


FT 55-RL(2)AM-...-PNSUIDL-L5M

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 www.sensopart.com

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycletime	3 ms
SIO mode	Supported
Length process data	32 Bit
Vendor ID	347 (0x01 0x5B)
Device ID	13313 / 13569 / 39937 / 40193
Data storage	Supported
Specification IO-Link	1.1

PROCESS DATA																															
SMART-SENSOR PROFILE																															
Byte 0								Byte 1								Byte 02								Byte 3							
7	6	5	4	3	2	1	0	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 D23	D22	D21	D20	D19	D18	D17	D16	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	LSB D0	X	X	X	X	X			
Process value - distance in μm , characteristic curve not adjustable																								Signal quality		Switching output 2		Switching output 1			
Signal quality score - adjustable via index 0xC4																															
Switching output 2 - corresponds to switching output Q_2 in SIO-Mode																															
Switching output 1 - corresponds to switching output Q_1 in SIO-Mode																															

Measurement output																															
Byte 0								Byte 1								Byte 2								Byte 3							
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MSB D23	D22	D21	D20	D19	D18	D17	D16	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	LSB D0	D7	D6	D5	D4	D3	D2	D1	D0
Process value - distance in μm , characteristic curve adjustable, average filter and hold functions applicable																								Signal quality in %							

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-RL(2)AM-...-PNSUIDL-L5M
19 / 0x32					Product ID	624-41004 / 624-41006 / 624-41008 / 624-41009
20 / 0x11					Product Text	Optical distance sensor
21 / 0x15					Serial Number	
23 / 0x17					Firmware Version	1.0

SMARTSENSOR PROFILE PARAMETER								
Index 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	(Device specific)		Switchpoint 1	Needed for single, window and two-point mode, μm
				2	(Device specific)		Switchpoint 2	Needed for window and two-point mode, μm
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, 1, 2, 3	Switching mode	0 = Off 1 = single-point-mode 2 = window-mode 3 = two-point-mode
			16 Bit	3	0	0	Hysteresis	Not adjustable
Define switching output Q_2								
62 / 0x3E	Read / write	Uint	16 Bit	1			Switchpoint 1	Needed for single, window and two-point mode, μm
				2			Switchpoint 2	Needed for window and two-point mode, μm
Set-Up switching output Q_2								
63 / 0x3F	Read / write	Uint	8 Bit	1	0	0, 1	NO / NC	0 = NO, 1 = NC
				2	1	0, 1, 2, 3	Switching mode	0 = Off 1 = single-point-mode 2 = window-mode 3 = two-point-mode
			16 Bit	3	0	0	Hysteresis	Not adjustable

PARAMETER									
Index dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment	
81 / 0x51	Read / write	Uint	8 Bit	1	All events allowed	0 ... 0x1F	Events On / Off	See table events	
Read operating data									
88 / 0x58	Read	Uint	32 Bit	1	0		Counter operating hours	No reset possible	
				2	0		Counter switch cycle	No reset possible	
Read sensor characteristics									
95 / 0x5F	Read	String		1	(Device specific)		Measurement range		
				2	(Device specific)		Resolution		
				3	(Device specific)		Linearity		
				4	(Device specific)		Hysteresis		
				5	(Device specific)		Type of light and laser class		
				6	≤ 50 mA		No-load current		
				7	(Device specific)		Switching frequency		
				8	20 min.		Warm-up time		
				9	-20 ... 50 °C		Ambient temperature		
				10	4 ... 20 mA 2 ... 10 mA 0 ... 10 V 2 ... 10 V		Output signal		
				11	(Device specific)		Repeatability		
189 / 0xBD	Read / write	Uint	8 Bit	1	1	0 ... 3	Intensity average filter	0 = 1 ms 1 = 10 ms 2 = 100 ms 3 = 1000 ms	
193 / 0xC1	Read / write	Int	16 Bit		0		Offset	(only active on IO-Link)	
185 / 0xC3	Read / write	Uint	8 Bit		1	1	0, 1	Invert characteristic curve	0 = negative 1 = positive Only active on measurement output
202 / 0xCA	Read / write	Uint	8 Bit		1	1	0, 1	Processdata output	0 = Measurement output 1 = Smart-sensor-profile
196 / 0xC4	Read / write	Uint	8 Bit		10	10 ... 90		Signal quality level	In %, minimum = 10 %
Analog output									
194 / 0xC2	Read / write	Uint	8 Bit	1	1	0 ... 4	Analog output	0 = disable 1 = 4 ... 20 mA 2 = 2 ... 10 mA 3 = 0 ... 10 V 4 = 2 ... 10 V	
	Read / write	Uint	32 Bit	2	(Device specific)		Start measurement range	In µm	
	Read / write	Uint	32 Bit	3	(Device specific)		End measurement range	In µm	
	Read / write	Uint	8 Bit	4	0 = Off	0, 1	Value hold	0 = Off 1 = On	
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 1 ms	
				3	0	0...65535	Off delay	In ms, adjustable in 1 ms	
				4	0	0...65535	Impulse (one shot)	In ms, adjustable in 1 ms	
				5	0	0...500	Monitoring frequency	In 1/10 Hz, 10 Hz ± 100 % ¹⁾	
Smart functions Q ₂									
209 / 0xD1	Read / write	Uint	16 Bit	1	0	0...65535	Counter		
				2	0	0...65535	On delay	In ms, adjustable in 1 ms	
				3	0	0...65535	Off delay	In ms, adjustable in 1 ms	
				4	0	0...65535	Impulse (one shot)	In ms, adjustable in 1 ms	
				5	0	0...500	Monitoring frequency	In 1/10 Hz, 10 Hz ± 100 % ¹⁾	
Function switching output Q ₁									
213 / 0xD5	Read / write	Uint	8 Bit	1	2	0 ... 3	PNP / NPN	0 = NPN 1 = PNP 2 = Autodetect 3 = Push-Pull IO-Link only specified for PNP	
				2	0	0, 1	Function Q ₁	0 = Switching output 1 = Good target	
Function switching output Q ₂									
214 / 0xD6	Read / write	Uint	8 Bit	1	2	0 ... 3	PNP / NPN	0 = NPN 1 = PNP 2 = Autodetect 3 = Push-Pull IO-Link only specified for PNP	
				2	0	0 ... 10	Function PIN 5	0 = Switching output 2 = Antivalent 3 = Laser ON/OFF 4 = Input key lock 5 = Trigger & hold 6 = Auto center 7 = Auto zero 8 = Min. hold 9 = Max. hold 10 = Difference hold	
Display									
224 / 0xE0	Read / write	Uint	8 Bit	1	1	0, 1	Screensaver	0 = Screensaver OFF 1 = Screensaver ON	
				2	0	0, 1	Rotate display	0 = read from back 1 = read from front	
				3		0, 1	Value mode	0 = raw value 1 = manipulated value	

¹⁾ differs to real frequency ±10 %

SYSTEM COMMANDS							
Index dec / hex	Access	Data type	Length	Subindex	Function dec / hex	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 teach-points
					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 in the middle of the min. / max. value
					72 / 0x48	Dynamic teach - switchpoint 1 - stop	
					73 / 0x49	Dynamic teach - switchpoint 2 - start	Teachpoint 1 and teachpoint 2 are both necessary
					74 / 0x4A	Dynamic teach - switchpoint 2 - stop	
					79 / 0x4F	Teach cancel	
					160 / 0xA0	Emitter Off	
					161 / 0xA1	Emitter ON	
					162 / 0xA2	Reset switching output	Reset of current switching channel
					169 / 0xA9	Trigger input pin	Enables physical pin 5 as trigger input
					170 / 0xAA	Trigger Q ₂ high	To test function Q ₂ 214 / 0xD6, Q2 auto functions only active on analog output
					171 / 0xAB	Trigger Q ₂ low	
					172 / 0xAC	Analog - start measurement range	
					173 / 0xAD	Analog - end measurement range	
174 / 0xAE	Offset teach	Only IO-Link					
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 Codes	Bit parameter 0x51	Definition	Device status value	Type	Comment
0x4000	1	Temperature fault	4	Error	Temperature absolute max. ratings
-	2	-	-	-	
-	3	-	-	-	
0x5000	4	Device hardware fault	4	Error	
0x5011	5	Non-volatile memory loss	4	Error	
0xFF91	-	Data storage - upload request	0	Notification	Not blockable via 0x51

If all activated = relevant bits are high

Bin = 11001

hex = 19

Dec = 25

Default event 0x5011 activated (default 0x51 = 0x10)