IO-Link Data Reference Guide: CL50 Pro

IO-Link Data Map

This document refers to the following IODD file: Banner_Engineering-CL50RGBIOL-20210903-IODD1.1.xml. The IODD file and support files can be found on www.bannerengineering.com under the download section of the product family page.

Communication Parameters

The following communication parameters are used.

Parameter	Value
IO-Link revision	V1.1
Process Data In length	N/A
Process Data Out length	3-bytes
Bit Rate	38400 bps
Minimum cycle time	20 ms

Parameter	Value
Port class	A
SIO mode	No
Smart sensor profile	N/A
Block parameterization	Yes
Data Storage	Yes

IO-Link Process Data In (Device to Master)

Not applicable.

IO-Link Process Data Out (Master to Device)

Run Mode			
Subindex	**Name**	**Number of Bits**	**Data Values**
1	Color 1	4	0 = Green, 1 = Red, 2 = Orange, 3 = Amber, 4 = Yellow, 5 = Lime Green, 6 = Spring Green, 7 = Cyan, 8 = Sky Blue, 9 = Blue, 10 = Violet, 11 = Magenta, 12 = Rose, 13 = White, 14 = Custom 1, 15 = Custom 2
2	Color 2	4	0 = Green, 1 = Red, 2 = Orange, 3 = Amber, 4 = Yellow, 5 = Lime Green, 6 = Spring Green, 7 = Cyan, 8 = Sky Blue, 9 = Blue, 10 = Violet, 11 = Magenta, 12 = Rose, 13 = White, 14 = Custom 1, 15 = Custom 2
3	Animation	3	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep
4	Pulse Pattern	3	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random
5	Speed	2	0 = Medium, 1 = Fast, 2 = Slow
6	Color 1 Intensity	3	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom
7	Color 2 Intensity	3	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom
8	Audible State	2	0 = Off, 1 = On, 2 = Pulsed, 3 = SOS Pulse

Octet 0								
Bit Offset	23	22	21	20	19	18	17	16
Subindex	8		7			6		
Value	1	0	0	0	0	0	0	0
Example	Audible State: On		Color 2 Intensity: High			Color 1 Intensity: High		

Octet 1								
Bit offset	15	14	13	12	11	10	9	8
Subindex	5		4			3		
Value	1	0	0	0	0	0	1	1
Example	Speed: Fast		Pulse Pattern: Normal			Animation: Two Color Flash		

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Octet 2								
Bit offset	7	6	5	4	3	2	1	0
Subindex	2				1			
Value	0	0	0	1	0	0	0	0
Example	Color 2: Red				Color 1: Green			

Parameters Set Using IO-Link

These parameters can be read from and/or written to an IO-Link model of the CL50 Pro.

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI
0	1-16	Direct Parameter Page 1 (incl. Vendor ID & Device ID)				rw		
1	1-16	Direct Parameters Page 2				rw		
2		Standard Command		130 = Restore Factory Settings		wo		
3-11								
12		**Device Access Locks**						
	0	Parameter (write) Access Lock	Boolean	0 = off, 1 = on	0	rw	y	
	1	Data Storage Lock	Boolean	0 = off, 1 = on	0	rw	y	
	2	Local Parameterization Lock	Boolean	0 = off, 1 = on		rw	y	
	3	Local User Interface Lock	Boolean	0 = off, 1 = on		rw	y	
13-15								
16		Vendor Name string		Banner Engineering Corporation		ro		
17		Vendor Text string		More Sensors. More Solutions.		ro		
18		Product Name string		CL50		ro		
19		Product ID string		CL50P*K*Q		ro		
20		Product Text string		CL50 Pro		ro		
21		Serial Number				ro		
22		Hardware Revision				ro		
23		Firmware Version				ro		
24		App Specific Tag (user defined)				rw	y	
25-35								
36		Device Status	8-bit uinteger	0 = Device is OK, 1 = Maintenance required, 2 = Out of specification, 3 = Functional check, 4 = Failure, 5..255 = Reserved		ro		
37	1-6	Detailed Device Status	Array[6] of 3-octet			ro		
38-63								
75		**Additional Settings** (subindex access supported)						
	1	Custom Intensity (0 - 100%)	8-bit uinteger	0-100	100	rw	y	
	2	Custom Flash Rate (0.5 - 20)	8-bit uinteger	0.5-20	15	rw	y	
	4	Restrict To Gamut	Boolean	0=Off, 1=On	0	rw	y	
	5	Reserved	7-bit uinteger		0			
76		**Custom 1** (subindex access supported)						
	1	Red	8-bit uinteger	0-255	255	rw	y	
	2	Green	8-bit uinteger	0-255	255	rw	y	
	3	Blue	8-bit uinteger	0-255	255	rw	y	
77		**Custom 2** (subindex access supported)						
	1	Red	8-bit uinteger	0-255	255	rw	y	
	2	Green	8-bit uinteger	0-255	255	rw	y	
	3	Blue	8-bit uinteger	0-255	255	rw	y	

IO-Link Events

Events and Error Types are acyclic transmissions from the IO-Link device to the IO-Link master. Events can be error messages and/or warning or maintenance data.

Event Types		
Code	**Type**	**Description**
0 (0x0000)	Notification	No malfunction
20480 (0x5000)	Error	Device hardware fault/Device exchange
20753 (0x5111)	Error	Primary supply voltage under-run/Check tolerance of power supply

Error Types			
Code	**Additional Code**	**Name**	**Description**
128 (0x80)	0 (0x00)	Device application error - no details	Service has been refused by the device application and no detailed information of the incident is available
	17 (0x11)	Index not available	Access occurs to a not existing device
	18 (0x12)	Subindex not available	Access occurs to a not existing subindex
	32 (0x20)	Service temporarily not available	Parameter is not accessible because of the current state of the device application
	35 (0x23)	Access denied	Write access on a read-only parameter
	48 (0x30)	Parameter value out of range	Written parameter value is outside its permitted value range
	49 (0x31)	Parameter value above limit	Written parameter value is above its specific value limit
	51 (0x33)	Parameter length overrun	Written parameter length is above its predefined length
	52 (0x34)	Parameter length underrun	Written parameter length is below its predefined length
	53 (0x35)	Function not available	Written command is not supported by the device application
	54 (0x36)	Function temporarily unavailable	Written command is not available because of the current state of the device application
	65 (0x41)	Inconsistent parameter set	Parameter inconsistencies were found at the end of the block parameter transfer, device plausibility check failed

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