

FT 55-CM-...-PNSDL-L5M

068-14790 08.06.2017-00
www.sensopart.com

GENERAL INFORMATION	
Communication mode IO-Link	COM 2
Min. cycle time	4 ms
SIO mode	supported
Length process data	48 Bit
Vendor ID	347 (0x01 0x5B)
Device ID	114
Data storage	supported
Specification IO-Link	1.1

PROCESS DATA PROFILE 0: SWITCHING OUTPUTS

[illegible]

PROCESS DATA PROFILE 1: COLOR VALUES

Byte 0								Byte 1							Byte 2							Byte 3							Byte 4							Byte 5																					
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	7	6	5	4	3	2	1	0																		
Energy MSB D11								Energy LSB D0								Blue MSB D11							Blue LSB D0							Green MSB D11							Green LSB D0							Red MSB D11							Red LSB D0						
Energy value [%]																																																									
Color value blue [%]																																																									
Color value green [%]																																																									
Color value red [%]																																																									

IDENTIFICATION DATA

Index dec / hex	Access	Data type	Length		Description	Comment
16 / 0x10	Read	String	Max. 64 Byte		Vendor name	SensoPart Industriesensorik GmbH
17 / 0x11					Vendor text	www.sensopart.com
18 / 0x12					Product name	FT 55-CM-...-PNSDL-L5M
19 / 0x13					Product ID	
20 / 0x14					Product text	Optical color sensor
23 / 0x17					Firmware revision	1.0

PARAMETER

Index dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment
12 / 0x0C	Read / write	Uint	16 Bit		0x00 0x00	D1, D2, D3	Lock functions	D1 - data storage lock D2 - local parametrization lock D3 - local user interface lock
24 / 0x18	Read / write	StringT	32 characters		"" ... ""	16 ... 32 characters	Application text	Free text, e.g. item designation
203 / 0xCB	Read / write	Uint	8 Bit		1	0 ... 7	Choose teach-channel	Number of switching output (default value 0 = channel 1)
204 / 0xCC	Read	Uint	8 Bit				Teach status	
81 / 0x51	Read / write	Uint	8 Bit		All events allowed	0 ... 0x1F	Events on / off	See table events
Read operating data								
88 / 0x58	Read	Uint	32 Bit	1		Counter operating hours	No reset possible	
				2		Counter switch cycle	No reset possible	
Read sensor characteristics								
95 / 0x5F	Read	String		1		Measurement range	C1 = 12 ... 32 mm C3 = 18 ... 32 mm C4 = 20 ... 150 mm	
				2	LED	Type of light		
				3	≤ 60 mA	No-load current		
				4	≤ 3 kHz	Switching frequency		
				5	300 s	Warm-up time		
				6	-20 ... +55 °C	Ambient temperature		

PARAMETER								
Index dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment
196 / 0xC4	Read / write	Uint	8 Bit		10	10 ... 90	Signal quality level	%
207 / 0xCF	Read	Uint	8 Bit			0 ... 100	Current signal quality	%
202 / 0xCA	Read / write	Uint	8 Bit		0	0 ... 1	Process data profile	0 = switchig channels 1 = color values
224 / 0xE0	Display							
	Read / write	Uint	8 Bit	1	On	0 ... 1	Screensaver	
	Read / write	Uint	8 Bit	2		0 ... 1	Rotate display	
Function Q All								
176 / 0xB0	Read / write	Uint	8 Bit	1	1	0 ... 2	PNP / NPN	0 = NPN 1 = PNP 2 = Auto Detect on Q1
				2	1 = 30 Hz	0 ... 6	Switching frequency	0 = 3 Hz 1 = 30 Hz 2 = 100 Hz 3 = 300 Hz 4 = 500 Hz 5 = 1500 Hz 6 = 3000 Hz
				3	Off	0 ... 1	Binary output	On / off. Enables logical combination of switching outputs
177 / 0xB1	Read / write	Uint	8 Bit		Color mode	0 ... 2	Detection mode	0 = color mode 1 = best fit energy evaluation off 2 = best fit energy evaluation on
96 / 0x60	Q ₁ (physical) *							
	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 1	Function switching output	0 = disable 1 = output
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on
				5	0	0 ... 65535	Counter	Switches only every nth cycle
				6	0.	0 ... 65535	On delay	In ms, adjustable in 1 ms
				7	0	0 ... 65535	Off delay	In ms, adjustable in 1 ms
				8	0	0 ... 65535	Impulse	In ms, adjustable in 1 ms
				9	0	0 ... 2	Not connected	0 = not connected 1 = combine with color C4 2 = exclude color C4
97 / 0x61	Q ₂ (physical) *							
	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 3	Function switching output	0 = disable 1 = output 3 = input (trigger)
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on
				5	0	0 ... 65535	Counter	Switches only every nth cycle
				6	0	0 ... 65535	On delay	In ms, adjustable in 1 ms
				7	0	0 ... 65535	Off delay	In ms, adjustable in 1 ms
				8	0	0 ... 65535	Impulse	In ms, adjustable in 1 ms
				9	0	0 ... 2	Not connected	0 = not connected 1 = combine with color C5 2 = exclude color C5
98 / 0x62	Q ₃ (physical) *							
	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 2	Function switching output	0 = disable 1 = output 2 = input (keylock)
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on
				5	0	0 ... 65535	Counter	Switches only every n th cycle
				6	0	0 ... 65535	On delay	In ms, adjustable in 1 ms
				7	0	0 ... 65535	Off delay	In ms, adjustable in 1 ms
				8	0	0 ... 65535	Impulse	In ms, adjustable in 1 ms
				9	0	0 ... 2	Not connected	0 = not connected 1 = combine with color C6 2 = exclude color C6

PARAMETER								
Index dec / hex	Access	Data type	Length	Subindex	Default value	Range	Description	Comment
Q ₄ (virtual) *								
99 / 0x63	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 2	Function switching output	0 = disable 1 = output
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on
Q ₅ (virtual) *								
100 / 0x64	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 1	Function switching output	0 = disable 1 = output
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on
Q ₆ (virtual)								
101 / 0x65	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 1	Function switching output	0 = disable 1 = output
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on
Q ₇ (virtual)								
102 / 0x66	Read / write	Uint	8 Bit	1	3	0 ... 8	Tolerance	0 = finest tolerance level 1 = 2 nd tolerance level 2 = 3 rd tolerance level ... 8 = roughest tolerance level
				2	N.O.	0 ... 1	N.O. / N.C.	0 = N.O., 1 = N.C.
				3	Output	0 ... 1	Function switching output	0 = disable 1 = output
				4	On	0 ... 1	Energy evaluation off / on	0 = off, 1 = on

* Smart functions (counter, delays, impulse) only work in the color mode (CM) while having no effect in best-fit mode (BF)

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SYSTEM COMMANDS								
Index dec / hex	Access	Data type	Length		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	Teaches the color seen at this moment
					71 / 0x47		Color scan - start	Detects all colors taught during the scan
					72 / 0x48		Color scan - stop	
					79 / 0x4F		Teach cancel	
					160 / 0xA0		Emitter off	
					161 / 0xA1		Emitter on	
					162 / 0xA2		Reset switching channel	Reset of current switching channel
					169 / 0xA9		Trigger Q2 Input	To test function set Q ₂ as trigger input
					170 / 0xAA		Trigger Q ₂ high	
					171 / 0xAB		Trigger Q ₂ low	
					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 setting	

EVENTS						
Event	Events ON/OFF	Status value	Warning			
20480 / 0x5000	3	4	Error		Device hardware fault	
20497 / 0x5011	4	4	Error		Non-volatile memory loss	
65425 / 0xFF91		0	Notice		Data storage - upload request	
16384 / 0x4000	0	4	Error		Temperature fault	