Features

90 mm IO-Link Controlled Multicolor RGB Indicator

- Bright, uniform indicator light
- IO-Link control allows access to full color, flashing and dimming controls as well as advanced animations
- Millions of color possibilities
- 30 mm threaded polycarbonate base
- Translucent polycarbonate dome
- Rugged IP67 and UL Type 4X and UL Type 13 design
- Variety of connector options

Models

Family	Style	Housing	Control	Connector
K90	**P**	**L**	**K**	**Q**
	P = Pro	L = Dome	K = IO-Link	Q = Integral 4-pin M12 male quick-disconnect connector QP = 150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector

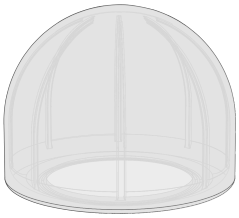
Washdown Silicone Cover WC-K90

Washdown Cover Model	Description
WC-K90	FDA-grade silicone cover

Installing the Silicone Cover

To properly install the FDA-grade silicone cover and achieve an IP69 rating, follow these instructions.

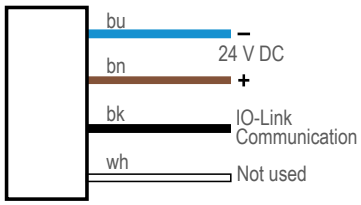
1. Turn the cover inside out.
2. Place the cover on top of the indicator.
3. Roll the cover onto the indicator.
4. Continue rolling the cover down, around the base of the indicator, until the entire light is covered.
5. Mount the indicator and cover assembly to a bracket wide enough to cover the base of the assembly. The cover should be clamped firmly between the indicator and the bracket.



NOTE: The FDA-grade silicone cover withstands high pressure, high-temperature washdown, and increases the product rating to IEC IP69. The cover is ECOLAB® certified to withstand aggressive cleaning procedures with chemicals used in the food processing industry.

Original Instructions
26-Feb-26

Wiring



IO-Link® Process Out Data

IO-Link is a point-to-point communication link between a master device and a sensor and/or light. It can be used to automatically parameterize sensors or lights and to transmit and/or receive process data. For the latest IO-Link protocol and specifications, please visit www.io-link.com. For the latest IODD files, please refer to the Banner Engineering Corp website at: www.bannerengineering.com.

Process Data is transmitted cyclically to the IO-Link device from the IO-Link master. These parameters are written to the K90 acyclically and are used to perform the following functions:

NOTE: Additional color shades can be made by adjusting intensity

IO-Link Process Data Out for the K90	
Name	**Values**
Color 1	Green, Red, Orange, Yellow, Lime Green, Spring Green, Cyan, Sky Blue, Blue, Violet, Magenta, Rose, White, 5 Custom Colors to define
Color 2	
Color Flash Rate (Hz)	0.5, 1.5, 3, 6, 9, 12, Custom Rate to define
Color 1 Intensity	High, Medium, Low, Custom Intensity to define
Color 2 Intensity	
Animation Mode	Steady, Flash, Two-Color Flash, Strobe, Half/Half, Half/Half Rotate, Chase, Demo Mode
Rotation Direction	Counter Clockwise, Clockwise

Animation Control	
Name	**Description**
Flashing	Flashes the light at the defined flash rate (50/50 duty cycle)
Two-Color Flashing	Flashes two colors at the defined flash rate, alternating (50/50 duty cycle)
Strobe	Strobes the light at the defined flash rate (80/20 duty cycle)
Half/Half	Show half one color and half another color
Half/Half Rotate	Animation that shows half one color and half another color while rotating clockwise or counter-clockwise
Chase	Animation that shows a single spot in one color against a background of another color while rotating clockwise or counter-clockwise
Demo Mode	Cycles through the defined colors and then through the color spectrum

For more information see IO-Link Data Reference Guide (p/n 200721).

Specifications

Supply Voltage and Current

18 V DC to 30 V DC

300 mA maximum at 18 V DC

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Input Response Time

30 milliseconds maximum while active

Connections

Integral 4-pin M12 male quick-disconnect connector, or 150 mm (6 in) PVC-jacketed cable with an M12 quick disconnect, depending on model

Models with a quick disconnect require a mating cordset

Construction

Base, Dome, and Nut: Polycarbonate

Vibration and Mechanical Shock

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave)

Operating Conditions

–40 °C to +50 °C (–40 °F to +122 °F)

90% at +50 °C maximum relative humidity (non-condensing)

Storage Temperature: –40 °C to +70 °C (–40 °F to +158 °F)

Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates[1]		Lumen Output (Typical at 25 °C)
		x	y	
Green	530 nm	0.161	0.705	81.2
Red	625 nm	0.686	0.312	39.2
Yellow	–	0.477	0.466	98.7
Blue	470 nm	0.137	0.057	14.0
White	5950 K	0.342	0.339	107.9
Cyan	–	0.164	0.343	93.0
Magenta	–	0.404	0.186	49.9
Orange	–	0.599	0.377	56.5
Lime Green	–	0.359	0.557	104.5
Spring Green	–	0.156	0.527	85.4
Sky Blue	–	0.145	0.248	85.4
Violet	–	0.216	0.095	27.7
Rose	–	0.512	0.234	44.8

[1] Refer to CIE 1931 chromaticity diagram or color chart, to show equivalent color with indicated color coordinates.

Mounting

M30 by 1.5 threaded base, maximum torque 4.5 N·m (40 inch·lbf)

Mounting nut included

Environmental Rating

IP67

Enclosure: UL Type 4X, UL Type 13

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

Certifications

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

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

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)

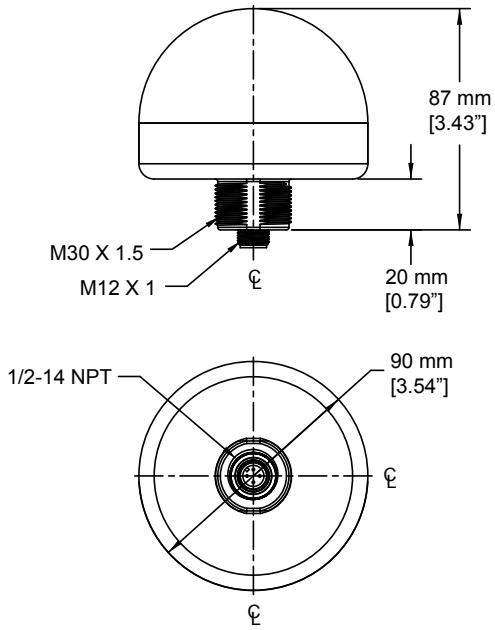
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

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.

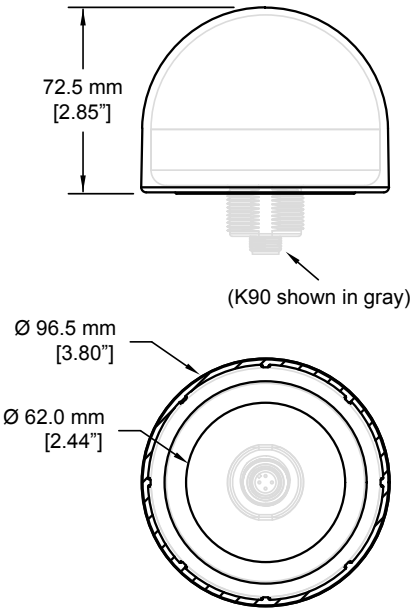
Dimensions

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

Standard Model

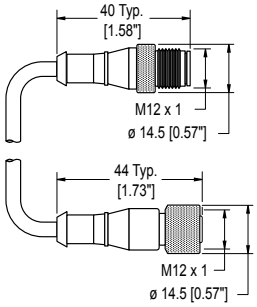
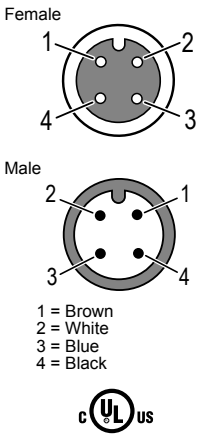


Model with Washdown Cover



Accessories

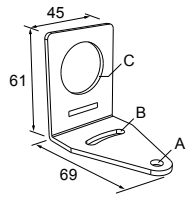
Cordsets

4-Pin Double-Ended M12 Female to M12 Male Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

Brackets

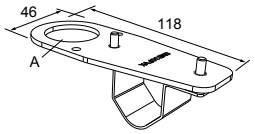
SMB30A
- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-gauge stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5



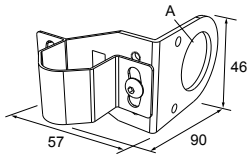
SMB30FVK
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors
- CAD Files: DXF, PDF, IGS, STP

Hole size: A=ø 31



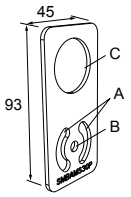
SMB30RAVK
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors
- CAD Files: DXF, PDF, IGS, STP

Hole size: A=ø 30.5



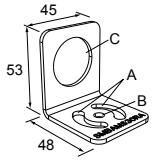
SMBAMS30P
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel
- CAD Files: DXF, PDF, IGS, STP

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



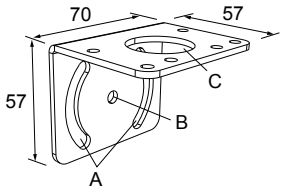
SMBAMS30RA
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge (2.6 mm) cold-rolled steel
- CAD Files: DXF, PDF, IGS, STP

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



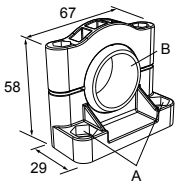
SMB30MM
- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- CAD Files: DXF, PDF, IGS, STP

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



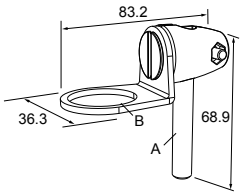
SMB30SC
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included
- CAD Files: DXF, PDF, IGS, STP

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



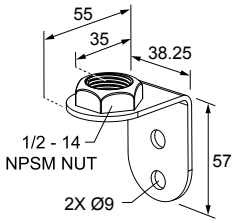
SMB30FA
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available
- CAD Files: DXF, PDF, IGS, STP

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



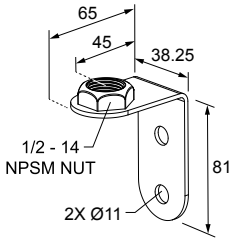
LMBE12RA35
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: 20.0



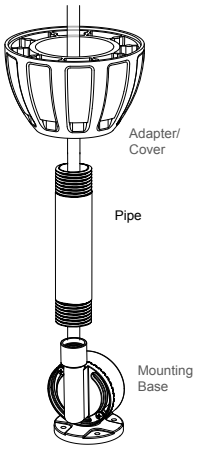
LMBE12RA45
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 45 mm
- CAD Files: DXF, PDF, IGS, STP

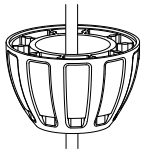
Hole center spacing: 35.0



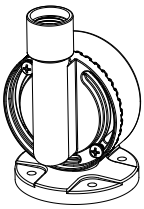
All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

Elevated Mount System



Adapter/Cover Model	Description	
SA-M30 - Black polycarbonate	• Streamlined black PC or Gray PC thread cover • Covers the outer M30 threads on the light's base • Typically used for the TL70 Tower Light and K90 series • Mounting hardware included • CAD files: DXF, PDF, IGS, STP	
SA-M30C - Gray polycarbonate		

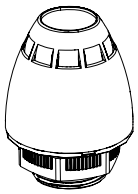
Black Anodized Aluminum, ½ in. NPT Pipe Models	Clear Anodized Aluminum, ½ in. NPT Pipe Models	Description
SOP-E12-150A, 150 mm (6 in) long	**SOP-E12-150AC**, 150 mm (6 in) long	• Elevated-use stand-off pipe • Threaded at both ends • Compatible with most industrial environments • CAD Files: ◦ **SOP-E12-150A**: 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	

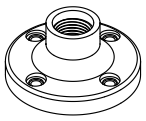
Mounting Base Model	Description	
SA-FFB12 - Black polycarbonate	• For use with ½ in. stand-off pipes • 110° rotation • Stainless steel hardware • CAD files: DXF, PDF, IGS, STP	
SA-FFB12C - Gray polycarbonate		

Other Pipes

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	

Other Mounting Bases

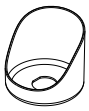
Mounting Base Model	Description	
SA-E12M30 - Black acetal	• Streamlined black acetal or white UHMW mounting base adapter/ cover • Adapter from ½ in. NPSM/DN15 pipe to 30 mm (1-3/16 in) drilled hole • Mounting hardware included • CAD files: DXF, PDF, IGS, STP	
SA-E12M30C - White UHMW		

Mounting Base Model	Description	
SA-F12	• Die-cast zinc base with black paint • Elevated-use stand-off pipes (½ in, NPSM/DN15) • M5 mounting hardware and nitrile gasket included • CAD files: DXF, PDF, IGS, STP	

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, ½-14 pipe adapter, set screw, fasteners, O-rings, and gaskets • For use with stand-off pipe (listed and sold separately)	

Sun Shield

K90DS • Use for enhanced visibility in direct sunlight conditions • Polycarbonate	

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.

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