

# IO-Link Data Reference Guide -- K50L2 Multicolor RGB Indicator



## IO-Link Data Map

This document refers to the following IO-Link file: Banner\_Engineering-K50IO-20170515-IO-Link-1.1.xml. The IO-Link file and support files can be found on [www.bannerengineering.com](http://www.bannerengineering.com) under the download section of the product family page.

## Communication Parameters

The following communication parameters are used.

Parameter	Value	Parameter	Value
IO-Link revision	V1.1	Port class	A
Process Data In length	N/A	SIO mode	No
Process Data Out length	32-bit	Smart sensor profile	N/A
Bit Rate	38400 bps	Block parameterization	Yes
Minimum cycle time	4 ms	Data Storage	Yes

## IO-Link Process Data In (Device to Master)

Not applicable.

## IO-Link Process Data Out (Master to Device)

Subindex	Name	Number of Bits	Data Values
1	Color 1	5	0=Green, 1=Red, 2=Orange, 3=Yellow, 4=Lime Green, 5=Spring Green, 6=Cyan, 7=Sky Blue, 8=Blue, 9=Violet, 10=Magenta, 11=Rose, 12= White, 13=Custom1, 14=Custom2, 15=Custom3, 16=Custom4, 17=Custom5
2	Color Flash Rate (Hz)	3	0=1.5, 1=0.5, 2=3.0, 3=6.0, 4=9.0, 5=12.0, 6=Custom
3	Color 2	5	0=Green, 1=Red, 2=Orange, 3=Yellow, 4=Lime Green, 5=Spring Green, 6=Cyan, 7=Sky Blue, 8=Blue, 9=Violet, 10=Magenta, 11=Rose, 12= White, 13=Custom1, 14=Custom2, 15=Custom3, 16=Custom4, 17=Custom5
4	Audible Mode	2	0=Off, 1=On, 2=Pulse
5	Rotation Direction	1	0=CCW, 1=CW
6	Animation Type	4	0=Off, 1=Steady, 2=Flash, 3=Two Flash, 4=Strobe, 5=Half/Half, 6=Half/Half Rotate, 7=Chase, 8=Demo Mode
7	Color 1 Intensity	4	0=High, 1=Low, 2=Medium, 3=Custom, 4=Off
8	Color 2 Intensity	4	0=High, 1=Low, 2=Medium, 3=Custom, 4=Off
9	Reserved	4	

## Example Process Data Out

Octet 0								
Subindex	9	9	9	9	8	8	8	8
Bit offset	31	30	29	28	27	26	25	24
Value	0	0	0	0	0	0	0	1
Example	Reserved				Color 2 Intensity: High			



Octet 1								
Subindex	7	7	7	7	6	6	6	6
Bit offset	23	22	21	20	19	18	17	16
Value	0	0	0	0	0	0	1	0
Example	Color 1 Intensity: Low				Animation Type: Flash			

Octet 2								
Subindex	5	4	4	3	3	3	3	3
Bit offset	15	14	13	12	11	10	9	8
Value	1	0	0	0	1	1	1	1
Example	Rotation: CW	Audible Mode: Off			Color 2: Custom3			

Octet 3								
Subindex	2	2	2	1	1	1	1	1
Bit offset	7	6	5	4	3	2	1	0
Value	1	0	0	0	1	1	0	0
Example	Color Flash Rate: 9.0 Hz				Color: White			

## Parameters Set Using IO-Link

These parameters can be read from and/or written to an IO-Link model of the EZ-LIGHT K50.

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
0	1-16	Direct Parameter Page 1 (incl. Vendor ID & Device ID)				ro	
1	1-16	Direct Parameters Page 2				rw	
2		Standard Command		130 = Restore Factory Settings		wo	
3		Data Storage Index (device-specific list of parameters to be stored)				rw	
4-11		reserved by IO-Link Specification					
12		Device Access Locks					
12	1	Parameter Write Access Lock		0 = off 1 = on	0	rw	y
12	2	Data Storage Lock		0 = off, 1 = on	0	rw	y
13-15		unused				ro	
16		Vendor Name string		Banner Engineering Corp		ro	
17		Vendor Text string		More Sensors. More Solutions.		ro	
18		Product Name string		K50L2		ro	
19		Product ID string		K50L2*RGBK*Q		ro	
20		Product Text string		K50L2 Indicator with IO-Link		ro	
21		Serial Number				ro	
22		Hardware Revision				ro	
23		Firmware Version				ro	
24		App Specific Tag (user defined)				rw	y
25-36		reserved					
37		Detailed Device Status	Array[6] of 3-octet			ro	
38-40		reserved					

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?
41		Process Data Output				ro	
42-58		unused/reserved					
59-64		unused/reserved					
64		<b>Setting</b>					
64	1	Custom Intensity (0 - 100%)	8-bit uinteger	0-100	0	rw	y
64	2	Custom Flash Rate (0.5 - 20)	8-bit uinteger	0.5-20	1.5	rw	y
64	3	Rotation Speed / RPM (5 - 255)	8-bit uinteger	5-255	20	rw	y
64	4	Restrict To Gamut	1-bit integer	0=Off, 1=On	0	rw	y
64	5	Reserved	7-bit uinteger				
65		Custom 1					
65	1	Color Name	String of 8 UTF-8		NA	rw	y
65	2	Red	8-bit uinteger	0-255	255	rw	y
65	3	Green	8-bit uinteger	0-255	255	rw	y
65	4	Blue	8-bit uinteger	0-255	255	rw	y
66		Custom 2					
66	1	Color Name	String of 8 UTF-8		NA	rw	y
66	2	Red	8-bit uinteger	0-255	255	rw	y
66	3	Green	8-bit uinteger	0-255	255	rw	y
66	4	Blue	8-bit uinteger	0-255	255	rw	y
67		Custom 3					
67	1	Color Name	String of 8 UTF-8		NA	rw	y
67	2	Red	8-bit uinteger	0-255	255	rw	y
67	3	Green	8-bit uinteger	0-255	255	rw	y
67	4	Blue	8-bit uinteger	0-255	255	rw	y
68		Custom 4					
68	1	Color Name	String of 8 UTF-8		NA	rw	y
68	2	Red	8-bit uinteger	0-255	255	rw	y
68	3	Green	8-bit uinteger	0-255	255	rw	y
68	4	Blue	8-bit uinteger	0-255	255	rw	y
69		Custom 5					
69	1	Color Name	String of 8 UTF-8		NA	rw	y
69	2	Red	8-bit uinteger	0-255	255	rw	y
69	3	Green	8-bit uinteger	0-255	255	rw	y
69	4	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
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