



FT 55-RLAP2-(2)PNSL

096-00005 23.06.2020-04
www.sensopart.com

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycle time	2.7ms
SIO mode	Supported
Length process data	24 Bit
Vendor ID	347 (0x01 0x5B)
Device ID	2306 / 3586
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 bit - adjustable via index 0xC4																							
Switching output 2 - FT 55-...-L5 corresponds to Q ₂ in SIO-mode, FT 55-...-L4 only virtual																							
Switching output 1 - corresponds to switching output Q ₁ 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	Subindex	Description	Comment	
16 / 0x10	Read	String	Max. 64 Byte	1	Vendor name	Sensopart Industriesensorik GmbH	
17 / 0x11					Vendor text	www.sensopart.com	
18 / 0x12					Product name	FT 55-RLAP2-(2)PNSL	
19 / 0x13					Product ID	623-11035 / 622-21022	
20 / 0x14					Product text	60 ... 5000 mm, Q ₁ , (Q ₂), IN, Auto / PNP / NPN, M12, 5-pin / 4-pin	
23 / 0x17					Firmware revision	2.0	

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	1	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, 1, 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	3000	60 ¹⁾ ... 5000	Switchpoint 1	Needed for single, window and two-point mode, indicated in mm
				2	3100	60 ¹⁾ ... 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	1	0 ... 3	Switching mode	0 = Off 1 = Single Point Mode 2 = Window Mode ²⁾ 3 = Two Point Mode ²⁾
Define switching output Q ₂ - FT 55-...-L4 only virtual via IO-Link								
62 / 0x3E	Read / write	Uint	16 Bit	1	3000	60 ¹⁾ ... 5000	Switchpoint 1	Needed for single, window and two-point mode, indicated in mm
				2	3100	60 ¹⁾ ... 5000	Switchpoint 2	Needed for window and two-point mode, indicated in mm
Set-up switching output Q ₂ - FT 55-...-L4 only virtual via IO-Link								
63 / 0x3F	Read / write	Uint	8 Bit	1	0	0, 1	NO / NC	0 = NO, 1 = NC
				2	0 = FT 55- ... L4 1 = FT 55- ... L5	0 ... 3	Switching mode	0 = Off 1 = Single Point Mode 2 = Window Mode ²⁾ 3 = Two Point Mode ²⁾
			16 Bit	3	0	0	Hysteresis	Not adjustable

¹⁾ Deviation of the set value < 100 mm up to 30 mm, for exact switching behaviour teach via system command

²⁾ Min. difference between both switchpoints 80 mm.

PARAMETER								
Index dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment
							Operating data	
88 / 0x58	Read	Uint	32 Bit	1			Counter operating hours	No reset possible
				2			Counter switch cycle	No reset possible
							Electronic data sheet	
95 / 0x5F	Read	String		1	60 ¹⁾ ... 5000 mm		Measurement range	
				2	< 5 mm		Resolution	
				3	± 15 mm		Linearity	
				4	20 mm		Hysteresis	
				5	Laser, red 655 nm class 1		Type of light and laser class	
				6	≤ 60 mA		No-load current	
				7	≤ 250 Hz		Switching frequency	
				8	20 min.		Warm-up time	
				9	-40 ... +60 °C		Ambient temperature	
189 / 0xBD	Read / write	Uint	8 Bit	1	0	0,1, ...10	Intensity average filter	0 = 1x response time QA ... 10 = 100x response time QA
193 / 0xC1	Read / write	Int	16 Bit		0	-5000 ... 5000	Offset	mm
195 / 0xC3	Read / write	Uint	8 Bit		1	0, 1	Invert characteristic curve	0 = negative, 1 = positive
196 / 0xC4	Read / write	Uint	8 Bit		10	10 ... 90	Signal quality level	%
202 / 0xCA	Read / write	Uint	8 Bit		1	0, 1	Processdata output	0 = Measurement output 1 = Smart sensor profile
207 / 0xCF	Read	Uint	8 Bit		-	0 ... 100	Current signal quality	%
							SmartFunctions switching output 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 ... 500	Monitoring frequency	1 step = 0.1 Hz ³⁾
							SmartFunctions switching output Q ₂ - FT 55-...-L4 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 ... 500	Monitoring frequency	1 step = 0.1 Hz ³⁾
							Function switching output Q ₁	
213 / 0xD5	Read / write	Uint	8 Bit	1	2	0 ... 2	PNP / NPN	0 = NPN, 1 = PNP, 2 = Autodetect
							Function switching output Q ₂ - only FT 55-RLAP2-2PNSL-L5	
214 / 0xD6	Read / write	Uint	8 Bit	1	2	0 ... 2	PNP / NPN	0 = NPN, 1 = PNP, 2 = Autodetect
				2	0	0, 1	Function Q ₂	0 = Switching output Q ₂ 1 = Antivalent Q ₁
							Control input	
221 / 0xDD	Read / write	Uint	8 Bit	1	1	0, 1	Control input	0 = Control input disable 1 = Control input enable

¹⁾ Deviation of the set value < 100 mm up to 30 mm, for exact switching behaviour teach via system command

³⁾ Differs to real frequency ±10 %

SYSTEM COMMANDS								
Index dec / hex	Access	Data type	Length	Subindex	Function dec / hex	Range	Description	Comment
2 / 0x02	Read / write	Uint	8 Bit	1	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 Teachpoint 1 and teachpoint 2 are both necessary
					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-in cancel	
					160 / 0xA0		Emitter OFF	
					161 / 0xA1		Emitter ON	
					162 / 0xA2		Reset switching-channel	Reset of current switching channel
					174 / 0xAE		Offset teach	
					175 / 0xAF		Detect sensor	1x activated - sensor flashes 60 s 2x activated - permanent flashing 3x activated - stop permanent flashing
					128 / 0x80		Device Reset	
					130 / 0x82		Restore Factory Settings	

EVENTS				
Event	Status value	Warning		
20480 / 0x5000	4	Error	Device hardware fault	
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