



CTL50 Continuous Tower Light with IO-Link Product Manual

Original Instructions

p/n: 255156 Rev. A

07-Oct-26

© Banner Engineering Corp. All rights reserved. www.bannerengineering.com

Contents

Chapter 1 Features	4
Models	4
Chapter 2 Wiring.....	5
Chapter 3 IO-Link Overview	6
IO-Link Configuration Software	6
Connect the CTL50.....	6
IO-Link Modes and Descriptions	7
Segment Layout Methods.....	7
Segment Mode	8
Segment Override Mode.....	8
Advanced Segment Mode	8
Run Mode	8
Level Mode	9
Gauge Mode	9
LED Mode.....	9
Demo Mode	9
Timer and Counter Behavior.....	9
Chapter 4 IO-Link Index	10
Chapter 5 IO-Link Data Map	12
Process Data Out	12
Process Data Out: Run Mode.....	12
Process Data Out: Segment Mode	15
Process Data Out: Segment Override Mode	16
Process Data Out: Advanced Segment Mode	20
Process Data Out: Level Mode.....	26
Process Data Out: Gauge Mode.....	27
Process Data Out: LED Mode	27
Process Data Out: Demo Mode	31
Indexes	31
Index 0: Direct Parameters 1	31
Index 1: Direct Parameters 2	31
Index 2: Standard Command.....	32
Index 12: Device Access Locks	32
Index 16: Vendor Name	33
Index 17: Vendor Text	33
Index 18: Product Name	33
Index 19: Product ID	33
Index 20: Product Text	33
Index 21: Serial Number	33
Index 23: Firmware Version	33
Index 24: Application Specific Tag	33
Index 36: Device Status.....	34
Index 37: Detailed Device Status.....	34
Index 64: Operating Mode Selection	34
Index 65: Segment Configuration	34
Index 66-75: Segment 1-10 Configuration Parameters	35
Index 76: General Level Configuration	39
Index 77: Level Base Configuration.....	40
Index 78-81: Level Threshold 1-4 Configuration Settings.....	42
Index 82: Custom Colors	45
Index 83: Settings	46
Index 85: Gauge Mode Configuration.....	46
Index 86: Gauge Mode Center Settings	46
Index 87-88: Gauge Mode Threshold 1-2 Configuration Settings	51
Index 96-105: Segment 11-20 Configuration Parameters	56
Chapter 6 Specifications	59
FCC Part 15 Class B for Unintentional Radiators.....	60
Industry Canada ICES-003(B).....	60
Dimensions	61

Chapter 7 Accessories..... 62

 Cordsets 62

 Mounting Brackets 62

 LMB Sealed Right-Angle Bracket..... 64

 Elevated Mount System..... 64

 IO-Link Master 66

 Power Supply 66

Chapter 8 Product Support and Maintenance 67

 Supporting Files..... 67

 Clean with Mild Detergent and Warm Water 67

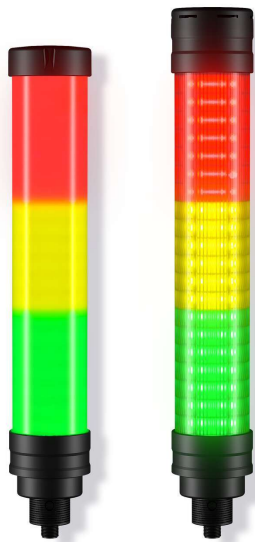
 Repairs and Translations (No Field-Replaceable Parts) 67

 Contact Us..... 69

 Banner Engineering Corp Limited Warranty..... 69

Chapter 1

Features



- Standardize visual communication across machines and applications with configurable 8-, 12-, and 20-cell models offering up to 20 individually controllable cells
- Adapt appearance as needs change with 14 configurable colors, 17 animations, and adjustable brightness
- Visualize machine status, process values, and operating conditions with built-in Level, Timer, and Counter modes that convert machine and sensor inputs into indication
- Meet the visibility requirements of the environment with diffuse models for a clean, blended appearance and beacon-style models for higher visibility
- Retrofit existing machines and standardize across IO-Link® architectures with an integral M12 quick-disconnect connector
- Draw operator attention to status changes with models that add configurable audible alerts to visual indication for alarms, warnings, and process changes
- Install directly in washdown environments with an IP66- and IP69-rated design that needs no additional protective enclosure

Models

Family	Window	Number of Cells	Audible	Control	Housing Color	Connector ⁽¹⁾
CTL50		20	A	K		Q
50 mm Continuous Tower Light	D = Diffuse BL = Beacon Light	20 = 20 cells 12 = 12 cells 8 = 8 cells	Blank = No audible A = Audible	K = IO-Link	Blank = Black	Q = Integral 4-pin M12 male quick-disconnect connector

⁽¹⁾ Models with a quick-disconnect connector require a mating cordset.

Chapter 2 Wiring

IO-Link Wiring

4-Pin Male M12 Pinout	Pinout Key and Wiring
	1. Brown - 18 V DC to 30 V DC 2. White - Not used 3. Blue - DC Common 4. Black - IO-Link Communication

Chapter 3 IO-Link Overview

IO-Link^{®(2)} is an open standard serial communication protocol that allows for the bi-directional exchange of data from IO-Link-supported devices, such as sensors, that are connected through IO-Link. For the latest IO-Link protocol and specifications, please visit <http://www.io-link.com>.

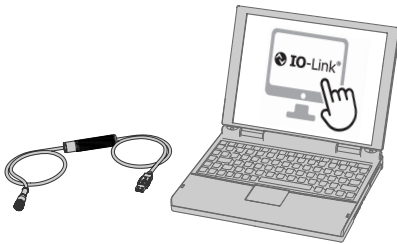


Advantages to an IO-Link system include standardized wiring, remote configuration, simple device replacement, advanced diagnostics, and increased data availability. Because IO-Link is an open standard, the devices can be integrated in almost any fieldbus or automation system.

An IO-Link system consists of an IO-Link master and an IO-Link device such as a sensor, lighting product, IO-Link hub, or actuator.

The functions and parameters of the IO-Link devices are represented in a device description file (IODD). IODD files contain information about identification, device parameters, process and diagnostic data, communication properties, and other details. The IODD files for Banner IO-link devices can be downloaded for free on www.bannerengineering.com. For a list of supporting files, please refer to "Supporting Files" on page 67.

IO-Link Configuration Software



Banner's IO-Link Configuration Software provides an easy way to configure Banner IO-Link masters and connected IO-Link devices, giving users full control over master, port, and device settings.

The software enables users to configure port settings for Banner serial and Ethernet IO-Link masters, including each port's operating mode and associated SIO (discrete input or output) behavior. It also supports configuration of IP address settings for Banner Ethernet IO-Link masters and allows users to configure Banner IO-Link devices connected to the master.

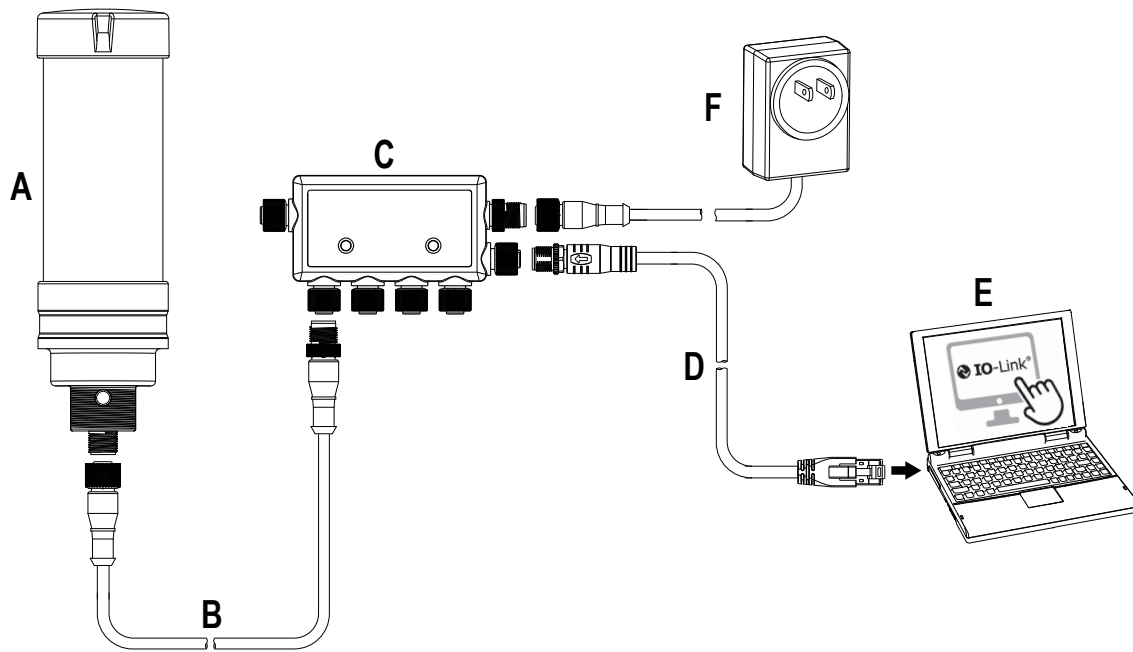
Download the free IO-Link Configuration Software at <https://www.bannerengineering.com/us/en/products/software/io-link-software.html>.

For instructions on how to use the software to configure IO-Link port settings and IO-Link devices connected to the IO-Link master, use the IO-Link Configuration Software Instruction Manual available from the software by going to **Help > Help File**. The IO-Link Configuration Software Instruction Manual (p/n [228876](#)) can also be downloaded directly from www.bannerengineering.com.

Connect the CTL50

1. Connect the CTL50 to an IO-Link port on an IO-Link master using an M12 cordset.
2. With an Ethernet cordset, plug the male M12 connector into the female M12 D-code Ethernet port on the IO-Link master.
3. Plug the RJ45 connector into the PC.
4. With a power supply, plug the female M12 connector into the male M12 power port on the IO-Link master
5. Plug the power supply into a wall outlet.

⁽²⁾ IO-Link[®] is a registered trademark of PROFIBUS Nutzerorganisation e.V.



- A = CTL50 IO-Link device
 B = M12 Cordset (BC-M12F4-M12M4-22-1)
 C = Any IO-Link Master (DXMR90-4K shown)
 D = Ethernet Cordset (BCD-M12DM-RJ45-1 shown)
 E = PC Running IO-Link Configuration Software
 F = Power Supply (PSW-24-1 shown)

IO-Link Modes and Descriptions

Segment Layout Methods

The following segment layout methods can be used in Segment, Segment Override, and Advanced Segment Modes. Use [Index 65: Segment Configuration](#) to select a segment layout method.

Traditional Segment Layouts

Automatically divides the tower into a fixed number of evenly sized segments (1–20 segments). This mode provides a simple way to emulate traditional stack light behavior while maintaining consistent segment sizing across the tower.

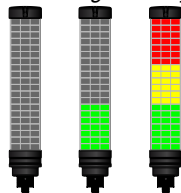
Manual Segment Configuration

Allows each segment to be assigned a custom width and offset, providing complete control over segment size and location within the tower.

AutoSpan

Automatically divides the available light cells into the selected number of segments and scales those segments proportionally across the span of the device. Segment numbers are displayed from lowest (bottom) to highest (top).

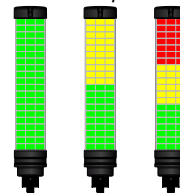
Traditional Segment Layouts



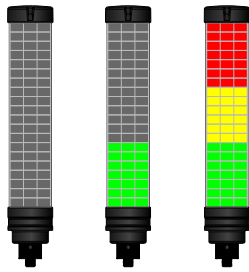
Manual Segment Configuration



AutoSpan

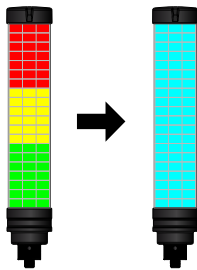


Segment Mode



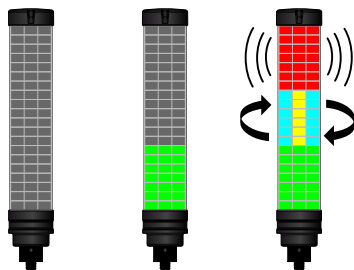
Use Segment Mode to create tower light indications using Traditional Segment Layouts, Manual Segment Configuration, or AutoSpan (see [Segment Layout Methods](#)). Segments can be independently controlled as Off, On, Flash, or Animation to emulate traditional stack lights or create custom indication schemes.

Segment Override Mode



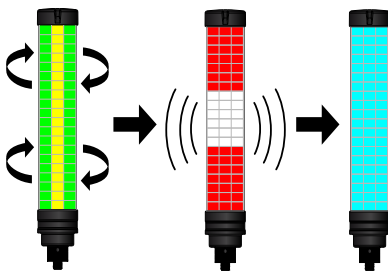
Use Segment Override Mode to maintain segmented indication during normal operation while displaying a high-priority override condition when required. Segment layouts created using Manual Segment Configuration or AutoSpan (see [Segment Layout Methods](#)) remain unchanged, allowing the tower to return to its normal indication once the override condition is cleared.

Advanced Segment Mode



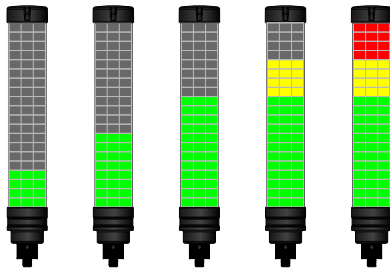
Use Advanced Segment Mode to independently control the appearance and behavior of each configured segment. Segment layouts can be created using Traditional Segment Layouts, Manual Segment Configuration, or AutoSpan (see [Segment Layout Methods](#)), while each segment supports unique colors, animations, intensity levels, speeds, and directions.

Run Mode



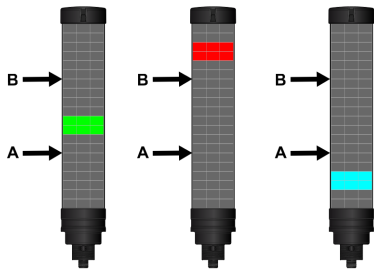
Use Run Mode to control the entire tower light as a single indication. Configure colors, animations, intensity, speed, pulse patterns, direction, and audible alarms to create clear visual communication for machine status, process conditions, warnings, and faults.

Level Mode



Use Level Mode to convert a process value into a visual level indicator. Configure thresholds, colors, animations, threshold markers, filtering, hysteresis, and background indication to highlight operating ranges, warnings, alarms, and process conditions along the entire tower light.

Gauge Mode



Use Gauge Mode to visualize a process value as a movable indication band. The position, appearance, thresholds, colors, animations, direction, and background indication can be customized to monitor position, tracking, alignment, process status, and other dynamic machine conditions.

A = Threshold 1
B = Threshold 2

LED Mode



Use LED Mode for direct control of individual LED groups within the tower light. This mode provides maximum customization by allowing colors to be assigned directly to each LED group, enabling unique visual effects and application-specific indications.

Demo Mode

Use Demo Mode to automatically cycle through example configurations and animations that demonstrate the capabilities of the CTL50. This mode is intended for product demonstrations, evaluation, and training.

Timer and Counter Behavior

The CTL50 Continuous Tower Light with IO-Link does not include a dedicated Timer Mode or Counter Mode.

Similar functionality can be achieved by updating process values through the controller and displaying them using Level Mode or Position Mode.

Chapter 4

IO-Link Index

Summary Section

Section Title	Description
Features	Block parameter, data storage, and supported access locks
Communications	IO-Link revision, transmission rate, minimum cycle time, SIO mode supported, and M-sequence capability

Process Data Modes

Section Title	Description	Data Type	Bit Length
Process Data Out: Run Mode	Run Mode	256-bit Record	256
Process Data Out: Segment Mode	Segment Mode	256-bit Record	256
Process Data Out: Segment Override Mode	Segment Override Mode	256-bit Record	256
Process Data Out: Advanced Segment Mode	Advanced Segment Mode	256-bit Record	256
Process Data Out: Level Mode	Level Mode	256-bit Record	256
Process Data Out: Gauge Mode	Gauge Mode	256-bit Record	256
Process Data Out: LED Mode	LED Mode	256-bit Record	256
Process Data Out: Demo Mode	Demo Mode	256-bit Record	256

Parameter Index

Section Title	Description	Data Type	Access
Index 0: Direct Parameters 1	Direct Parameters 1	128-bit Record	RW
Index 1: Direct Parameters 2	Direct Parameters 2	128-bit Record	RW
Index 2: Standard Command	Standard Command	16-bit Record (subindex access not supported)	WO
Index 12: Device Access Locks	Device Access Locks	16-bit Record (subindex access not supported)	RW
Index 16: Vendor Name	Vendor Name	64-octet String UTF-8	RO
Index 17: Vendor Text	Vendor Text	64-octet String UTF-8	RO
Index 18: Product Name	Product Name	64-octet String UTF-8	RO
Index 19: Product ID	Product ID	64-octet String UTF-8	RO
Index 20: Product Text	Product Text	16-octet String UTF-8	RO
Index 21: Serial Number	Serial Number	64-octet String UTF-8	RO
Index 23: Firmware Version	Firmware Version	32-octet String UTF-8	RW
Index 24: Application Specific Tag	Application Specific Tag	8-bit UInteger	RO
Index 36: Device Status	Device Status	Array[6] of 3-octet OctetString (subindex access not supported)	RO
Index 37: Detailed Device Status	Detailed Device Status	Array[6] of 3-octet OctetString (subindex access not supported)	RO
Index 64: Operating Mode Selection	Operating Mode Selection	8-bit UInteger	RW
Index 65: Segment Configuration	General Segment Mode Configuration	32-bit Record (subindex access not supported)	RW
Index 66-75: Segment 1-10 Configuration Parameters	Segment 1-10 Configuration Parameters	112-bit Record (subindex access not supported)	RW

Continued on page 11

Continued from page 10

Section Title	Description	Data Type	Access
Index 76: General Level Configuration	Level Mode Configuration Parameters	72-bit Record (subindex access not supported)	RW
Index 77: Level Base Configuration	Settings Level Base	80-bit Record (subindex access not supported)	RW
Index 78-81: Level Threshold 1-4 Configuration Settings	Settings for Threshold 1-4	112-bit Record (subindex access not supported)	RW
Index 82: Custom Colors	Custom Colors	48-bit Record (subindex access not supported)	RW
Index 83: Settings	Settings	40-bit Record (subindex access not supported)	RW
Index 85: Gauge Mode Configuration	Settings for gauge mode	40-bit Record (subindex access not supported)	RW
Index 86: Gauge Mode Center Settings	Settings for the Center Configuration	168-bit Record (subindex access not supported)	RW
Index 87-88: Gauge Mode Threshold 1-2 Configuration Settings	Settings for the Threshold 1-2 Configuration	192-bit Record (subindex access not supported)	RW
Index 96-105: Segment 11-20 Configuration Parameters	Segment 11-20 Configuration Parameters	112-bit Record (subindex access not supported)	RW

Chapter 5 IO-Link Data Map

The IO-Link Data Map is used to define how operational data and configurable settings are organized and accessed within an IO-Link device. It provides the information needed for controllers and software tools to monitor device status, exchange real-time process data, and configure device parameters.

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Features

Block Parameter	Yes
Data Storage	Yes
Supported Access Locks	Parameter: Yes Data Storage: Yes Local Parameterization: No Local User Interface: No

Communication

IO-Link Revision	V1.1
Transmission Rate	38400 bit/s (COM2)
Minimum Cycle Time	11.2 ms
SIO Mode Supported	No
M-Sequence Capability	PREOPERATE = TYPE_0 with 1 octet on-request data
	OPERATE = TYPE_2_V with 1 octet on-request data
	ISDU supported

Process Data Out

Process Data Out: Run Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	248	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	0	Animation	The animation type
2	240	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	0	Color 1	The main color of the Animation. Custom colors are defined in parameter data
3	232	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0	Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data

Continued on page 13

Continued from page 13

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
4	224	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0	Speed	The speed of the Animation
5	216	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0	Pulse Pattern	The pattern of Animation
6	208	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	0	Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data
7	200	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0	Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
8	192	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0	Scroll / Bounce Style	The style of scrolling
9	184	8-bit UInteger	1..100 = Percent Width of Color 1	0	Percent Width of Color 1	The size of scrolling
10	176	8-bit UInteger	0 = Up, 1 = Down	0	Direction	The direction of Animation

Continued on page 15

Continued from page 14

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
11	168	6-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3	0	Audio Type	The type of audio
12	160	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High	0	Audio Volume	The volume of the audio

Process Data Out: Segment Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	248	8-bit UInteger	0 = Off 1 = On 2 = Flash 3 = Animation	0	Segment 1	The state of the segment. Related parameters are defined in Segment Parameter Data
2	240	8-bit UInteger	Same as Segment 1	0	Segment 2	Same as Segment 1
3	232	8-bit UInteger	Same as Segment 1	0	Segment 3	Same as Segment 1
4	224	8-bit UInteger	Same as Segment 1	0	Segment 4	Same as Segment 1
5	216	8-bit UInteger	Same as Segment 1	0	Segment 5	Same as Segment 1
6	208	8-bit UInteger	Same as Segment 1	0	Segment 6	Same as Segment 1
7	200	8-bit UInteger	Same as Segment 1	0	Segment 7	Same as Segment 1
8	192	8-bit UInteger	Same as Segment 1	0	Segment 8	Same as Segment 1
9	184	8-bit UInteger	Same as Segment 1	0	Segment 9	Same as Segment 1

Continued on page 16

Continued from page 15

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
10	176	8-bit UInteger	Same as Segment 1	0	Segment 10	Same as Segment 1
11	168	8-bit UInteger	Same as Segment 1	0	Segment 11	Same as Segment 1
12	160	8-bit UInteger	Same as Segment 1	0	Segment 12	Same as Segment 1
13	152	8-bit UInteger	Same as Segment 1	0	Segment 13	Same as Segment 1
14	144	8-bit UInteger	Same as Segment 1	0	Segment 14	Same as Segment 1
15	136	8-bit UInteger	Same as Segment 1	0	Segment 15	Same as Segment 1
16	128	8-bit UInteger	Same as Segment 1	0	Segment 16	Same as Segment 1
17	120	8-bit UInteger	Same as Segment 1	0	Segment 17	Same as Segment 1
18	112	8-bit UInteger	Same as Segment 1	0	Segment 18	Same as Segment 1
19	104	8-bit UInteger	Same as Segment 1	0	Segment 19	Same as Segment 1
20	96	8-bit UInteger	Same as Segment 1	0	Segment 20	Same as Segment 1
21	88	6-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3	0	Audio Type	The type of audio
22	80	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High	0	Audio Volume	The volume of the audio

Process Data Out: Segment Override Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	248	2-bit UInteger	0 = Off 1 = On 2 = Flash 3 = Animation	0	Segment 1	The state of the segment. Related parameters are defined in Segment Parameter Data
2	250	2-bit UInteger	Same as Segment 1	0	Segment 2	Same as Segment 1
3	252	2-bit UInteger	Same as Segment 1	0	Segment 3	Same as Segment 1
4	254	2-bit UInteger	Same as Segment 1	0	Segment 4	Same as Segment 1
5	240	2-bit UInteger	Same as Segment 1	0	Segment 5	Same as Segment 1
6	242	2-bit UInteger	Same as Segment 1	0	Segment 6	Same as Segment 1
7	244	2-bit UInteger	Same as Segment 1	0	Segment 7	Same as Segment 1
8	246	2-bit UInteger	Same as Segment 1	0	Segment 8	Same as Segment 1
9	232	2-bit UInteger	Same as Segment 1	0	Segment 9	Same as Segment 1
10	234	2-bit UInteger	Same as Segment 1	0	Segment 10	Same as Segment 1
11	236	2-bit UInteger	Same as Segment 1	0	Segment 11	Same as Segment 1
12	238	2-bit UInteger	Same as Segment 1	0	Segment 12	Same as Segment 1
13	224	2-bit UInteger	Same as Segment 1	0	Segment 13	Same as Segment 1
14	226	2-bit UInteger	Same as Segment 1	0	Segment 14	Same as Segment 1
15	228	2-bit UInteger	Same as Segment 1	0	Segment 15	Same as Segment 1
16	230	2-bit UInteger	Same as Segment 1	0	Segment 16	Same as Segment 1
17	216	2-bit UInteger	Same as Segment 1	0	Segment 17	Same as Segment 1
18	218	2-bit UInteger	Same as Segment 1	0	Segment 18	Same as Segment 1
19	220	2-bit UInteger	Same as Segment 1	0	Segment 19	Same as Segment 1
20	222	2-bit UInteger	Same as Segment 1	0	Segment 20	Same as Segment 1

Continued on page 17

Continued from page 17

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
21	208	2-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3	0	Audio Type	The type of audio
22	200	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High	0	Audio Volume	The volume of the audio
23	192	8-bit UInteger	0 = Override Not Enabled, 1 = Override Enabled	0	Animation Override	Enable animation override
24	184	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	0	Animation	The animation type

Continued on page 19

Continued from page 18

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
25	176	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	0	Color 1	The main color of the Animation. Custom colors are defined in parameter data
26	168	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0	Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data
27	160	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0	Speed	The speed of the Animation
28	152	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0	Pulse Pattern	The pattern of Animation

Continued on page 20

Continued from page 19

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
29	144	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	0	Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data
30	136	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0	Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
31	128	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0	Scroll / Bounce Style	The style of scrolling
32	120	8-bit UInteger	1..100 = Percent Width of Color 1	0	Percent Width of Color 1	The size of scrolling
33	112	8-bit UInteger	0 = Up, 1 = Down	0	Direction	The direction of Animation

Process Data Out: Advanced Segment Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	248	4-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum		Segment 1 Animation	The animation type
2	252	2-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate		Segment 1 Speed	The speed of the Animation
3	254	2-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random		Segment 1 Pulse Pattern	The pattern of Animation

Continued on page 21

Continued from page 21

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
4	240	4-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2		Segment 1 Color 1	The main color of the Animation. Custom colors are defined in parameter data
5	244	3-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom		Segment 1 Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data
6	232	4-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2		Segment 1 Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data

Continued on page 23

Continued from page 22

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
7	236	3-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom		Segment 1 Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
8	239	Boolean	false = Up, true = Down		Segment 1 Direction	The direction of Animation
9	224	4-bit UInteger	Same as Segment 1		Segment 2 Animation	Same as Segment 1
10	228	2-bit UInteger	Same as Segment 1		Segment 2 Speed	Same as Segment 1
11	230	2-bit UInteger	Same as Segment 1		Segment 2 Pulse Pattern	Same as Segment 1
12	216	4-bit UInteger	Same as Segment 1		Segment 2 Color 1	Same as Segment 1
13	220	3-bit UInteger	Same as Segment 1		Segment 2 Color 1 Intensity	Same as Segment 1
14	208	4-bit UInteger	Same as Segment 1		Segment 2 Color 2	Same as Segment 1
15	212	3-bit UInteger	Same as Segment 1		Segment 2 Color 2 Intensity	Same as Segment 1
16	215	Boolean	Same as Segment 1		Segment 2 Direction	Same as Segment 1
17	200	4-bit UInteger	Same as Segment 1		Segment 3 Animation	Same as Segment 1
18	204	2-bit UInteger	Same as Segment 1		Segment 3 Speed	Same as Segment 1
19	206	2-bit UInteger	Same as Segment 1		Segment 3 Pulse Pattern	Same as Segment 1
20	192	4-bit UInteger	Same as Segment 1		Segment 3 Color 1	Same as Segment 1
21	196	3-bit UInteger	Same as Segment 1		Segment 3 Color 1 Intensity	Same as Segment 1
22	184	4-bit UInteger	Same as Segment 1		Segment 3 Color 2	Same as Segment 1
23	188	3-bit UInteger	Same as Segment 1		Segment 3 Color 2 Intensity	Same as Segment 1
24	191	Boolean	Same as Segment 1		Segment 3 Direction	Same as Segment 1
25	176	4-bit UInteger	Same as Segment 1		Segment 4 Animation	Same as Segment 1
26	180	2-bit UInteger	Same as Segment 1		Segment 4 Speed	Same as Segment 1
27	182	2-bit UInteger	Same as Segment 1		Segment 4 Pulse Pattern	Same as Segment 1
28	168	4-bit UInteger	Same as Segment 1		Segment 4 Color 1	Same as Segment 1
29	172	3-bit UInteger	Same as Segment 1		Segment 4 Color 1 Intensity	Same as Segment 1
30	160	4-bit UInteger	Same as Segment 1		Segment 4 Color 2	Same as Segment 1
31	164	3-bit UInteger	Same as Segment 1		Segment 4 Color 2 Intensity	Same as Segment 1
32	167	Boolean	Same as Segment 1		Segment 4 Direction	Same as Segment 1

Continued on page 24

Continued from page 23

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
33	152	4-bit UInteger	Same as Segment 1		Segment 5 Animation	Same as Segment 1
34	156	2-bit UInteger	Same as Segment 1		Segment 5 Speed	Same as Segment 1
35	158	2-bit UInteger	Same as Segment 1		Segment 5 Pulse Pattern	Same as Segment 1
36	144	4-bit UInteger	Same as Segment 1		Segment 5 Color 1	Same as Segment 1
37	148	3-bit UInteger	Same as Segment 1		Segment 5 Color 1 Intensity	Same as Segment 1
38	136	4-bit UInteger	Same as Segment 1		Segment 5 Color 2	Same as Segment 1
39	140	3-bit UInteger	Same as Segment 1		Segment 5 Color 2 Intensity	Same as Segment 1
40	143	Boolean	Same as Segment 1		Segment 5 Direction	Same as Segment 1
41	128	4-bit UInteger	Same as Segment 1		Segment 6 Animation	Same as Segment 1
42	132	2-bit UInteger	Same as Segment 1		Segment 6 Speed	Same as Segment 1
43	134	2-bit UInteger	Same as Segment 1		Segment 6 Pulse Pattern	Same as Segment 1
44	120	4-bit UInteger	Same as Segment 1		Segment 6 Color 1	Same as Segment 1
45	124	3-bit UInteger	Same as Segment 1		Segment 6 Color 1 Intensity	Same as Segment 1
46	112	4-bit UInteger	Same as Segment 1		Segment 6 Color 2	Same as Segment 1
47	116	3-bit UInteger	Same as Segment 1		Segment 6 Color 2 Intensity	Same as Segment 1
48	119	Boolean	Same as Segment 1		Segment 6 Direction	Same as Segment 1
49	104	4-bit UInteger	Same as Segment 1		Segment 7 Animation	Same as Segment 1
50	108	2-bit UInteger	Same as Segment 1		Segment 7 Speed	Same as Segment 1
51	110	2-bit UInteger	Same as Segment 1		Segment 7 Pulse Pattern	Same as Segment 1
52	96	4-bit UInteger	Same as Segment 1		Segment 7 Color 1	Same as Segment 1
53	100	3-bit UInteger	Same as Segment 1		Segment 7 Color 1 Intensity	Same as Segment 1
54	88	4-bit UInteger	Same as Segment 1		Segment 7 Color 2	Same as Segment 1
55	92	3-bit UInteger	Same as Segment 1		Segment 7 Color 2 Intensity	Same as Segment 1
56	95	Boolean	Same as Segment 1		Segment 7 Direction	Same as Segment 1
57	80	4-bit UInteger	Same as Segment 1		Segment 8 Animation	Same as Segment 1
58	84	2-bit UInteger	Same as Segment 1		Segment 8 Speed	Same as Segment 1
59	86	2-bit UInteger	Same as Segment 1		Segment 8 Pulse Pattern	Same as Segment 1
60	72	4-bit UInteger	Same as Segment 1		Segment 8 Color 1	Same as Segment 1

Continued on page 25

Continued from page 24

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
61	76	3-bit UInteger	Same as Segment 1		Segment 8 Color 1 Intensity	Same as Segment 1
62	64	4-bit UInteger	Same as Segment 1		Segment 8 Color 2	Same as Segment 1
63	68	3-bit UInteger	Same as Segment 1		Segment 8 Color 2 Intensity	Same as Segment 1
64	71	Boolean	Same as Segment 1		Segment 8 Direction	Same as Segment 1
65	56	4-bit UInteger	Same as Segment 1		Segment 9 Animation	Same as Segment 1
66	60	2-bit UInteger	Same as Segment 1		Segment 9 Speed	Same as Segment 1
67	62	2-bit UInteger	Same as Segment 1		Segment 9 Pulse Pattern	Same as Segment 1
68	48	4-bit UInteger	Same as Segment 1		Segment 9 Color 1	Same as Segment 1
69	52	3-bit UInteger	Same as Segment 1		Segment 9 Color 1 Intensity	Same as Segment 1
70	40	4-bit UInteger	Same as Segment 1		Segment 9 Color 2	Same as Segment 1
71	44	3-bit UInteger	Same as Segment 1		Segment 9 Color 2 Intensity	Same as Segment 1
72	47	Boolean	Same as Segment 1		Segment 9 Direction	Same as Segment 1
73	32	4-bit UInteger	Same as Segment 1		Segment 10 Animation	Same as Segment 1
74	36	2-bit UInteger	Same as Segment 1		Segment 10 Speed	Same as Segment 1
75	38	2-bit UInteger	Same as Segment 1		Segment 10 Pulse Pattern	Same as Segment 1
76	24	4-bit UInteger	Same as Segment 1		Segment 10 Color 1	Same as Segment 1
77	28	3-bit UInteger	Same as Segment 1		Segment 10 Color 1 Intensity	Same as Segment 1
78	16	4-bit UInteger	Same as Segment 1		Segment 10 Color 2	Same as Segment 1
79	20	3-bit UInteger	Same as Segment 1		Segment 10 Color 2 Intensity	Same as Segment 1
80	23	Boolean	Same as Segment 1		Segment 10 Direction	Same as Segment 1

Continued on page 26

Continued from page 25

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
81	8	6-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3		Audio Type	The type of audio
82	0	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High		Audio Volume	The volume of the audio

Process Data Out: Level Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	240	16-bit UInteger			Level Mode Value	The value that describes the level of the device. The range is determined in Level Mode parameter data
2	232	6-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3	0	Audio Type	The type of audio

Continued on page 27

Continued from page 26

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
3	224	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High	0	Audio Volume	The volume of the audio

Process Data Out: Gauge Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	240	16-bit UInteger			Gauge Mode Value	The value that describes the position of the main animation
2	232	6-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3	0	Audio Type	The type of audio
3	224	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High	0	Audio Volume	The volume of the audio

Process Data Out: LED Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	248	4-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	0	LED 1 Color	LED Mode Color control
2	252	4-bit UInteger	Same as LED 1	0	LED 2 Color	Same as LED 1
3	240	4-bit UInteger	Same as LED 1	0	LED 3 Color	Same as LED 1
4	244	4-bit UInteger	Same as LED 1	0	LED 4 Color	Same as LED 1
5	232	4-bit UInteger	Same as LED 1	0	LED 5 Color	Same as LED 1
6	236	4-bit UInteger	Same as LED 1	0	LED 6 Color	Same as LED 1
7	224	4-bit UInteger	Same as LED 1	0	LED 7 Color	Same as LED 1
8	228	4-bit UInteger	Same as LED 1	0	LED 8 Color	Same as LED 1
9	216	4-bit UInteger	Same as LED 1	0	LED 9 Color	Same as LED 1
10	220	4-bit UInteger	Same as LED 1	0	LED 10 Color	Same as LED 1
11	208	4-bit UInteger	Same as LED 1	0	LED 11 Color	Same as LED 1
12	212	4-bit UInteger	Same as LED 1	0	LED 12 Color	Same as LED 1
13	200	4-bit UInteger	Same as LED 1	0	LED 13 Color	Same as LED 1
14	204	4-bit UInteger	Same as LED 1	0	LED 14 Color	Same as LED 1
15	192	4-bit UInteger	Same as LED 1	0	LED 15 Color	Same as LED 1
16	196	4-bit UInteger	Same as LED 1	0	LED 16 Color	Same as LED 1
17	184	4-bit UInteger	Same as LED 1	0	LED 17 Color	Same as LED 1
18	188	4-bit UInteger	Same as LED 1	0	LED 18 Color	Same as LED 1

Continued on page 28

Continued from page 28

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
19	176	4-bit UInteger	Same as LED 1	0	LED 19 Color	Same as LED 1
20	180	4-bit UInteger	Same as LED 1	0	LED 20 Color	Same as LED 1
21	168	4-bit UInteger	Same as LED 1	0	LED 21 Color	Same as LED 1
22	172	4-bit UInteger	Same as LED 1	0	LED 22 Color	Same as LED 1
23	160	4-bit UInteger	Same as LED 1	0	LED 23 Color	Same as LED 1
24	164	4-bit UInteger	Same as LED 1	0	LED 24 Color	Same as LED 1
25	152	4-bit UInteger	Same as LED 1	0	LED 25 Color	Same as LED 1
26	156	4-bit UInteger	Same as LED 1	0	LED 26 Color	Same as LED 1
27	144	4-bit UInteger	Same as LED 1	0	LED 27 Color	Same as LED 1
28	148	4-bit UInteger	Same as LED 1	0	LED 28 Color	Same as LED 1
29	136	4-bit UInteger	Same as LED 1	0	LED 29 Color	Same as LED 1
30	140	4-bit UInteger	Same as LED 1	0	LED 30 Color	Same as LED 1
31	128	4-bit UInteger	Same as LED 1	0	LED 31 Color	Same as LED 1
32	132	4-bit UInteger	Same as LED 1	0	LED 32 Color	Same as LED 1
33	120	4-bit UInteger	Same as LED 1	0	LED 33 Color	Same as LED 1
34	124	4-bit UInteger	Same as LED 1	0	LED 34 Color	Same as LED 1
35	112	4-bit UInteger	Same as LED 1	0	LED 35 Color	Same as LED 1
36	116	4-bit UInteger	Same as LED 1	0	LED 36 Color	Same as LED 1
37	104	4-bit UInteger	Same as LED 1	0	LED 37 Color	Same as LED 1
38	108	4-bit UInteger	Same as LED 1	0	LED 38 Color	Same as LED 1
39	96	4-bit UInteger	Same as LED 1	0	LED 39 Color	Same as LED 1
40	100	4-bit UInteger	Same as LED 1	0	LED 40 Color	Same as LED 1
41	88	4-bit UInteger	Same as LED 1	0	LED 41 Color	Same as LED 1
42	92	4-bit UInteger	Same as LED 1	0	LED 42 Color	Same as LED 1
43	80	4-bit UInteger	Same as LED 1	0	LED 43 Color	Same as LED 1
44	84	4-bit UInteger	Same as LED 1	0	LED 44 Color	Same as LED 1
45	72	4-bit UInteger	Same as LED 1	0	LED 45 Color	Same as LED 1

Continued on page 30

Continued from page 29

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
46	76	4-bit UInteger	Same as LED 1	0	LED 46 Color	Same as LED 1
47	64	4-bit UInteger	Same as LED 1	0	LED 47 Color	Same as LED 1
48	68	4-bit UInteger	Same as LED 1	0	LED 48 Color	Same as LED 1
49	56	4-bit UInteger	Same as LED 1	0	LED 49 Color	Same as LED 1
50	60	4-bit UInteger	Same as LED 1	0	LED 50 Color	Same as LED 1
51	48	4-bit UInteger	Same as LED 1	0	LED 51 Color	Same as LED 1
52	52	4-bit UInteger	Same as LED 1	0	LED 52 Color	Same as LED 1
53	40	4-bit UInteger	Same as LED 1	0	LED 53 Color	Same as LED 1
54	44	4-bit UInteger	Same as LED 1	0	LED 54 Color	Same as LED 1
55	32	4-bit UInteger	Same as LED 1	0	LED 55 Color	Same as LED 1
56	36	4-bit UInteger	Same as LED 1	0	LED 56 Color	Same as LED 1
57	24	4-bit UInteger	Same as LED 1	0	LED 57 Color	Same as LED 1
58	28	4-bit UInteger	Same as LED 1	0	LED 58 Color	Same as LED 1
59	16	4-bit UInteger	Same as LED 1	0	LED 59 Color	Same as LED 1
60	20	4-bit UInteger	Same as LED 1	0	LED 60 Color	Same as LED 1
61	8	6-bit UInteger	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Stacatto 6 = Siren 7 = Continuous 1 8 = Continuous 2 10 = Jingle 11 = Melody 1 12 = Melody 2 13 = Melody 3	0	Audio Type	The type of audio
62	0	2-bit UInteger	0 = Low 1 = Medium Low 2 = Medium High 3 = High	0	Audio Volume	The volume of the audio

Process Data Out: Demo Mode

Bit Length: 256

Data Type: 256-bit Record

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Name	Description
1	0	8-bit UInteger			Reserved	Reserved

Indexes

Index 0: Direct Parameters 1

Data Type: 128-bit Record

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	120	8-bit UInteger		0	RO	Reserved	
2	112	8-bit UInteger		0	RO	Master Cycle Time	
3	104	8-bit UInteger		0	RO	Min Cycle Time	
4	96	8-bit UInteger		0	RO	M-Sequence Capability	
5	88	8-bit UInteger		17	RO	IO-Link Version ID	
6	80	8-bit UInteger		0	RO	Process Data Input Length	
7	72	8-bit UInteger		0	RO	Process Data Output Length	
8	64	8-bit UInteger		0	RO	Vendor ID 1	
9	56	8-bit UInteger		0	RO	Vendor ID 2	
10	48	8-bit UInteger		0	RO	Device ID 1	
11	40	8-bit UInteger		0	RO	Device ID 2	
12	32	8-bit UInteger		0	RO	Device ID 3	
13	24	8-bit UInteger		0	RO	Reserved	
14	16	8-bit UInteger		0	RO	Reserved	
15	8	8-bit UInteger		0	RO	Reserved	
16	0	8-bit UInteger	130 = Restore Factory Settings	0	WO	Standard Command	

Index 1: Direct Parameters 2

Data Type: 128-bit Record

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	120	8-bit UInteger		0		Device Specific Parameter 1	

Continued on page 32

Continued from page 31

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
2	112	8-bit UInteger		0		Device Specific Parameter 2	
3	104	8-bit UInteger		0		Device Specific Parameter 3	
4	96	8-bit UInteger		0		Device Specific Parameter 4	
5	88	8-bit UInteger		0		Device Specific Parameter 5	
6	80	8-bit UInteger		0		Device Specific Parameter 6	
7	72	8-bit UInteger		0		Device Specific Parameter 7	
8	64	8-bit UInteger		0		Device Specific Parameter 8	
9	56	8-bit UInteger		0		Device Specific Parameter 9	
10	48	8-bit UInteger		0		Device Specific Parameter 10	
11	40	8-bit UInteger		0		Device Specific Parameter 11	
12	32	8-bit UInteger		0		Device Specific Parameter 12	
13	24	8-bit UInteger		0		Device Specific Parameter 13	
14	16	8-bit UInteger		0		Device Specific Parameter 14	
15	8	8-bit UInteger		0		Device Specific Parameter 15	
16	0	8-bit UInteger		0		Device Specific Parameter 16	

Index 2: Standard Command

Data Type: 8-bit UInteger

Allowed Values: 130 = Restore Factory Settings

Access Rights: WO

Modifies other variables.

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 12: Device Access Locks

Data Type: 16-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	Boolean		FALSE		Parameter (write) Access Lock	
2	1	Boolean		FALSE		Data Storage Lock	
3	2	Boolean				Local Parameterization Lock	

Continued on page 33

Continued from page 32

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
4	3	Boolean				Local User Interface Lock	

Index 16: Vendor Name

Data Type: 64-octet String UTF-8

Default Value: "Banner Engineering Corporation"

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 17: Vendor Text

Data Type: 64-octet String UTF-8

Default Value: "More Sensors. More Solutions."

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 18: Product Name

Data Type: 64-octet String UTF-8

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 19: Product ID

Data Type: 64-octet String UTF-8

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 20: Product Text

Data Type: 64-octet String UTF-8

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 21: Serial Number

Data Type: 16-octet String UTF-8

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 23: Firmware Version

Data Type: 64-octet String UTF-8

Access Rights: RO

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 24: Application Specific Tag

Data Type: 32-octet String UTF-8

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 36: Device Status

Data Type: 8-bit UInteger

Allowed Values:

- 0 = Device is OK
- 1 = Maintenance required
- 2 = Out of specification
- 3 = Functional check
- 4 = Failure
- 5..255 = Reserved

Access Rights: RO

Dynamic

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 37: Detailed Device Status

Data Type: Array[6] of 3-octet OctetString (subindex access not supported)

Access Rights: RO

Dynamic

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 64: Operating Mode Selection

Description: Operating Mode Selection

Data Type: 8-bit UInteger

Allowed Values:

- 0 = Run Mode
- 1 = Segment Mode
- 2 = Segment Override Mode
- 3 = Advanced Segment Mode
- 4 = Level Mode
- 5 = Gauge Mode
- 6 = LED Mode
- 7 = Demo Mode

Default Value: 2

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Index 65: Segment Configuration

Description: General Segment Mode Configuration

Data Type: 32-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0 = Manual Segment Configuration 1 = 1 Segment 2 = 2 Segments 3 = 3 Segments ... 20 = 20 Segments 21 = AutoSpan	3		Segment Mode	The number of segments in Segment Mode
2	8	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	13		Background Color	The color of the background
3	16	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	3		Background Intensity	The intensity of the background
4	24	8-bit UInteger	0 = Animation Sync Disabled, 1 = Animation Sync Enabled	1		Animation Synchronization	Animation update synchronization

Index 66-75: Segment 1-10 Configuration Parameters

The following indexes have identical subindex data.

Index Descriptions

Index	Description	Default Values for Basic Color and Color 1
Index 66: Segment 1 Config	Segment 1 Configuration Parameters	1 = Red
Index 67: Segment 2 Config	Segment 2 Configuration Parameters	4 = Yellow
Index 68: Segment 3 Config	Segment 3 Configuration Parameters	0 = Green
Index 69: Segment 4 Config	Segment 4 Configuration Parameters	9 = Blue
Index 70: Segment 5 Config	Segment 5 Configuration Parameters	13 = White (6500K)
Index 71: Segment 6 Config	Segment 6 Configuration Parameters	2 = Orange

Continued on page 36

Continued from page 35

Index	Description	Default Values for Basic Color and Color 1
Index 72: Segment 7 Config	Segment 7 Configuration Parameters	11 = Magenta
Index 73: Segment 8 Config	Segment 8 Configuration Parameters	8 = Sky Blue
Index 74: Segment 9 Config	Segment 9 Configuration Parameters	3 = Amber
Index 75: Segment 10 Config	Segment 10 Configuration Parameters	10 = Violet

Data Type: 112-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	See Index Descriptions table, above		Basic Color	The color used when the segment is activated
2	8	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Basic Flash Rate	The flash rate used when the segment is activated

Continued on page 37

Continued from page 36

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
3	16	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Animation	The animation type
4	24	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	See Index Descriptions table, above		Color 1	The main color of the Animation. Custom colors are defined in parameter data
5	32	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data

Continued on page 38

Continued from page 37

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
6	40	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Speed	The speed of the Animation
7	48	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Pulse Pattern	The pattern of Animation
8	56	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	1		Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data
9	64	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
10	72	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Scroll / Bounce Style	The style of scrolling
11	80	8-bit UInteger	1..100 = Percent Width of Color 1	50		Percent Width of Color 1	The size of scrolling
12	88	8-bit UInteger	0 = Up, 1 = Down	0		Direction	The direction of Animation
13	96	8-bit UInteger	0..64 = Manual Offset	0		Manual Segment Offset / Threshold Marker Offset	LED Offset for Manual Segment
14	104	8-bit UInteger	0..64 = Manual Width	0		Manual Segment Width / Threshold Marker Width	LED Width for Manual Segment

Index 76: General Level Configuration

Description: Level Mode Configuration Parameters

Data Type: 72-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	13		Background Color	The color of the background
2	8	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	3		Background Intensity	The intensity of the background
3	16	8-bit UInteger	0 = Non-Dominant, 1 = Dominant	0		Dominance	In Non-Dominant mode, segments maintain their threshold state. In Dominant mode, all segments follow the active threshold state
4	24	8-bit UInteger	0 = Solid, 1 = Analog	1		Sub-Segment Style	Describes the function of the transitional LED
5	32	8-bit UInteger	0 = None 1 = Low 2 = Medium 3 = High	0		Filtering	The amount of filtering for Level Mode
6	40	8-bit UInteger	0 = None 1 = Low 2 = Medium 3 = High	0		Hysteresis	The hysteresis for thresholds

Continued on page 40

Continued from page 39

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
7	48	16-bit UInteger		100		Full Scale Value	Full scale value of Level Mode
8	64	8-bit UInteger	0 = Off 1 = Non-Dominant 2 = Dominant	0		Threshold Markers Type	Level Mode threshold markers type

Index 77: Level Base Configuration

Description: Settings Level Base

Data Type: 80-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Animation	The animation type

Continued on page 41

Continued from page 40

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
2	8	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	0		Color 1	The main color of the Animation. Custom colors are defined in parameter data
3	16	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data
4	24	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Speed	The speed of the Animation
5	32	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Pulse Pattern	The pattern of Animation

Continued on page 42

Continued from page 41

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
6	40	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	1		Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data
7	48	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
8	56	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Scroll / Bounce Style	The style of scrolling
9	64	8-bit UInteger	1..100 = Percent Width of Color 1	50		Percent Width of Color 1	The size of scrolling
10	72	8-bit UInteger	0 = Up, 1 = Down	0		Direction	The direction of Animation

Index 78-81: Level Threshold 1-4 Configuration Settings

The following indexes have identical subindex data.

Index Descriptions

Index	Description	Default Value for Threshold Value (Percent)	Default Value for Color 1
Index 78: Level Threshold 1 Configuration	Settings for Threshold 1	33 = 33%	4 = Yellow
Index 79: Level Threshold 2 Configuration	Settings for Threshold 2	66 = 66%	1 = Red
Index 80: Level Threshold 3 Configuration	Settings for Threshold 3	77 = 77%	13 = White (6500K)
Index 81: Level Threshold 4 Configuration	Settings for Threshold 4	88 = 88%	9 = Blue

Data Type: 112-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0 = Threshold Disabled, 1 = Threshold Enabled	1		Threshold Enable	Enables the threshold
2	8	8-bit UInteger	0..100 = Threshold (Percent)	See Index Descriptions table, above		Threshold Value (Percent)	The percent value for the threshold
3	16	8-bit UInteger	0 = Less Than or Equal To, 1 = Greater Than or Equal To	1		Threshold Comparison	Sets the comparison type of the threshold
4	24	8-bit UInteger	0 = Override Not Enabled, 1 = Override Enabled	0		Threshold Override	If the override condition is met, then all segments will display the Override Animation
5	32	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Animation	The animation type

Continued on page 44

Continued from page 43

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
6	40	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	See Index Descriptions table, above		Color 1	The main color of the Animation. Custom colors are defined in parameter data
7	48	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data
8	56	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Speed	The speed of the Animation
9	64	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Pulse Pattern	The pattern of Animation

Continued on page 45

Continued from page 44

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
10	72	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	1		Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data
11	80	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
12	88	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Scroll / Bounce Style	The style of scrolling
13	96	8-bit UInteger	1..100 = Percent Width of Color 1	50		Percent Width of Color 1	The size of scrolling
14	104	8-bit UInteger	0 = Up, 1 = Down	0		Direction	The direction of Animation

Index 82: Custom Colors

Description: Custom Colors

Data Type: 48-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0..255 = RGB	255		Custom 1 Red	Red
2	8	8-bit UInteger	0..255 = RGB	255		Custom 1 Green	Green
3	16	8-bit UInteger	0..255 = RGB	255		Custom 1 Blue	Blue
4	24	8-bit UInteger	0..255 = RGB	255		Custom 2 Red	Red
5	32	8-bit UInteger	0..255 = RGB	255		Custom 2 Green	Green
6	40	8-bit UInteger	0..255 = RGB	255		Custom 2 Blue	Blue

Index 83: Settings

Description: Settings

Data Type: 40-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		LED Mode Intensity	Change the global intensity in LED Mode
2	8	8-bit UInteger	0 = Standard, 1 = Inverted	0		Orientation	Change the direction of operation, depending on the orientation of mounting
3	16	8-bit UInteger	0..100 = Custom Intensity	100		Custom Intensity	Set a custom intensity
4	24	8-bit UInteger	0..255 = Custom Frequency	10		Custom Frequency	Set a custom flash rate
5	32	8-bit UInteger	1..3 = LED grouping in Direct mode	2		LED grouping in Direct mode	Number of LEDs per group in Direct mode

Index 85: Gauge Mode Configuration

Description: Settings for Gauge Mode

Data Type: 40-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0 = None 1 = Low 2 = Medium 3 = High	0		Filetering	The amount of filtering for Gauge Mode
2	8	8-bit UInteger	0 = None 1 = Low 2 = Medium 3 = High	0		Hysteresis	Hysteresis for thresholds
3	16	16-bit UInteger		100		Full Scale Value	The full scale value of Gauge Mode
4	32	8-bit UInteger	0 = Off 1 = Non-Dominant 2 = Dominant	0		Threshold Markers Type	Gauge Mode threshold markers type

Index 86: Gauge Mode Center Settings

Description: Settings for the Center Configuration

Data Type: 168-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	1..100 = Percent Width of Color 1	20		Percent Width of Main Segment	The percent width of the main segment, where 100% is the full width
2	8	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Main Animation	The main animation type
3	16	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	1		Main Color 1	The primary color of the Main Animation. Custom colors are defined in parameter data

Continued on page 48

Continued from page 47

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
4	24	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Main Color 1 Intensity	The intensity of Color 1 for the Main Animation. Custom intensity is defined in parameter data
5	32	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Main Speed	The speed of the Main Animation
6	40	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Main Pulse Pattern	The pattern of the Main Animation
7	48	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	4		Main Color 2	The secondary color of the Main Animation. Only used if Main Animation has two colors. Custom colors are defined in parameter data
8	56	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Main Color 2 Intensity	The intensity of Color 2 for the Main Animation. Custom intensity is defined in parameter data
9	64	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Main Scroll / Bounce Style	The style of scrolling for the Main Animation
10	72	8-bit UInteger	1..100 = Percent Width of Color 1	50		Main Percent Width of Color 1	The size of scrolling for the Main Animation
11	80	8-bit UInteger	0 = Up, 1 = Down	0		Main Direction	The direction of the Main Animation

Continued on page 49

Continued from page 48

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
12	88	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Background Animation	The background animation type
13	96	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	13		Background Color 1	The primary color of the Background Animation. Custom colors are defined in parameter data
14	104	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	See Index Descriptions table, above		Background Color 1 Intensity	The intensity of Color 1 for the Background Animation. Custom intensity is defined in parameter data

Continued on page 50

Continued from page 49

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
15	112	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Background Speed	The speed of the Background Animation
16	120	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Background Pulse Pattern	The pattern of the Background Animation
17	128	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	9		Background Color 2	The secondary color of the Background Animation. Only used if Background Animation has two colors. Custom colors are defined in parameter data
18	136	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Background Color 2 Intensity	The Intensity of Color 2 for the Background Animation. Custom intensity is defined in parameter data
19	144	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Background Scroll / Bounce Style	The style of scrolling for the Background Animation
20	152	8-bit UInteger	1..100 = Percent Width of Color 1	50		Background Percent Width of Color 1	The size of scrolling for the Background Animation
21	160	8-bit UInteger	0 = Up, 1 = Down	0		Background Direction	The direction of the Background Animation

Index 87-88: Gauge Mode Threshold 1-2 Configuration Settings

The following indexes have identical subindex data.

Index Descriptions

Index	Description	Default Value for Threshold Value (Percent)	Default Value for Threshold Comparison	Default Value for Background Color 1 Intensity
Index 87: Gauge Mode Threshold 1 Settings	Settings for the Threshold 1 Configuration	20 = 20%	0 = Less Than or Equal To	1 = Low
Index 88: Gauge Mode Threshold 2 Settings	Settings for the Threshold 2 Configuration	80 = 80%	1 = Greater Than or Equal To	0 = High

Data Type: 192-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	0 = Threshold Disabled, 1 = Threshold Enabled	1		Threshold Enable	Enables the threshold
2	8	8-bit UInteger	0..100 = Threshold (Percent)	See Index Descriptions table, above		Threshold Value (Percent)	The percent value for the threshold
3	16	8-bit UInteger	0 = Less Than or Equal To, 1 = Greater Than or Equal To	See Index Descriptions table, above		Threshold Comparison	Sets the comparison type of the threshold
4	24	8-bit UInteger	1..100 = Percent Width of Color 1	20		Percent Width of Main Segment	The percent width of the main segment, where 100% is the full width
5	32	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Main Animation	The main animation type

Continued on page 52

Continued from page 51

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
6	40	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	1		Main Color 1	The primary color of the Main Animation. Custom colors are defined in parameter data
7	48	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Main Color 1 Intensity	The intensity of Color 1 for the Main Animation. Custom intensity is defined in parameter data
8	56	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Main Speed	The speed of the Main Animation
9	64	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Main Pulse Pattern	The pattern of the Main Animation

Continued on page 53

Continued from page 52

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
10	72	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	4		Main Color 2	The secondary color of the Main Animation. Only used if Main Animation has two colors. Custom colors are defined in parameter data
11	80	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Main Color 2 Intensity	The intensity of Color 2 for the Main Animation. Custom intensity is defined in parameter data
12	88	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Main Scroll / Bounce Style	The style of scrolling for the Main Animation
13	96	8-bit UInteger	1..100 = Percent Width of Color 1	50		Main Percent Width of Color 1	The size of scrolling for the Main Animation
14	104	8-bit UInteger	0 = Up, 1 = Down	0		Main Direction	The direction of the Main Animation

Continued on page 54

Continued from page 53

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
15	112	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Background Animation	The background animation type
16	120	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	13		Background Color 1	The primary color of the Background Animation. Custom colors are defined in parameter data
17	128	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	See Index Descriptions table, above		Background Color 1 Intensity	The intensity of Color 1 for the Background Animation. Custom intensity is defined in parameter data

Continued on page 55

Continued from page 54

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
18	136	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Background Speed	The speed of the Background Animation
19	144	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Background Pulse Pattern	The pattern of the Background Animation
20	152	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	9		Background Color 2	The secondary color of the Background Animation. Only used if Background Animation has two colors. Custom colors are defined in parameter data
21	160	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Background Color 2 Intensity	The Intensity of Color 2 for the Background Animation. Custom intensity is defined in parameter data
22	168	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Background Scroll / Bounce Style	The style of scrolling for the Background Animation
23	176	8-bit UInteger	1..100 = Percent Width of Color 1	50		Background Percent Width of Color 1	The size of scrolling for the Background Animation
24	184	8-bit UInteger	0 = Up, 1 = Down	0		Background Direction	The direction of the Background Animation

Index 96-105: Segment 11-20 Configuration Parameters

The following indexes have identical subindex data.

Index Descriptions

Index	Description	Default Values for Basic Color and Color 1
Index 96: Segment 11 Config	Segment 11 Configuration Parameters	1 = Red
Index 97: Segment 12 Config	Segment 12 Configuration Parameters	4 = Yellow
Index 98: Segment 13 Config	Segment 13 Configuration Parameters	0 = Green
Index 99: Segment 14 Config	Segment 14 Configuration Parameters	9 = Blue
Index 100: Segment 15 Config	Segment 15 Configuration Parameters	13 = White (6500K)
Index 101: Segment 16 Config	Segment 16 Configuration Parameters	2 = Orange
Index 102: Segment 17 Config	Segment 17 Configuration Parameters	11 = Magenta
Index 103: Segment 18 Config	Segment 18 Configuration Parameters	8 = Sky Blue
Index 104: Segment 19 Config	Segment 19 Configuration Parameters	3 = Amber
Index 105: Segment 20 Config	Segment 20 Configuration Parameters	10 = Violet

Data Type: 112-bit Record (subindex access not supported)

Access Rights: RW

See [IO-Link Index](#) for a full list of IO-Link process data and indexes.

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
1	0	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	See Index Descriptions table, above		Basic Color	The color used when the segment is activated
2	8	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Basic Flash Rate	The flash rate used when the segment is activated

Continued on page 57

Continued from page 56

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
3	16	8-bit UInteger	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Two Color Shift 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Scroll 10 = Center Scroll 11 = Bounce 12 = Center Bounce 13 = Single End Steady 14 = Single End Flash 15 = Ends Flash 16 = Ends Steady 17 = Spectrum	1		Animation	The animation type
4	24	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	See Index Descriptions table, above		Color 1	The main color of the Animation. Custom colors are defined in parameter data
5	32	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 1 Intensity	The intensity of Color 1. Custom intensity is defined in parameter data

Continued on page 58

Continued from page 57

Subindex	Bit Offset	Data Type	Allowed Values	Default Value	Acc. Restr.	Name	Description
6	40	8-bit UInteger	0 = Medium 1 = Fast 2 = Slow 3 = Custom Flash Rate	0		Speed	The speed of the Animation
7	48	8-bit UInteger	0 = Normal 1 = Strobe 2 = Three Pulse 3 = SOS 4 = Random	0		Pulse Pattern	The pattern of Animation
8	56	8-bit UInteger	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 (6500K) 14 = Custom 1 15 = Custom 2	1		Color 2	The secondary color of the Animation. Only used if Animation has two colors. Custom colors are defined in parameter data
9	64	8-bit UInteger	0 = High 1 = Low 2 = Medium 3 = Off 4 = Custom	0		Color 2 Intensity	The Intensity of Color 2. Custom intensity is defined in parameter data
10	72	8-bit UInteger	0 = Solid 1 = Tail 2 = Ripple	0		Scroll / Bounce Style	The style of scrolling
11	80	8-bit UInteger	1..100 = Percent Width of Color 1	50		Percent Width of Color 1	The size of scrolling
12	88	8-bit UInteger	0 = Up, 1 = Down	0		Direction	The direction of Animation
13	96	8-bit UInteger	0..64 = Manual Offset	0		Manual Segment Offset / Threshold Marker Offset	LED Offset for Manual Segment
14	104	8-bit UInteger	0..64 = Manual Width	0		Manual Segment Width / Threshold Marker Width	LED Width for Manual Segment

Chapter 6 Specifications

Supply Voltage and Current

Voltage: 18 V DC to 30 V DC

Maximum Current:

Voltage (V DC)	20 Cell Device (mA)	12 Cell Device (mA)	8 Cell Device (mA)	Per Cell (mA)
18	550	280	260	28
24	410	210	200	21
30	330	170	165	17

NOTE: If calculating the maximum current for a 2-segment configuration, each cell will consume half of the current in the table above. If configured as a 3-segment configuration, it will consume a third, and so on. Per-cell values are for the smallest cell width configurable.

Maximum Current for Audible:

High: 40 mA
Med-High: 25 mA
Med-Low: 15 mA
Low: 6 mA

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Connections

Integral 4-pin M12 male quick-disconnect connector
Models with a quick-disconnect connector require a mating cordset

Construction

Bases, Covers, and Light Cells: Polycarbonate

Operating Conditions

Non-Audible: -40 °C to +50 °C (-40 °F to +122 °F)

Audible: -20 °C to +50 °C (-4 °F to +122 °F)

95% at +50 °C maximum relative humidity (non-condensing)

Environmental Rating

UL Type 1

IP66, IP69

Vibration and Mechanical Shock

Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6

Shock: 15G 11 ms duration, half sine wave per IEC 60068-2-27

Audible Adjustment

Omni-Directional Sealed Audible Alarm: Software adjustable

Audible Alarm

Audible Frequency	2.8 kHz ± 500Hz
	Maximum Intensity at 1 m (SPL) ⁽³⁾
High	99 dB
Med-High	97 dB
Med-Low	92 dB
Low	84 dB

Certifications



Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM



Advanced Capabilities



Required Overcurrent Protection



WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

⁽³⁾ Up to. Actual SPL varies depending on setup. Ratings reflect maximum on-axis measurement.

Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates		Lumen Output - Fully Lit			
		X	Y	20 Cell	12 Cell	8 Cell	Per Cell
Blue	465	0.1405	0.0521	22	12	11.9	1.1
Green	512	0.1267	0.6549	89.7	52.8	51.3	4.5
Red	618	0.6888	0.3092	55.1	30.4	28.8	2.8
Orange	602	0.6006	0.3633	61.4	35.1	33	3.1
Amber	592	0.5369	0.4022	65.8	38.1	35.8	3.3
Yellow	579	0.4526	0.4541	72.2	42	39.3	3.6
Lime Green	563	0.3688	0.5058	78.8	45	44.7	3.9
Spring Green	504	0.1294	0.5133	84	47.6	47.9	4.2
Cyan	489	0.1345	0.2973	67.9	38.3	38.9	3.4
Sky Blue	483	0.1366	0.2088	57	31.7	32.8	2.8
Blue	465	0.1405	0.0521	22	12	11.9	1.1
Violet	-	0.2136	0.0864	32.1	16.8	17.1	1.6
Magenta	-	0.3676	0.1652	43.3	24.3	23.3	2.2
Rose	-	0.4985	0.22	49.1	27.1	25.9	2.5
Daylight White	5000K	0.3384	0.3329	65.9	36.4	37.3	3.3

NOTE: If using a 20-cell device in a 2-segment configuration, divide lumen values by 2. If using a 3-segment configuration, divide lumen values by 3, and so on.

FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Industry Canada ICES-003(B)

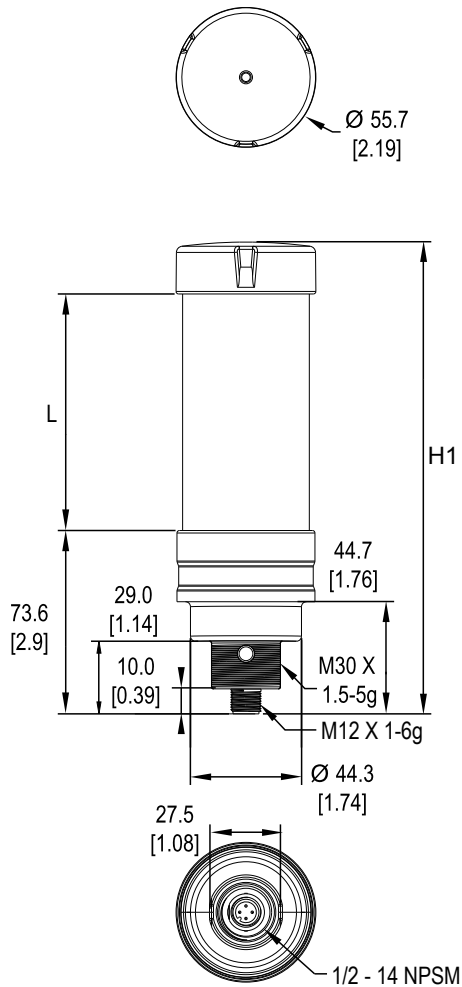
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

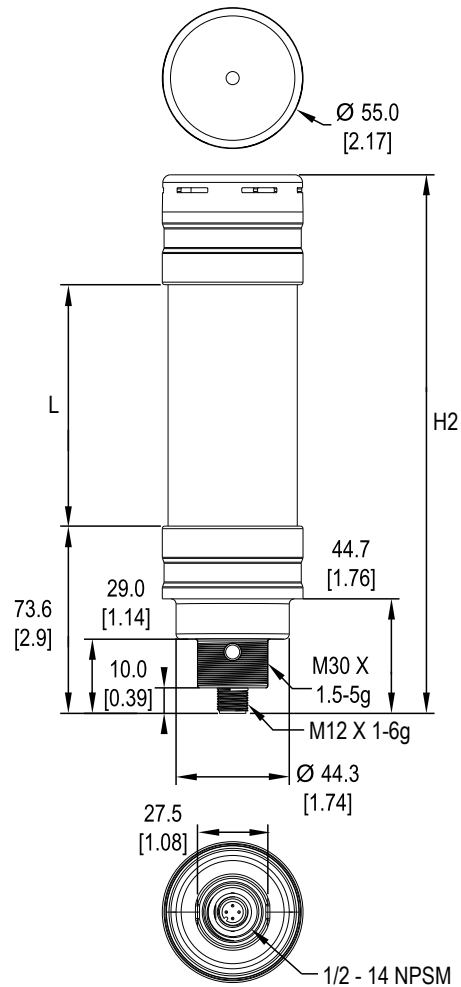
Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

Non-Audible Models



Audible Models

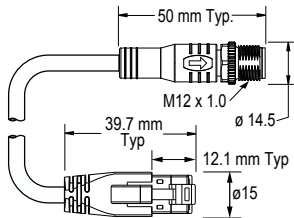
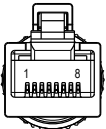


Cells	Tower Height - Non-Audible Models (H1)	Tower Height - Audible Models (H2)	Window Length (L)
20 Cells	332.1	354.3	237.3
12 Cells	236.1	258.3	141.3
8 Cells	188.1	210.3	93.3

Chapter 7 Accessories

Cordsets

4-Pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 236186)				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)		Female Male	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
BC-M12F4-M12M4-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4-22-3	3 m (9.84 ft)			
BC-M12F4-M12M4-22-4	4 m (13.12 ft)			
BC-M12F4-M12M4-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4-22-15	15 m (49.2 ft)			

4-Pin Double-Ended M12 D-Code Male to RJ45 Ethernet Cordsets (datasheet p/n 244425)																					
Model	Length	Dimensions	Pinout																		
BCD-M12DM-RJ45-1	1 m		 																		
BCD-M12DM-RJ45-2	2 m																				
BCD-M12DM-RJ45-5	5 m																				
BCD-M12DM-RJ45-8	8 m																				
BCD-M12DM-RJ45-10	10 m																				
BCD-M12DM-RJ45-15	15 m																				
BCD-M12DM-RJ45-20	20 m		<table><thead><tr><th>M12</th><th>Wires</th><th>RJ45</th></tr></thead><tbody><tr><td>1</td><td>- White/orange</td><td>- 1</td></tr><tr><td>3</td><td>- Orange</td><td>- 2</td></tr><tr><td>2</td><td>- White/green</td><td>- 3</td></tr><tr><td>4</td><td>- Green</td><td>- 6</td></tr><tr><td>Shell</td><td>- Braid</td><td>- Shell</td></tr></tbody></table> Pins that are not listed have no connection.	M12	Wires	RJ45	1	- White/orange	- 1	3	- Orange	- 2	2	- White/green	- 3	4	- Green	- 6	Shell	- Braid	- Shell
M12	Wires			RJ45																	
1	- White/orange	- 1																			
3	- Orange	- 2																			
2	- White/green	- 3																			
4	- Green	- 6																			
Shell	- Braid	- Shell																			
BCD-M12DM-RJ45-25	25 m																				

Mounting Brackets

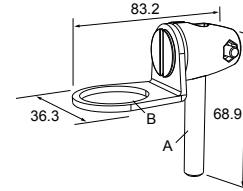
All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

SMB30A - Right-angle bracket with curved slot for versatile orientation - Clearance for M6 (¼ in) hardware - Mounting hole for 30 mm sensor 12-gauge stainless steel - CAD Files: DXF, PDF, IGS, STP Hole center spacing: A to B=40 Hole size: A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5	
--	--

SMB30FA

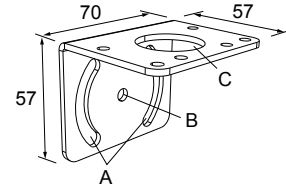
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Bolt thread: SMB30FA, A=3/8 - 16 × 2 in; SMB30FAL, A=3/8 - 16 × 4 in; SMB30FAM10, A=M10 - 1.5 × 50
Hole size: B=ø 30.1

**SMB30MM**

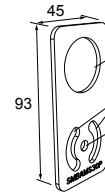
- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (1/4 in) hardware
- Mounting hole for 30 mm sensor
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Hole center spacing: A=51, A to B=25.4
Hole size: A=42.6 × 7, B=ø 6.4, C=ø 30.1

**SMBAMS30P**

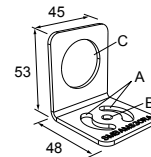
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0

**SMBAMS30RA**

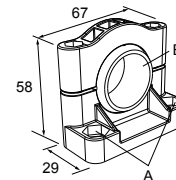
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge (2.6 mm) cold-rolled steel
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0

**SMB30SC**

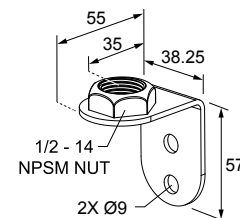
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

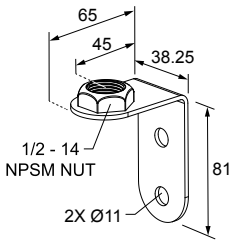
Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0

**LMBE12RA35**

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Hole center spacing: 20.0



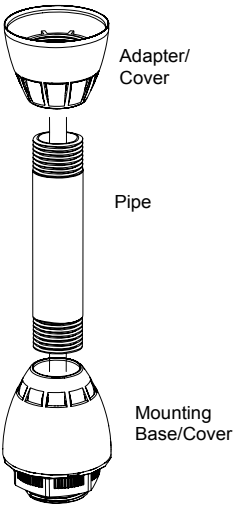
LMBE12RA45 • Direct mounting of stand-off pipe, with common bracket type • Zinc-plated steel • 1/2-14 NPSM nut • Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 45 mm • CAD Files: DXF, PDF, IGS, STP Hole center spacing: 35.0	
--	---

LMB Sealed Right-Angle Bracket

Model	Description	
LMB30RA - Black polycarbonate CAD Files: DXF, PDF, IGS, STP LMB30RAC - Gray polycarbonate CAD Files: DXF, PDF, IGS, STP	• Direct-Mount Models • Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.	
LMBE12RA - Black polycarbonate CAD Files: DXF, PDF, IGS, STP LMBE12RAC - Gray polycarbonate CAD Files: DXF, PDF, IGS, STP	• Pipe-Mount Models • Bracket kit with base, 1/2-14 pipe adapter, set screw, fasteners, O-rings, and gaskets • For use with stand-off pipe (listed and sold separately)	

Elevated Mount System

Example Assembly



This example uses:

1. Adapter/Cover
2. Pipe
3. Mounting Base

Other compatible parts are listed in the following tables.

Adapters/Covers

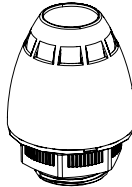
Adapter/Cover Model	Description	
SA-M30TE12 - Black acetal	- Streamlined black acetal or white UHMW stand-off pipe adapter/cover - Adapter from 30 mm light base to ½ in. NPSM/DN15 pipe - Typically used for the CL50 Column Light, TL50 Tower Light, and K50 series - Mounting hardware included - CAD files: DXF, PDF, IGS, STP	
SA-M30TE12C - White UHMW		

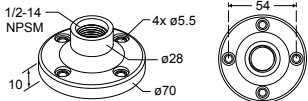
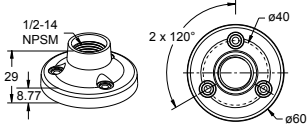
Pipes

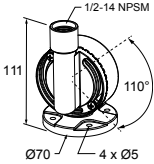
Black Anodized Aluminum, ½ in. NPT Pipe Models	Clear Anodized Aluminum, ½ in. NPT Pipe Models	Description
SOP-E12-150A, 150 mm (6 in) long	SOP-E12-150AC, 150 mm (6 in) long	- Elevated-use stand-off pipe - Threaded at both ends - Compatible with most industrial environments - CAD Files: - SOP-E12-150A: DXF, PDF, IGS, STP - SOP-E12-300A: DXF, PDF, IGS, STP - SOP-E12-600A: DXF, PDF, IGS, STP - SOP-E12-900A: DXF, PDF, IGS, STP
SOP-E12-300A, 300 mm (12 in) long	SOP-E12-300AC, 300 mm (12 in) long	
SOP-E12-600A, 600 mm (24 in) long	-	
SOP-E12-900A, 900 mm (36 in) long	SOP-E12-900AC, 900 mm (36 in) long	

304 Stainless Steel, ½ in. NPT Pipe Models	Description
SOP-E12-150SS, 150 mm (6 in) long	- Elevated-use stand-off pipe - Threaded at both ends - Compatible with most industrial environments - CAD Files: - SOP-E12-150x: DXF, PDF, IGS, STP - SOP-E12-300x: DXF, PDF, IGS, STP - SOP-E12-600x: DXF, PDF, IGS, STP - SOP-E12-900x: DXF, PDF, IGS, STP
SOP-E12-300SS, 300 mm (12 in) long	
SOP-E12-600SS, 600 mm (24 in) long	
SOP-E12-900SS, 900 mm (36 in) long	

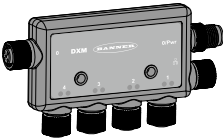
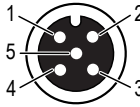
Bottom Covers and Mounting Bases

Mounting Base Model	Description	
SA-E12M30 - Black acetal	- Streamlined black acetal or white UHMW mounting base adapter/cover - Adapter from ½ in. NPSM/DN15 pipe to 30 mm (1-3/16 in) drilled hole - Mounting hardware included - CAD files: DXF, PDF, IGS, STP	
SA-E12M30C - White UHMW		

Pipe Mounting Flange			
Model	Description	Construction	
SA-F12	- Elevated-use stand-off pipes (½ in, NPSM/DN15) - M5 mounting hardware and nitrile gasket included	Die-cast zinc base with black paint	
SA-F12-3	- Elevated-use stand-off pipes (½ in, NPSM/DN15) - M4 mounting hardware and nitrile blend gasket included	Black Polycarbonate	

Foldable Mounting Brackets			
Model	Description	Construction	
SA-FFB12	- For use with 1/2 inch stand-off pipes - Stainless steel hardware	Black polycarbonate	
SA-FFB12C		Gray polycarbonate	

IO-Link Master

Model		Pinout (Male)	Pinout (Female)
DXMR90-4K Series Controller IO-Link Master - One female M12 D-Code Ethernet connector - Four female M12 connections for IO-Link master connections - One male M12 (Port 0) connection for incoming power and Modbus RS-485, one female M12 connection for daisy chaining Port 0 signals - Product documentation (p/n 229731)		 1 = Brown 2 = White 3 = Blue 4 = Black	 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray

Power Supply

PSW-24-1 24 V DC, 1 A Class 2 UL Listed power supply 100 V AC to 240 V AC 50/60 Hz input 2 m (6.5 ft) PVC cable with M12 quick disconnect - Includes Type A (US, Canada, Japan, Puerto Rico, Taiwan), Type C (Germany, France, South Korea, Netherlands, Poland, Spain, Turkey), Type G (United Kingdom, Ireland, Singapore, Vietnam), and Type I (China, Australia, New Zealand) AC detachable input plugs	
--	---

Chapter 8 Product Support and Maintenance

Supporting Files

The following files are available at www.bannerengineering.com.

Part Number	File
228876	IO-Link Configuration Software Instruction Manual
261866	CTL50 IODD File
B_51983077	CTL50 IO-Link AOI Files

Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

Repairs and Translations (No Field-Replaceable Parts)

English

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

Obtain assistance with product repairs by contacting your local Banner Engineering Corp distributor or by calling Banner directly at (763) 544-3164. Access literature translated into your native language on the Banner website at www.bannerengineering.com or contact Banner directly at (763) 544-3164.

Deutsch

Wenden Sie sich zur Fehlerbehebung dieses Geräts an Banner Engineering. **Versuchen Sie nicht, Reparaturen an diesem Banner-Gerät vorzunehmen. Das Gerät enthält keine am Einsatzort auszuwechselnden Teile oder Komponenten.** Wenn ein Banner-Anwendungstechniker zu dem Schluss kommt, dass dieses Gerät, ein Teil oder eine Komponente davon defekt ist, erhalten Sie von dem Techniker Erläuterungen zu Banners RMA-Verfahren (Return Merchandise Authorization) für die Warenrückgabe.

WICHTIG: Wenn Sie der Techniker anweist, das Gerät zurückzusenden, verpacken Sie es bitte sorgfältig. Transportschäden bei der Rücksendung werden von der Garantie nicht abgedeckt.

Unterstützung bei Produktreparaturen erhalten Sie von Ihrem örtlichen Banner Engineering Corp Händler oder direkt von Banner unter Tel. (763) 544-3164. Die in Ihrer Muttersprache übersetzte Literatur finden Sie auf der Banner-Website unter www.bannerengineering.com oder kontaktieren Sie Banner direkt unter Tel. (763) 544-3164.

Français

Pour plus d'informations sur le dépannage du produit, contactez Banner Engineering. **Ne tentez pas de réparer ce dispositif Banner. Il ne contient aucun composant ou pièce qui puisse être remplacé sur place.** Si un ingénieur de Banner conclut que le dispositif ou l'une de ses pièces ou composants est défectueux, il vous informera de la procédure à suivre pour le retour des produits (RMA).

Important : Si vous devez retourner le dispositif, emballez-le avec soin. Les dégâts occasionnés pendant le transport de retour ne sont pas couverts par la garantie.

Pour vous aider lors de la réparation de produits, contactez votre distributeur Banner local ou appelez directement Banner au (763) 544-3164. La documentation traduite dans votre langue est disponible sur le site internet de Banner www.bannerengineering.com ou contactez directement Banner au (763) 544-3164.

Italiano

Per le procedure di individuazione e riparazione dei guasti di questo dispositivo, contattare Banner Engineering. **Non tentare di riparare questo dispositivo Banner, in quanto non contiene parti o componenti sostituibili dall'utente.** Se il dispositivo, una parte del dispositivo o un componente del dispositivo viene riscontrato difettoso da un tecnico Banner, il nostro personale vi comunicherà la procedura da seguire per ottenere l'autorizzazione al reso.

Importante: Se si ricevono istruzioni di rispedito il dispositivo al produttore, imballarlo con cura. I danni dovuti al trasporto non sono coperti dalla garanzia.

Per assistenza nelle riparazioni dei prodotti, contattare il distributore locale Banner Engineering Corp o contattare direttamente Banner al numero (763) 544-3164. È possibile accedere alla documentazione tradotta nella propria lingua madre sul sito Web Banner all'indirizzo www.bannerengineering.com o contattare direttamente Banner al numero (763) 544-3164.

Español

Comuníquese con Banner Engineering para solucionar de problemas de este dispositivo. **No intente ninguna reparación a este dispositivo de Banner, contiene piezas o componente que no se pueden cambiar en terreno.** Si algún ingeniero de aplicaciones de Banner determina que el dispositivo, alguna de las piezas o alguno de los componentes del dispositivo está defectuoso, le informará el procedimiento de autorización de devolución de mercancía (RMA, por sus siglas en inglés) de Banner.

Importante: Si se le solicita devolver el dispositivo, empáquelo con cuidado. Puede haber daños durante el envío de devolución que no estén cubiertos por la garantía.

Para reparaciones de productos, por favor contacte a su distribuidor local de Banner Engineering o llame a Banner directamente al 00 1 (763) 544-3164. Vea la literatura traducida en su idioma en el sitio web Banner en www.bannerengineering.com o comuníquese con Banner directamente al 00 1 (763) 544-3164.

中国人

如需对本装置进行故障排查, 请联系邦纳。请勿尝试自行维修该邦纳装置; 本装置不包含任何可在现场更换的部件或组件。若经邦纳应用工程师确认设备、设备部件或组件存在缺陷, 他们将告知您邦纳退货授权 (RMA) 流程。

重要注意事项: 如被要求退回装置, 请妥善包装后寄回。退货运输过程中发生的损坏不在保修范围内。

请联系当地的 Banner Engineering Corp 经销商或直接致电 Banner +1 (763) 544-3164, 以获得产品维修帮助。请访问邦纳网站 www.bannerengineering.com 或直接拨打 +1 (763) 544-3164 联系邦纳, 获取翻译成您母语的资料。

한국인

이 장치의 문제를 해결하려면 Banner Engineering에 문의하십시오. 이 Banner 장치에는 현장에서 교체할 수 있는 부품 또는 구성품이 없으므로 수리를 시도하지 마십시오. Banner 애플리케이션 엔지니어가 장치, 장치 부품 또는 장치 구성품에 결함이 있는 것으로 판정하면, Banner의 RMA(제품 반송 승인) 절차에 대해 안내해 드립니다.

중요: 제품을 반송하도록 안내 받으셨다면 잘 포장해주시십시오. 반송 도중에 발생한 손상은 보증 서비스가 적용되지 않습니다.

제품 수리에 대한 지원은 지역 Banner Engineering Corp 대리점에 문의하거나 Banner에 직접 (763) 544-3164로 문의하실 수 있습니다. 사용자의 모국어로 번역된 자료는 Banner 웹사이트 www.bannerengineering.com에서 액세스하거나 Banner에 직접 (763) 544-3164로 문의하실 수 있습니다.

日本語

この装置のトラブルシューティングについては、バンナーエンジニアリングにお問い合わせください。このバンナー装置には、現場では交換できない部品またはコンポーネントが含まれているため、修理を試みてはいけません。バンナーのアプリケーションエンジニアが装置、装置の部品、または装置のコンポーネントに欠陥があると判断した場合、バンナーのRMA（返品承認）手続きについてお知らせします。

重要： 返品を指示された場合は、装置を丁寧に梱包してください。返品時に発生した破損は保証の対象外となります。

製品の修理については、最寄りのBanner Engineering Corp代理店にお問い合わせいただくか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。バンナーのウェブサイト (www.bannerengineering.com) でお客様の言語に翻訳された資料にアクセスするか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。

čeština

Pro řešení problémů se zařízením kontaktujte společnost Banner Engineering. **Neprovádějte žádné opravy zařízení Banner. Neobsahují žádné komponenty nebo části, které by byly vyměnitelné.** Pokud je zařízení, jeho část nebo díl označen technikem společnosti Banner jako poškozený, bude Vám doporučeno vyplnit reklamační RMA protokol.

Důležité: Pokud byl vydán požadavek na vrácení zařízení, pečlivě ho zabalte. Poškození vzniklé při dopravě není považováno za záruční opravu.

Pokud produkt potřebuje opravu, vyžádejte si pomoc od místního distributora společnosti Banner Engineering Corp nebo přímo na telefonním čísle (763) 544-3164. Dokumentaci přeloženou do vašeho jazyka si vyhledejte na webových stránkách společnosti Banner na adrese www.bannerengineering.com nebo se obraťte přímo na společnost Banner na telefonním čísle (763) 544-3164.

Polski

W celu rozwiązania problemów z urządzeniem należy skontaktować się z działem technicznym firmy Banner Engineering. **Pod żadnym pozorem nie próbuj naprawiać tego urządzenia firmy Banner; nie zawiera ono części ani elementów, które można wymieniać samodzielnie.** Jeśli urządzenie, jego część lub element zostaną uznane za wadliwe przez inżyniera technicznego Banner, poinformuje on użytkownika o firmowej procedurze zwrotu towaru (RMA) firmy Banner.

Ważne: Jeśli urządzenie ma zostać zwrócone, należy je starannie zapakować. Uszkodzenia powstałe podczas odsyłki nie są objęte gwarancją.

Aby uzyskać pomoc w zakresie naprawy produktu, należy skontaktować się z lokalnym dystrybutorem Banner Engineering Corp lub zadzwonić bezpośrednio do firmy Banner pod numer (763) 544-3164. Dostęp do literatury przetłumaczonej na swój język ojczysty można uzyskać na stronie internetowej firmy Banner pod adresem www.bannerengineering.com lub kontaktując się bezpośrednio z firmą Banner pod numerem (763) 544-3164.

Português

Entre em contato com a Engenharia da Banner para a solução de problemas deste dispositivo. **Não tente fazer nenhum reparo neste dispositivo Banner; ele não contém peças ou componentes substituíveis em campo.** Se um técnico de aplicações da Banner determinar que o dispositivo, peça ou componente do dispositivo está com defeito, ele o informará sobre o procedimento de RMA (Autorização de Devolução de Mercadoria) da Banner.

Importante: Se for instruído a devolver o dispositivo, embale-o com cuidado. Os danos ocorridos no transporte de devolução não são cobertos pela garantia.

Obtenha assistência para reparos do produto entrando em contato com o distribuidor local da Banner Engineering Corp ou ligando diretamente para a Banner no telefone (763) 544-3164. Acesse a literatura traduzida para seu idioma nativo no site da Banner em www.bannerengineering.com ou entre em contato diretamente com a Banner pelo telefone (763) 544-3164.

Türkçe

Bu cihazda sorun giderme işlemleri için Banner Engineering ile iletişime geçin. **Bu Banner cihazını onarmaya çalışmayın; cihaz sahada değiştirilebilir parça veya bileşen içermez.** Bir Banner Uygulama Mühendisi tarafından cihazın, cihazın bir parçasının veya bir cihaz bileşeninin kusurlu olduğu tespit edilirse, Banner RMA (İade Mal Yetkilendirme) prosedürü hakkında bilgilendirilirsiniz.

ÖNEMLİ: İade etmeniz istenirse, cihazı dikkatli bir şekilde paketleyin. İade nakliyesinde meydana gelecek hasarlar garanti kapsamında değildir.

Yerel Banner Engineering Corp distribütörünüzle iletişime geçerek veya doğrudan (763) 544-3164 numaralı telefondan Banner'ı arayarak ürün onarımlarıyla ilgili yardım alın. Ana dilinize çevrilmiş dokümanlara www.bannerengineering.com adresindeki Banner web sitesinden erişilebilir veya (763) 544-3164 numaralı telefondan doğrudan Banner ile iletişime geçebilirsiniz.

Contact Us

Banner Engineering Corp. | 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.

For patent information, see www.bannerengineering.com/patents.

