

## IO-Link Data Map

This document refers to the following IODD file: Banner\_Engineering-TL70-20220222-IODD1.1.xml. The IODD 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	20-bytes	Smart sensor profile	N/A
Bit Rate	38400 bps	Block parameterization	Yes
Minimum cycle time	11.2 ms	Data Storage	Yes

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

Not applicable.

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

## Segment Mode

Segment Mode			
Subindex	Name	Number of Bits	Data Values
1	Segment 1	16	0 = Off 1 = On 2 = Flash 3 = Animation
2	Segment 2	16	
..	..		
6	Segment 6	16	
7	Audible	4	0 = Off 1 = On

Segment Mode Example Process Data Out								
Octet 0								
Bit offset	159	158	157	156	155	154	153	152
Subindex	-	-	-	-	-	-	-	-
Octet 1								
Bit offset	151	150	149	148	147	146	145	144
Subindex	-	-	-	-	-	-	-	-
Octet 2								
Bit offset	143	142	141	140	139	138	137	136
Subindex	-	-	-	-	-	-	-	-
Octet 3								
Bit offset	135	134	133	132	131	130	129	128
Subindex	-	-	-	-	-	-	-	-
Octet 4								
Bit offset	127	126	125	124	123	122	121	120



<b>Octet 4</b>								
Subindex	-	-	-	-	-	-	-	-
<b>Octet 5</b>								
Bit offset	119	118	117	116	115	114	113	112
Subindex	-	-	-	-	-	-	-	-
<b>Octet 6</b>								
Bit offset	111	110	109	108	107	106	105	104
Subindex	-	-	-	-	-	-	-	-
<b>Octet 7</b>								
Bit offset	103	102	101	100	99	98	97	96
Subindex	-	-	-	-	-	-	-	-
<b>Octet 8</b>								
Bit offset	95	94	93	92	91	90	89	88
Subindex	-	-	-	-	-	-	-	-
<b>Octet 9</b>								
Bit offset	87	86	85	84	83	82	81	80
Subindex	-	-	-	-	-	-	-	-
<b>Octet 10</b>								
Bit offset	79	78	77	76	75	74	73	72
Subindex	-	-	-	-	-	-	-	-
<b>Octet 11</b>								
Bit offset	71	70	69	68	67	66	65	64
Subindex	-	-	-	-	-	-	-	-
<b>Octet 12</b>								
Bit offset	63	62	61	60	59	58	57	56
Subindex	-	-	-	-	-	-	-	-
<b>Octet 13</b>								
Bit offset	55	54	53	52	51	50	49	48
Subindex	-	-	-	-	-	-	-	-
Value					0	0	0	1
Example	Audible: On							
<b>Octet 14</b>								
Bit offset	47	46	45	44	43	42	41	40
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1
Example	Segment 6: On							
<b>Octet 15</b>								
Bit offset	39	38	37	36	35	34	33	32
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	1	1
Example	Segment 5: Animation							
<b>Octet 16</b>								
Bit offset	31	30	29	28	27	26	25	24
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1
Example	Segment 4: On							

Octet 17								
Bit offset	23	22	21	20	19	18	17	16
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1
Example	Segment 3: On							
Octet 18								
Bit offset	15	14	13	12	11	10	9	8
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Segment 2: Off							
Octet 19								
Bit offset	7	6	5	4	3	2	1	0
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1
Example	Segment 1: On							

## Run Mode

Run Mode			
Subindex	Name	Number of Bits	Data Values
1	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash
2	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2
3	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom
4	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate
5	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random
6	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2
7	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom
8	Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple
9	Percent Width of Color 1	8	1-100 = Percent Width of Color 1
10	Direction	8	0 = Up, 1 = Down
11	Audible	4	0 = Off, 1 = On

Run Mode Example Process Data Out								
Octet 0								
Bit offset	159	158	157	156	155	154	153	152
Subindex	-	-	-	-	-	-	-	-
Octet 1								
Bit offset	151	150	149	148	147	146	145	144
Subindex	-	-	-	-	-	-	-	-
Octet 2								
Bit offset	143	142	141	140	139	138	137	136
Subindex	-	-	-	-	-	-	-	-
Octet 3								
Bit offset	135	134	133	132	131	130	129	128

<b>Octet 3</b>								
Subindex	-	-	-	-	-	-	-	-
<b>Octet 4</b>								
Bit offset	127	126	125	124	123	122	121	120
Subindex	-	-	-	-	-	-	-	-
<b>Octet 5</b>								
Bit offset	119	118	117	116	115	114	113	112
Subindex	-	-	-	-	-	-	-	-
<b>Octet 6</b>								
Bit offset	111	110	109	108	107	106	105	104
Subindex	-	-	-	-	-	-	-	-
<b>Octet 7</b>								
Bit offset	103	102	101	100	99	98	97	96
Subindex	-	-	-	-	-	-	-	-
<b>Octet 8</b>								
Bit offset	95	94	93	92	91	90	89	88
Subindex	-	-	-	-	-	-	-	-
<b>Octet 9</b>								
Bit offset	87	86	85	84	83	82	81	80
Subindex	-	-	-	-	-	-	-	-
Value					0	0	0	1
Example	Audible: On							
<b>Octet 10</b>								
Bit offset	79	78	77	76	75	74	73	72
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Direction: Up							
<b>Octet 11</b>								
Bit offset	71	70	69	68	67	66	65	64
Subindex	-	-	-	-	-	-	-	-
Value	0	0	1	1	0	0	1	0
Example	Percent Width of Color 1: 50							
<b>Octet 12</b>								
Bit offset	63	62	61	60	59	58	57	56
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Scroll/Bounce Style: Solid							
<b>Octet 13</b>								
Bit offset	55	54	53	52	51	50	49	48
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Color 2 Intensity: High							
<b>Octet 14</b>								
Bit offset	47	46	45	44	43	42	41	40
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1

<b>Octet 14</b>								
Example	Color 2: Red							
<b>Octet 15</b>								
Bit offset	39	38	37	36	35	34	33	32
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1
Example	Pulse Pattern: Strobe							
<b>Octet 16</b>								
Bit offset	31	30	29	28	27	26	25	24
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	1	0
Example	Speed: Slow							
<b>Octet 17</b>								
Bit offset	23	22	21	20	19	18	17	16
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Color 1 Intensity: High							
<b>Octet 18</b>								
Bit offset	15	14	13	12	11	10	9	8
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	1	0
Example	Color 1: Orange							
<b>Octet 19</b>								
Bit offset	7	6	5	4	3	2	1	0
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	1	0	0
Example	Animation: Two Color Shift							

## Level Mode

Level Mode			
Subindex	Name	Number of Bits	Data Values
1	Level Mode Value	16	0-65535
2	Audible	4	0 = Off, 1 = On

Level Mode Example Process Data Out								
<b>Octet 0</b>								
Bit offset	159	158	157	156	155	154	153	152
Subindex	-	-	-	-	-	-	-	-
<b>Octet 1</b>								
Bit offset	151	150	149	148	147	146	145	144
Subindex	-	-	-	-	-	-	-	-
<b>Octet 2</b>								
Bit offset	143	142	141	140	139	138	137	136
Subindex	-	-	-	-	-	-	-	-
<b>Octet 3</b>								
Bit offset	135	134	133	132	131	130	129	128
Subindex	-	-	-	-	-	-	-	-

<b>Octet 4</b>								
Bit offset	127	126	125	124	123	122	121	120
Subindex	-	-	-	-	-	-	-	-
<b>Octet 5</b>								
Bit offset	119	118	117	116	115	114	113	112
Subindex	-	-	-	-	-	-	-	-
<b>Octet 6</b>								
Bit offset	111	110	109	108	107	106	105	104
Subindex	-	-	-	-	-	-	-	-
<b>Octet 7</b>								
Bit offset	103	102	101	100	99	98	97	96
Subindex	-	-	-	-	-	-	-	-
<b>Octet 8</b>								
Bit offset	95	94	93	92	91	90	89	88
Subindex	-	-	-	-	-	-	-	-
<b>Octet 9</b>								
Bit offset	87	86	85	84	83	82	81	80
Subindex	-	-	-	-	-	-	-	-
<b>Octet 10</b>								
Bit offset	79	78	77	76	75	74	73	72
Subindex	-	-	-	-	-	-	-	-
<b>Octet 11</b>								
Bit offset	71	70	69	68	67	66	65	64
Subindex	-	-	-	-	-	-	-	-
<b>Octet 12</b>								
Bit offset	63	62	61	60	59	58	57	56
Subindex	-	-	-	-	-	-	-	-
<b>Octet 13</b>								
Bit offset	55	54	53	52	51	50	49	48
Subindex	-	-	-	-	-	-	-	-
<b>Octet 14</b>								
Bit offset	47	46	45	44	43	42	41	40
Subindex	-	-	-	-	-	-	-	-
<b>Octet 15</b>								
Bit offset	39	38	37	36	35	34	33	32
Subindex	-	-	-	-	-	-	-	-
<b>Octet 16</b>								
Bit offset	31	30	29	28	27	26	25	24
Subindex	-	-	-	-	-	-	-	-
<b>Octet 17</b>								
Bit offset	23	22	21	20	19	18	17	16
Subindex	-	-	-	-	-	-	-	-
Value					0	0	0	1
Example								Audible: On

Octet 18								
Bit offset	15	14	13	12	11	10	9	8
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Level Mode Value: 160							

  

Octet 19								
Bit offset	7	6	5	4	3	2	1	0
Subindex	-	-	-	-	-	-	-	-
Value	1	0	1	0	0	0	0	0
Example	Level Mode Value: 160							

## Gauge Mode

Gauge Mode			
Subindex	Name	Number of Bits	Data Values
1	Gauge Mode Value	16	0-65535
2	Audible	4	0 = Off, 1 = On

Gauge Mode Example Process Data Out								
Octet 0								
Bit offset	159	158	157	156	155	154	153	152
Subindex	-	-	-	-	-	-	-	-
Octet 1								
Bit offset	151	150	149	148	147	146	145	144
Subindex	-	-	-	-	-	-	-	-
Octet 2								
Bit offset	143	142	141	140	139	138	137	136
Subindex	-	-	-	-	-	-	-	-
Octet 3								
Bit offset	135	134	133	132	131	130	129	128
Subindex	-	-	-	-	-	-	-	-
Octet 4								
Bit offset	127	126	125	124	123	122	121	120
Subindex	-	-	-	-	-	-	-	-
Octet 5								
Bit offset	119	118	117	116	115	114	113	112
Subindex	-	-	-	-	-	-	-	-
Octet 6								
Bit offset	111	110	109	108	107	106	105	104
Subindex	-	-	-	-	-	-	-	-
Octet 7								
Bit offset	103	102	101	100	99	98	97	96
Subindex	-	-	-	-	-	-	-	-
Octet 8								
Bit offset	95	94	93	92	91	90	89	88
Subindex	-	-	-	-	-	-	-	-

<b>Octet 9</b>								
Bit offset	87	86	85	84	83	82	81	80
Subindex	-	-	-	-	-	-	-	-
<b>Octet 10</b>								
Bit offset	79	78	77	76	75	74	73	72
Subindex	-	-	-	-	-	-	-	-
<b>Octet 11</b>								
Bit offset	71	70	69	68	67	66	65	64
Subindex	-	-	-	-	-	-	-	-
<b>Octet 12</b>								
Bit offset	63	62	61	60	59	58	57	56
Subindex	-	-	-	-	-	-	-	-
<b>Octet 13</b>								
Bit offset	55	54	53	52	51	50	49	48
Subindex	-	-	-	-	-	-	-	-
<b>Octet 14</b>								
Bit offset	47	46	45	44	43	42	41	40
Subindex	-	-	-	-	-	-	-	-
<b>Octet 15</b>								
Bit offset	39	38	37	36	35	34	33	32
Subindex	-	-	-	-	-	-	-	-
<b>Octet 16</b>								
Bit offset	31	30	29	28	27	26	25	24
Subindex	-	-	-	-	-	-	-	-
<b>Octet 17</b>								
Bit offset	23	22	21	20	19	18	17	16
Subindex	-	-	-	-	-	-	-	-
Value					0	0	0	1
Example	Audible: On							
<b>Octet 18</b>								
Bit offset	15	14	13	12	11	10	9	8
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Gauge Mode Value: 160							
<b>Octet 19</b>								
Bit offset	7	6	5	4	3	2	1	0
Subindex	-	-	-	-	-	-	-	-
Value	1	0	1	0	0	0	0	0
Example	Gauge Mode Value: 160							

Advanced Mode

Advanced Mode			
Subindex	Name	Number of Bits	Data Values
1	Segment 1 Animation Type	3	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Intensity Sweep, 6 = Two Color Sweep, 7 = Spectrum
2	Segment 1 Speed	2	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate



Advanced Mode			
Subindex	Name	Number of Bits	Data Values
3	Segment 1 Pulse Pattern	3	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random
4	Segment 1 Color 1	5	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2
5	Segment 1 Color 1 Intensity	3	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom
6	Segment 1 Color 2	5	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2
7	Segment 1 Color 2 Intensity	3	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom
8...42	Segments 2 through 6		
43	Audible	4	0 = Off, 1 = On

**Advanced Mode Example Process Data Out**

Octet 0								
Bit offset	159	158	157	156	155	154	153	152
Subindex	-	-	-	-	-	-	-	-

Octet 1								
Bit offset	151	150	149	148	147	146	145	144
Subindex	-	-	-	-	-	-	-	-
Value					0	0	0	1
Example	Audible: On							

**Octet 2 through 16: Segments 2 through 6**

Bit offset	Segment 6: 143 through 120 Segment 5: 119 through 96 Segment 4: 95 through 72 Segment 3: 71 through 48 Segment 2: 47 through 24							
Subindex	-							
Value	See below							
Example	See below							

Octet 17								
Bit offset	23	22	21	20	19	18	17	16
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	1
Example	Segment 1 Color 2 Intensity: High				Segment 1 Color 2: Red			

Octet 18								
Bit offset	15	14	13	12	11	10	9	8
Subindex	-	-	-	-	-	-	-	-
Value	0	0	0	0	0	0	0	0
Example	Segment 1 Color 1 Intensity: High				Segment 1 Color 1: Green			

Octet 19								
Bit offset	7	6	5	4	3	2	1	0
Subindex	-	-	-	-	-	-	-	-
Value	0	0	1	0	1	0	1	1
Example	Segment 1 Pulse Pattern: Strobe			Segment 1 Speed: Fast		Segment 1 Animation Type: Two Color Flash		

## Parameters Set Using IO-Link

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI
0	1-16	Direct Parameter Page 1 (incl. Vendor ID & Device ID)	128			rw		
1	1-16	Direct Parameters Page 2	128			rw		
2		Standard Command	8	130 = Restore Factory Settings		wo		
3-11								
		<b>Device Access Locks</b>	16					
12	1	Parameter (write) Access Lock	1	0 = off, 1 = on	0	rw	y	
	2	Data Storage Lock	1	0 = off, 1 = on	0	rw	y	
	3	Local Parameterization Lock	1	0 = off, 1 = on		rw	y	
	4	Local User Interface Lock	1	0 = off, 1 = on		rw	y	
13-15								
16		Vendor Name string	512	Banner Engineering Corporation		ro		
17		Vendor Text string	512	More Sensors. More Solutions.		ro		
18		Product Name string	512	TL70 Pro with IO-Link		ro		
19		Product ID string	512	TL70P*K*Q[P]		ro		
20		Product Text string	512	TL70 Pro with IO-Link		ro		
21		Serial Number	128			ro		
22								
23		Firmware Version	512			ro		
24		App Specific Tag (user defined)	256			rw	y	
25-35								
36		Device Status	8	0 = Device is OK 1 = Maintenance required 2 = Out of specification 3 = Functional check 4 = Failure 5-255 = Reserved		ro		
37	6-Jan	Detailed Device Status	Array[6] of 3octet			ro		
38-63								
64		Operating Mode Selection	8	0 = Segment Mode 1 = Run Mode 2 = Level Mode 3 = Gauge Mode 4 = Advanced Segment Mode	4	rw	y	
		<b>Segment Configuration</b>						
65	1	Background Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y	
	2	Background Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	3	rw	y	
	3	Animation Synchronization	8	0 = Animation Sync Disabled, 1 = Animation Sync Enabled	1	rw	y	
		<b>Segment 1 Config</b>						
66	1	Basic Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	2	Basic Flash Rate	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI	
	3	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep, 5 = Two Color Sweep, 6 = Spectrum	1	rw	y		
	4	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
	5	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	6	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	7	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
	8	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
	9	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
		<b>Segment 2 Config</b>							
	67	1	Basic Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	4	rw	y	
2		Basic Flash Rate	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
3		Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep, 5 = Two Color Sweep, 6 = Spectrum	1	rw	y		
4		Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	4	rw	y		
5		Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
6		Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
7		Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
8		Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
9		Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	<b>Segment 3 Config</b>								
68	1	Basic Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	0	rw	y		
	2	Basic Flash Rate	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	3	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep, 5 = Two Color Sweep, 6 = Spectrum	1	rw	y		

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI
	4	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	0	rw	y	
	5	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	6	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	7	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	8	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	9	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
69	<b>Segment 4 Config</b>							
	1	Basic Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	9	rw	y	
	2	Basic Flash Rate	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	3	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep, 5 = Two Color Sweep, 6 = Spectrum	1	rw	y	
	4	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	9	rw	y	
	5	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	6	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	7	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	8	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	9	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
70	<b>Segment 5 Config</b>							
	1	Basic Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y	
	2	Basic Flash Rate	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	3	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep, 5 = Two Color Sweep, 6 = Spectrum	1	rw	y	
	4	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y	
	5	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI
	6	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	7	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	8	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	9	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
71	<b>Segment 6 Config</b>							
	1	Basic Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	2	rw	y	
	2	Basic Flash Rate	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	3	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Intensity Sweep, 5 = Two Color Sweep, 6 = Spectrum	1	rw	y	
	4	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	2	rw	y	
	5	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	6	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	7	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	8	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	9	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
76	<b>General Level Configuration</b>							
	1	Background Color	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y	
	2	Background Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	1	rw	y	
	3	Dominance	8	0 = Non-Dominant, 1 = Dominant	0	rw	y	
	4	Sub-Segment Style	8	0 = Solid, 1 = Analog	1	rw	y	
	5	Filtering	8	0 = None, 1 = Low, 2 = Medium, 3 = High	0	rw	y	
	6	Hysteresis	8	0 = None, 1 = Low, 2 = Medium, 3 = High	0	rw	y	
	7	Full Scale Value	16	0–65535	100	rw	y	
77	<b>Level Base Configuration</b>							
	1	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y	
	2	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	0	rw	y	

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	3	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	4	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	5	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
	6	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
	7	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	8	Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
	9	Percent Width of Color 1	8	1–100 = Percent Width of Color 1	50	rw	y		
	10	Direction	8	0 = Up, 1 = Down	0	rw	y		
	78	<b>Level Threshold 1 Configuration</b>							
		1	Threshold Enable	8	0 = Threshold Disabled, 1 = Threshold Enabled	1	rw	y	
2		Threshold Value (Percent)	8	0–100 = Threshold (Percent)	33	rw	y		
3		Threshold Comparison	8	0 = Less Than or Equal To, 1 = Greater Than or Equal To	1	rw	y		
4		Threshold Override	8	0 = Override Not Enabled, 1 = Override Enabled	0	rw	y		
5		Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y		
6		Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	4	rw	y		
7		Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
8		Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
9		Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
10		Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
11		Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
12		Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
13		Percent Width of Color 1	8	1–100 = Percent Width of Color 1	50	rw	y		
14		Direction	8	0 = Up, 1 = Down	0	rw	y		
79	<b>Level Threshold 2 Configuration</b>								
	1	Threshold Enable	8	0 = Threshold Disabled, 1 = Threshold Enabled	1	rw	y		
	2	Threshold Value (Percent)	8	0–100 = Threshold (Percent)	66	rw	y		
	3	Threshold Comparison	8	0 = Less Than or Equal To, 1 = Greater Than or Equal To	1	rw	y		
	4	Threshold Override	8	0 = Override Not Enabled, 1 = Override Enabled	0	rw	y		
	5	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y		

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI	
	6	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
	7	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	8	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	9	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
	10	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
	11	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	12	Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
	13	Percent Width of Color 1	8	1–100 = Percent Width of Color 1	50	rw	y		
	14	Direction	8	0 = Up, 1 = Down	0	rw	y		
	80	<b>Level Threshold 3 Configuration</b>							
		1	Threshold Enable	8	0 = Threshold Disabled, 1 = Threshold Enabled	0	rw	y	
		2	Threshold Value (Percent)	8	0–100 = Threshold (Percent)	77	rw	y	
		3	Threshold Comparison	8	0 = Less Than or Equal To, 1 = Greater Than or Equal To	1	rw	y	
		4	Threshold Override	8	0 = Override Not Enabled, 1 = Override Enabled	0	rw	y	
5		Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y		
6		Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y		
7		Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
8		Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
9		Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
10		Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
11		Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
12		Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
13		Percent Width of Color 1	8	1–100 = Percent Width of Color 1	50	rw	y		
14	Direction	8	0 = Up, 1 = Down	0	rw	y			
81	<b>Level Threshold 4 Configuration</b>								
	1	Threshold Enable	8	0 = Threshold Disabled, 1 = Threshold Enabled	0	rw	y		
	2	Threshold Value (Percent)	8	0–100 = Threshold (Percent)	88	rw	y		
	3	Threshold Comparison	8	0 = Less Than or Equal To, 1 = Greater Than or Equal To	1	rw	y		
	4	Threshold Override	8	0 = Override Not Enabled, 1 = Override Enabled	0	rw	y		

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI	
	5	Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y		
	6	Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	9	rw	y		
	7	Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	8	Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	9	Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
	10	Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y		
	11	Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	12	Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
	13	Percent Width of Color 1	8	1–100 = Percent Width of Color 1	50	rw	y		
	14	Direction	8	0 = Up, 1 = Down	0	rw	y		
	82	<b>Custom Colors</b>							
		1	Custom 1 Red	8	0–255 = RGB	255	rw	y	
		2	Custom 1 Green	8	0–255 = RGB	255	rw	y	
		3	Custom 1 Blue	8	0–255 = RGB	255	rw	y	
4		Custom 2 Red	8	0–255 = RGB	255	rw	y		
5		Custom 2 Green	8	0–255 = RGB	255	rw	y		
6		Custom 2 Blue	8	0–255 = RGB	255	rw	y		
83	<b>Settings</b>								
	1	Orientation	8	0 = Standard, 1 = Inverted	0	rw	y		
	2	Custom Intensity	8	0–100 = Custom Intensity	100	rw	y		
	3	Custom Frequency	8	0–255 = Custom Frequency	10	rw	y		
85	<b>Gauge Mode Configuration</b>								
	1	Filtering	8	0 = None, 1 = Low, 2 = Medium, 3 = High	0	rw	y		
	2	Hysteresis	8	0 = None, 1 = Low, 2 = Medium, 3 = High	0	rw	y		
	3	Full Scale Value	16	0–65535	100	rw	y		
86	<b>Gauge Mode Center Settings</b>								
	1	Percent Width of Main Segment	8	1..100 = Percent Width of Color 1	20	rw	y		
	2	Main Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y		
	3	Main Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	0	rw	y		
	4	Main Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	5	Main Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	6	Main Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		



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	7	Main Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	8	Main Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	9	Main Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y	
	10	Main Percent Width of Color 1	8	1..100 = Percent Width of Color 1	50	rw	y	
	11	Main Direction	8	0 = Up, 1 = Down	0	rw	y	
	12	Background Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y	
	13	Background Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y	
	14	Background Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	1	rw	y	
	15	Background Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	16	Background Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	17	Background Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	9	rw	y	
	18	Background Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	1	rw	y	
	19	Background Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y	
	20	Background Percent Width of Color 1	8	1..100 = Percent Width of Color 1	50	rw	y	
	21	Background Direction	8	0 = Up, 1 = Down	0	rw	y	
		<b>Gauge Mode Threshold 1 Settings</b>						
	1	Threshold Enable	8	0 = Threshold Disabled, 1 = Threshold Enabled	1	rw	y	
	2	Threshold Value (Percent)	8	0..100 = Threshold (Percent)	20	rw	y	
	3	Threshold Comparison	8	0 = Less Than or Equal To, 1 = Greater Than or Equal To	0	rw	y	
	4	Percent Width of Main Segment	8	1..100 = Percent Width of Color 1	20	rw	y	
	5	Main Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y	
87	6	Main Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
	7	Main Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	8	Main Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	9	Main Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	10	Main Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	4	rw	y	

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	11	Main Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	12	Main Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
	13	Main Percent Width of Color 1	8	1..100 = Percent Width of Color 1	50	rw	y		
	14	Main Direction	8	0 = Up, 1 = Down	0	rw	y		
	15	Background Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y		
	16	Background Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y		
	17	Background Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	1	rw	y		
	18	Background Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y		
	19	Background Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y		
	20	Background Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	9	rw	y		
	21	Background Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
	22	Background Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
	23	Background Percent Width of Color 1	8	1..100 = Percent Width of Color 1	50	rw	y		
	24	Background Direction	8	0 = Up, 1 = Down	0	rw	y		
	88	<b>Gauge Mode Threshold 2 Settings</b>							
		1	Threshold Enable	8	0 = Threshold Disabled, 1 = Threshold Enabled	1	rw	y	
		2	Threshold Value (Percent)	8	0..100 = Threshold (Percent)	80	rw	y	
		3	Threshold Comparison	8	0 = Less Than or Equal To, 1 = Greater Than or Equal To	1	rw	y	
		4	Percent Width of Main Segment	8	1..100 = Percent Width of Color 1	20	rw	y	
		5	Main Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y	
		6	Main Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	1	rw	y	
		7	Main Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
		8	Main Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
		9	Main Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
10		Main Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	4	rw	y		
11		Main Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y		
12		Main Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y		
13		Main Percent Width of Color 1	8	1..100 = Percent Width of Color 1	50	rw	y		
14		Main Direction	8	0 = Up, 1 = Down	0	rw	y		

Index	Subindex	Name	Length	Value Range	Default	Access Rights	Data Storage?	AOI
	15	Background Animation	8	0 = Off, 1 = Steady, 2 = Flash, 3 = Two Color Flash, 4 = Two Color Shift, 5 = Scroll, 6 = Center Scroll, 7 = Bounce, 8 = Center Bounce, 9 = Intensity Sweep, 10 = Two Color Sweep, 11 = Spectrum, 12 = Single End Steady, 13 = Single End Flash	1	rw	y	
	16	Background Color 1	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	13	rw	y	
	17	Background Color 1 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	18	Background Speed	8	0 = Medium, 1 = Fast, 2 = Slow, 3 = Custom Flash Rate	0	rw	y	
	19	Background Pulse Pattern	8	0 = Normal, 1 = Strobe, 2 = Three Pulse, 3 = SOS, 4 = Random	0	rw	y	
	20	Background Color 2	8	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 = Daylight White (5000K), 14 = Custom 1, 15 = Custom 2	9	rw	y	
	21	Background Color 2 Intensity	8	0 = High, 1 = Low, 2 = Medium, 3 = Off, 4 = Custom	0	rw	y	
	22	Background Scroll/Bounce Style	8	0 = Solid, 1 = Tail, 2 = Ripple	0	rw	y	
	23	Background Percent Width of Color 1	8	1..100 = Percent Width of Color 1	50	rw	y	
	24	Background Direction	8	0 = Up, 1 = Down	0	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

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