

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycle time	2.7 ms
SIO mode	Supported
Length process data	24 Bit
Vendor ID	347 (0x01 0x5B)
Device ID	3842 / 4098
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 - 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	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-RLAP-5-PNS(U/I)L-L5
19 / 0x13					Product ID	622-21023 / 622-21024
20 / 0x14					Product text	100 ... 5000 mm, Q ₁ , (Q ₂), 0 ... 10 V / 4 ... 20 mA, Auto / PNP / NPN, M12, 5-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 = Q ₁ 2 = Q ₂
59 / 0x3B	Read	Uint	8 Bit				Teach 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 = Off 1 = Single Point Mode 2 = Window Mode ¹⁾ 3 = Two Point Mode ¹⁾
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 = Off 1 = Single Point Mode 2 = Window Mode ¹⁾ 3 = Two Point Mode ¹⁾
			16 Bit	3	0	0	Hysteresis	Not adjustable

¹⁾ Min. difference between both switchpoints 60 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	100 ... 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		
				10	4...20 mA, 0...10 V		Output signal		
				11	1.2 mm		Repeatability		
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, not Q _A	
195 / 0xC3	Read / write	Uint	8 Bit		1	0, 1	Invert characteristic curve	0 = negative not Q _A 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	%	
Analog output Q _A									
194 / 0xC2	Read / write	Uint	8 Bit	1	0 = FT 55-RLAP-5-PNSUL 1 = FT 55-RLAP-5-PNSIL	0, 1	Output signal	0 = 0 ... 10 V 1 = 4 ... 20 mA	
			16 Bit	2	300	100 ... 5000	Start measurement range	In mm	
			16 Bit	3	3000	100 ... 5000	End measurement range		
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 ²⁾	
SmartFunctions switching output 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 ... 500	Monitoring frequency	1 step = 0.1 Hz ²⁾	
Function switching output Q ₁									
213 / 0xD5	Read / write	Uint	8 Bit	1	2	0 ... 2	PNP / NPN	0 = NPN 1 = PNP 2 = Autodetect	
Control input									
221 / 0xDD	Read / write	Uint	8 Bit	1	1	0, 1	Control input	0 = Control input disable 1 = Control input enable	

²⁾ 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	
					68 / 0x44		Two value teach - teachpoint 2 for switchpoint 1	The switchpoint is in the middle of both teachpoints Teachpoint 1 and teachpoint 2 are both necessary
					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
					172 / 0xAC		Start measurement range	
					173 / 0xAD		End measurement range	
					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		Reset sensor						
130 / 0x82		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