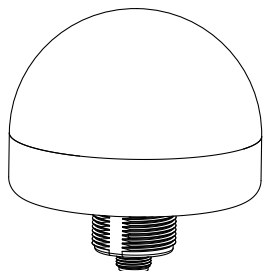


K90 Pro Indicator



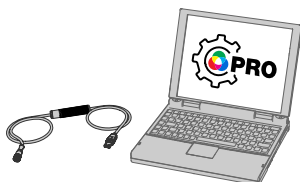
Datasheet

90 mm Programmable Multicolor RGB Indicator



- Bright, uniform indicator light
- Seven default colors in one device (Green, Red, Yellow, Blue, White, Cyan, Magenta)
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- 30 mm threaded polycarbonate base
- Translucent polycarbonate dome
- Rugged IEC IP67 and UL Type 4X and UL Type 13 design
- Bimodal inputs (PNP/NPN), depending on source wiring
- Variety of connector options

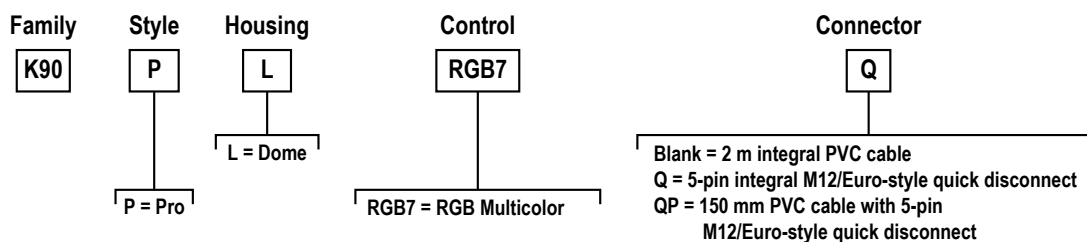
Pro Editor



Use Banner's Pro Editor software and Pro Converter Cable to create custom configurations by selecting different colors, flash patterns, and animations.

For more information visit www.bannerengineering.com/proeditor.

Models



Wiring Diagrams

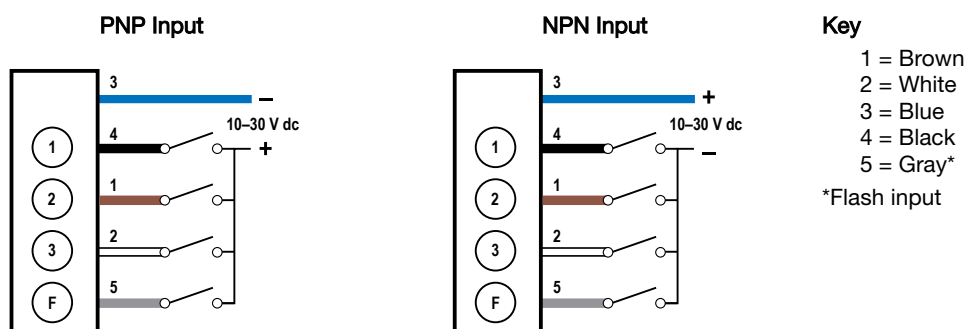


Table 1: Default Color Definition

	Red	Yellow	Green	Cyan	Blue	Magenta	White
Input 1	X	X				X	X
Input 2		X	X	X			X
Input 3				X	X	X	X

An "X" denotes an active input, for example when Input 1 and Input 3 are active, the indicator will show Magenta.

Specifications

Supply Voltage and Current

10 V DC to 30 V DC

- 415 mA at 12 V DC

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 μ A

Input Response Time

250 milliseconds maximum

Flash

Default 1.5 Hz flash rate using flash input wire

Connections

Integral 5-pin M12/Euro-style male quick disconnect, 150 mm (6 in) PVC cable with a M12/Euro-style quick disconnect, or 2 m (6.5 ft) integral PVC cable, depending on model

Models with a quick disconnect require a mating cordset

Mounting

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

Mounting nut included

Pro Editor Configuration

Connection to Pro Editor software enables control of:

- Animation: On, Flash, Two Color Flash, 50/50, 50/50 Rotate, Chase, Intensity Sweep, Demo
- Color: Green, Red, Yellow, Blue, White, Cyan, Magenta, Amber, Rose, Lime Green, Orange, Sky Blue, Violet, Spring Green
- Intensity: Low, Medium, High
- Speed: Slow, Standard, Fast

Pro Converter Cable required to interface between PC and indicator, see accessories

Default 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

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

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)

Environmental Rating

IEC IP67

Enclosure: UL Type 4X, UL Type 13

Certifications**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.

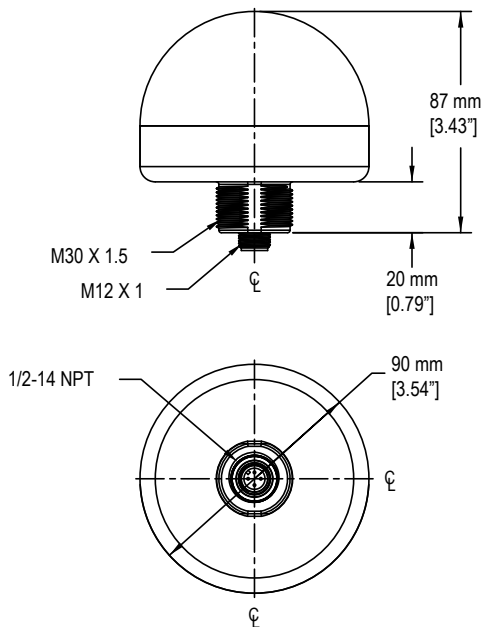
Supply wiring leads < 24 AWG shall not be spliced.

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

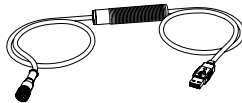
Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Dimensions

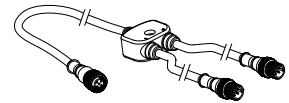
All measurements are listed in millimeters [inches], unless noted otherwise.

**Accessories****Pro Editor Hardware****MQDC-506-USB**

- Pro Converter Cable
- 1.83 m (6 ft) M12/Euro-style quick disconnect to Device and USB to PC
- Required for connection to Pro Editor

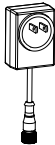
**CSB-M1251FM1251M**

- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately



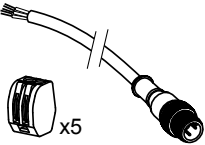
PSW-24-1

- 24 V dc, 1 A power supply
- 2 m (6.5 ft) PVC cable with M12/
Euro-style quick disconnect
- Provides external power with
splitter cable, sold separately

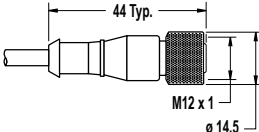
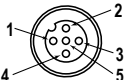
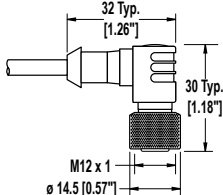


ACC-PRO-CABLE5

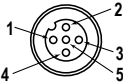
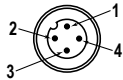
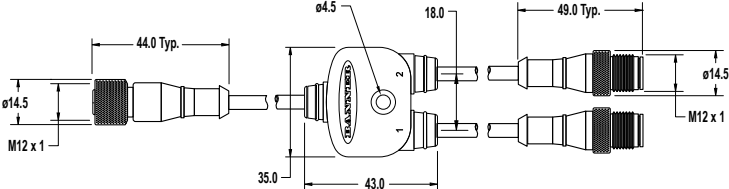
- Mating accessory for cabled and
terminal models
- 150 mm (6 inch) PVC cable with
M12/Euro-style quick disconnect
- Lever wire nuts included (qty 5)
- Required to connect cabled
models to Pro Converter Cable,
sold separately



Cordsets

5-Pin Threaded M12/Euro-Style Cordsets—Single Ended					
Model	Length	Style	Dimensions	Pinout (Female)	
MQDC1-501.5	0.5 m (1.5 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray	
MQDC1-506	2 m (6.5 ft)				
MQDC1-515	5 m (16.4 ft)				
MQDC1-530	9 m (29.5 ft)				
MQDC1-506RA	2 m (6.5 ft)	Right-Angle			
MQDC1-515RA	5 m (16.4 ft)				
MQDC1-530RA	9 m (29.5 ft)				

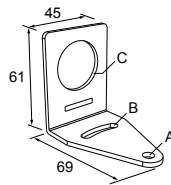
Splitter Cables for Use with IO-Blocks

5-Pin Threaded M12/Euro-Style to 4-Pin Threaded M12/Euro Style Combiner Cordset with Flat Junction																					
Model	Branches (Male)	Trunk (Female)	Pinout																		
CSF-M12F51M12M41	4-pin Euro Quick Disconnect, 2 x 0.31 m (1.02 ft)	5-pin Euro Quick Disconnect, 0.31 m (1.02 ft)	<div>Female</div> <div></div> <div>Male</div> <div></div> <table><tr><th>Trunk</th><th>Branch 1</th><th>Branch 2</th></tr><tr><td>1 = Brown</td><td>1 = NC</td><td>1 = NC</td></tr><tr><td>2 = White</td><td>2 = Brown</td><td>2 = Gray</td></tr><tr><td>3 = Blue</td><td>3 = Blue</td><td>3 = Blue</td></tr><tr><td>4 = Black</td><td>4 = Black</td><td>4 = White</td></tr><tr><td>5 = Gray</td><td></td><td></td></tr></table>	Trunk	Branch 1	Branch 2	1 = Brown	1 = NC	1 = NC	2 = White	2 = Brown	2 = Gray	3 = Blue	3 = Blue	3 = Blue	4 = Black	4 = Black	4 = White	5 = Gray		
Trunk	Branch 1	Branch 2																			
1 = Brown	1 = NC	1 = NC																			
2 = White	2 = Brown	2 = Gray																			
3 = Blue	3 = Blue	3 = Blue																			
4 = Black	4 = Black	4 = White																			
5 = Gray																					
<div></div>																					

Brackets

SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-ga. stainless steel

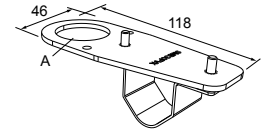


Hole center spacing: A to B=40

Hole size: A=ø 6.3, B= 27.1 x 6.3, C=ø 30.5

SMB30FVK

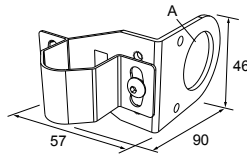
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



Hole size: A= ø 31

SMB30RAVK

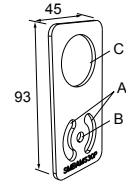
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



Hole size: A = ø 30.5

SMBAMS30P

- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel

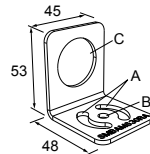


Hole center spacing: A=26.0, A to B=13.0

Hole size: A=26.8 x 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-ga. (2.6 mm) cold-rolled steel

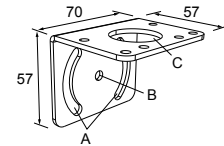


Hole center spacing: A=26.0, A to B=13.0

Hole size: A=26.8 x 7.0, B=ø 6.5, C=ø 31.0

SMB30MM

- 12-ga. stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor

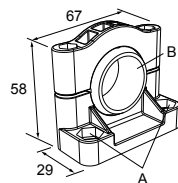


Hole center spacing: A = 51, A to B = 25.4

Hole size: A = 42.6 x 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

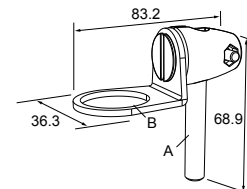


Hole center spacing: A=ø 50.8

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-ga. 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric and inch size bolt available



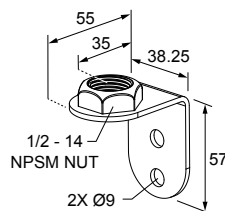
Bolt thread: SMB30FA, A= 3/8 - 16 x 2 in; SMB30FAM10, A= M10 - 1.5 x 50

Hole size: B= ø 30.1

LMBE12RA35

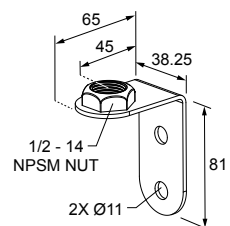
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm

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

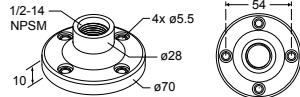
Hole center spacing: 35.0

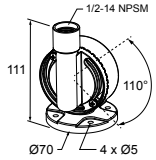


All measurements are listed in millimeters [inches], unless noted otherwise.



Elevated Mount System

Model			Features	Components
SA-M30 - Black Polycarbonate			<ul style="list-style-type: none">Streamlined black PC or Gray PC thread coverCovers M30 thread on the light baseMounting hardware included	
SA-M30C - Gray Polycarbonate				
Polished 304 Stainless Steel	Black Anodized Aluminum	Clear Anodized Aluminum	<ul style="list-style-type: none">Elevated-use stand-off pipe (½ in. NPSM/DN15)Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface½ in. NPT thread at both endsCompatible with most industrial environments	
SOP-E12-150SS 150 mm (6 in) long	SOP-E12-150A 150 mm (6 in) long	SOP-E12-150AC 150 mm (6 in) long		
SOP-E12-300SS 300 mm (12 in) long	SOP-E12-300A 300 mm (12 in) long	SOP-E12-300AC 300 mm (12 in) long		
SOP-E12-900SS 900 mm (36 in) long	SOP-E12-900A 900 mm (36 in) long	SOP-E12-900AC 900 mm (36 in) long		
SA-E12M30 - Black Acetal			<ul style="list-style-type: none">Streamlined black acetal or white UHMW mounting base adapter/coverConnects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled holeMounting hardware included	
SA-E12M30C - White UHMW				

Pipe Mounting Flange				
Model	Features		Construction	
SA-F12	<ul style="list-style-type: none"> Elevated-use stand-off pipes (½ in. NPSM/DN15) M5 mounting hardware and nitrile gasket included 		Die-cast zinc base with black paint	

Foldable Mounting Brackets				
Model	Features		Construction	
SA-FFB12	<ul style="list-style-type: none"> For use with 1/2 inch stand-off pipes Stainless steel hardware 		Black polycarbonate	
SA-FFB12C			Gray polycarbonate	

LMB Sealed Right-Angle Bracket

Model	Description	Construction	
LMB30RA	Direct-Mount Models: Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.	Black polycarbonate	
LMB30RAC		Gray polycarbonate	
LMBE12RA	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).	Black polycarbonate	
LMBE12RAC		Gray polycarbonate	

Sun Shield

K90DS <ul style="list-style-type: none"> Use for enhanced visibility in direct sunlight conditions Polycarbonate 	
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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.**

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

FCC Part 15 and CAN ICES-3 (B)/NMB-3(B)

This device complies with part 15 of the FCC Rules and 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.

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 and CAN ICES-3 (B)/NMB-3(B). 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 manufacturer.



more sensors, more solutions