.		Switching frequency	
				9	-40 ... +60 °C		Warm-up time	
				10	0 ... 10 V, 4 ... 20 mA		Ambient temperature	
				11	1.2 mm		Output signal	
							Repeatability 1 σ	
189 / 0xBD	Read / write	Uint	8 Bit		0	0 ... 10	Intensity average filter	0 = off 10 = max.
193 / 0xC1	Read / write	Int	16 Bit		0	-5000 ... 5000	Offset	mm
185 / 0xC3	Read / write	Uint	8 Bit		1	0, 1	Gradient	0 = negative 1 = positive
202 / 0xCA	Read / write	Uint	8 Bit		1	0, 1	Process data output	0 = measurement output 1 = smart sensor profile
196 / 0xC4	Read / write	Uint	8 Bit		10	10 ... 90	Signal quality level	%
207 / 0xCF	Read	Uint	8 Bit			0 ... 100	Current signal quality	%
Analogue output								
194 / 0xC2	Read / write	Uint		1	0 = ODS110L1.3/LVT-M12 1 = ODS110L1.3/LCT-M12	0, 1	Output signal	0 = 0 ... 10 V 1 = 4 ... 20 mA
			32 Bit	2	300	100 ... 3000	Min. measurement value	In mm
			32 Bit	3	3000	100 ... 3000	Max. measurement value	
Smart functions Q ₁								
208 / 0xD0	Read / write	Uint	16 Bit	1	0	0 ... 65535	Counter	
				2	0	0 ... 65535	On delay	In ms, adjustable in 1ms
				3	0	0 ... 65535	Off delay	In ms, adjustable in 1ms
				4	0	0 ... 65535	Impulse	In ms, adjustable in 1ms
				5	0	0 ... 50	Monitoring frequency	In Hz, adjustable in 0.1 Hz steps ²⁾
Smart functions Q ₂ - on virtual switching output Q ₂								
209 / 0xD1	Read / write	Uint	16 Bit	1	0	0 ... 65535	Counter	
				2	0	0 ... 65535	On delay	In ms, adjustable in 1ms
				3	0	0 ... 65535	Off delay	In ms, adjustable in 1ms
				4	0	0 ... 65535	Impulse	In ms, adjustable in 1ms
				5	0	0 ... 50	Monitoring frequency	In Hz, adjustable in 0.1 Hz steps ²⁾
Function switching output Q ₁								
213 / 0xD5	Read / write	Uint	8 Bit	1	2	0 ... 2	PNP / NPN	0 = NPN 1 = PNP 2 = auto-detect
Control input								
221 / 0xDD	Read / write	Uint	16 Bit	1	1	0, 1	Activation control input	0 = PIN 2 disable 1 = PIN 2 active

SYSTEM COMMANDS								
Index dec / hex	Access	Data type	Length	Subindex	Function dec / hex	Range	Description	Comment
2 / 0x02	Read / write	Uint	8 Bit		64 / 0x40		Teach apply	Adopt teach values on sensor
					65 / 0x41		Single value teach - switchpoint 1	The switchpoint is on the teach value
					66 / 0x42		Single value teach - switchpoint 2	
					67 / 0x43		Two value teach - teachpoint 1 for switchpoint 1	The switchpoint is in the middle of both teachpoints
					68 / 0x44		Two value teach - teachpoint 2 for switchpoint 1	
					69 / 0x45		Two value teach - teachpoint 1 for switchpoint 2	
					70 / 0x46		Two value teach - teachpoint 2 for switchpoint 2	
					71 / 0x47		Dynamic teach - switchpoint 1 - start	The switchpoint is between the min. / max. value
					72 / 0x48		Dynamic teach - switchpoint 1 - stop	
					73 / 0x49		Dynamic teach - switchpoint 2 - start	
					74 / 0x4A		Dynamic teach - switchpoint 2 - stop	
					79 / 0x4F		Teach cancel	
					160 / 0xA0		Emitter off	
					161 / 0xA1		Emitter on	
					162 / 0xA2		Reset switching channel	Reset of current switching channel
					0xAC		Start measurement range	
					0xAD		End measurement range	
					224 / 0xE0		Offset teach	
					175 / 0xAF		Detect sensor	1x activated - sensor flashes 60 s 2x activated - permanent flashing 3x activated - stop permanent flashing
					128 / 0x80		Reset sensor	
130 / 0x82		Factory settings						

EVENTS				
Event	Status value	Warning		
20480 / 0x5000	4	Error	Device hardware fault	Laser failure
20497 / 0x5011	4	Error	Non-volatile memory loss	
65425 / 0xFF91	0	Notice	Data storage - upload request	
16384 / 0x4000	4	Error	Temperature fault	Temperature range exceeded

¹⁾ Min. difference between both switchpoints 60 mm.

²⁾ Differs to real frequency $\pm 10\%$