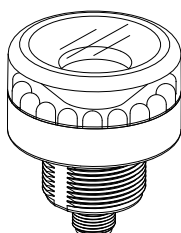


## Datasheet

*Daylight-Visible, General-Purpose Indicators for Indoor or Outdoor Use*

To view or download the latest technical information about this product, including specifications, dimensions, accessories, and wiring, see [www.bannerengineering.com](http://www.bannerengineering.com).



- Intense levels of light output for areas with high ambient light - even outdoors
- Viewable around entire perimeter; some models also emit light from top
- 1- or 2-, or 3-color models available
- Rugged, sealed thermoplastic housing rated for IEC IP67 and IP69K per DIN 40050-9
- Bright, even light
- 12 V dc to 30 V dc or 85 V ac to 130 V ac (75 V dc to 120 V dc) or 100 V ac to 250 V ac (90 V dc to 240 V dc) operation, depending on model
- 12 V dc operation useful for applications on mobile vehicles
- Consult factory for models with strobing capability

### WARNING: Not To Be Used for Personnel Protection



**Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death.** This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

## Models

| Model               |                      | LED Color(s) <sup>1</sup> | Input | Supply Voltage    | Connection <sup>2</sup>                                     |  |
|---------------------|----------------------|---------------------------|-------|-------------------|-------------------------------------------------------------|--|
| Perimeter View Only | Perimeter + Top View |                           |       |                   |                                                             |  |
| K50BLXGXPQ          | K50BCLXGXPQ          | Green                     | PNP   | 12 V to 30 V dc   | 4-pin M12/Euro-style integral quick disconnect              |  |
| K50BLXRX PQ         | K50BCLXRX PQ         | Red                       |       |                   |                                                             |  |
| K50BLXYXPQ          | K50BCLXYXPQ          | Yellow                    |       |                   |                                                             |  |
| K50BLXBXPQ          | K50BCLXBXPQ          | Blue                      |       |                   |                                                             |  |
| K50BLXWXPQ          | K50BCLXWXPQ          | White                     |       |                   |                                                             |  |
| K50BLGRXPQ          | K50BCLGRXPQ          | Green / Red               |       |                   |                                                             |  |
| K50BLGRYPQ          | K50BCLGRYPQ          | Green / Red / Yellow      | PNP   | 12 V to 30 V dc   | 5-pin M12/Euro-style integral quick disconnect <sup>3</sup> |  |
| K50BLGRYNQ          | K50BCLGRYNQ          | Green / Red / Yellow      | NPN   | 12 V to 30 V dc   |                                                             |  |
| K50BLGA120Q         | K50BCLGA120Q         | Green                     | AC    | 85 V to 130 V ac  | 3-pin A12/Micro-style integral quick disconnect             |  |
| K50BLRA120Q         | K50BCLRA120Q         | Red                       |       |                   |                                                             |  |
| K50BLYA120Q         | K50BCLYA120Q         | Yellow                    |       |                   |                                                             |  |
| K50BLBA120Q         | K50BCLBA120Q         | Blue                      |       |                   |                                                             |  |
| K50BLWA120Q         | K50BCLWA120Q         | White                     |       |                   |                                                             |  |
| K50BLGA230Q         | K50BCLGA230Q         | Green                     | AC    | 100 V to 250 V ac |                                                             |  |
| K50BLRA230Q         | K50BCLRA230Q         | Red                       |       |                   |                                                             |  |
| K50BLYA230Q         | K50BCLYA230Q         | Yellow                    |       |                   |                                                             |  |
| K50BLBA230Q         | K50BCLBA230Q         | Blue                      |       |                   |                                                             |  |

<sup>1</sup> Available colors include: Green (G), Red (R), Yellow (Y), Blue (B) and White (W).

<sup>2</sup> Integral quick disconnect models are listed.

- To order the 150 mm (6 in) PVC cable model with a M12/Euro-style quick disconnect, replace the suffix "Q" with "QP" in the model number. For example, K50BLXGXPQP.
- To order the 2 m (6.5 ft) PVC cable model, omit the suffix "Q" in the model number. For example, K50BLXGXP.
- Models with a quick disconnect require a mating cordset.

<sup>3</sup> 3-color models use a 4-pin mating cable, see wiring diagram.



## Wiring Diagrams — DC Models

Table 1: 1-Color Models (PNP/NPN Selectable)

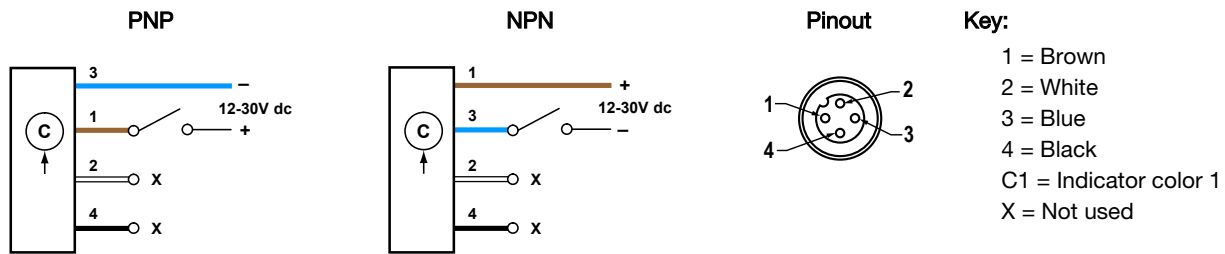


Table 2: 2-Color Models

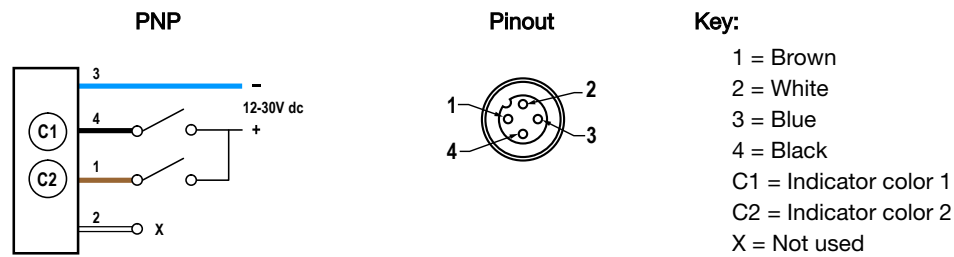
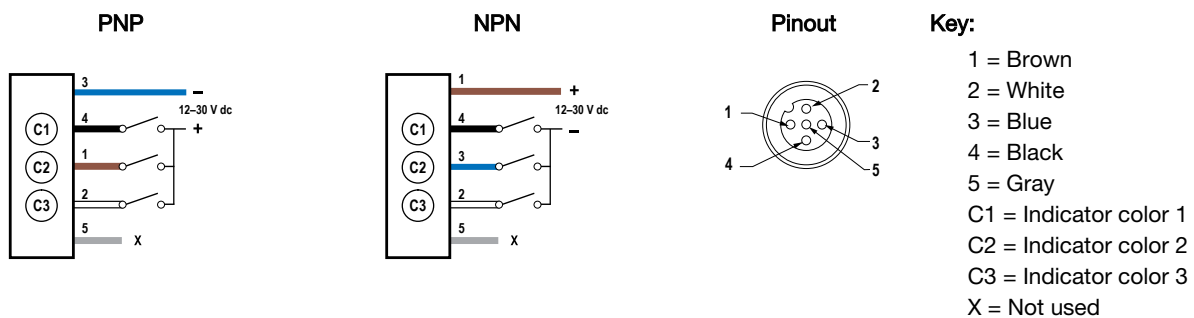
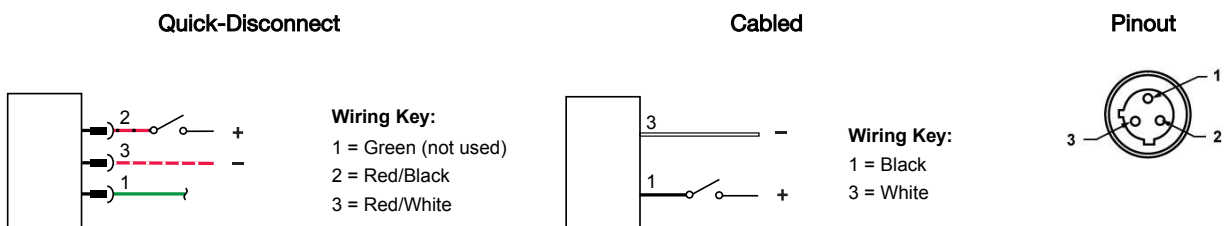


Table 3: 3-Color Models



## Wiring Diagrams — AC Models



## Specifications

### Supply Voltage and Current - 12 V dc to 30 V dc models

**K50BL 1-color models:** 140 mA max. at 12 V dc, 70 mA max. at 30 V dc  
**K50BCL 1-color models:** 160 mA max. at 12 V dc, 80 mA max. at 30 V dc  
**K50BL 2-color models, per color:** 75 mA max. at 12 V dc, 40 mA max. at 30 V dc  
**K50BCL 2-color models, per color:** 95 mA max. at 12 V dc, 40 mA max. at 30 V dc  
**K50BL 3-color models, per color:** 85 mA max. at 12 V dc, 55 mA at 30 V dc  
**K50BCL 3-color models, per color:** 110 mA at 12 V dc, 65 mA at 30 V dc

### Supply Voltage and Current - 120 V ac models

**K50BL models:** 85 V ac to 130 V ac or 75 V dc to 120 V dc at 16 mA max. 50/60 Hz  
**K50BCL models:** 85 V ac to 130 V ac or 75 V dc to 120 V dc at 60 mA max. 50/60 Hz

### Supply Voltage and Current - 230 V ac models

**K50BL models:** 100 V ac to 250 V ac or 90 V dc to 240 V dc at 20 mA max. 50 Hz to 60 Hz  
**K50BCL models:** 100 V ac to 250 V ac or 90 V dc to 240 V dc at 25 mA max. 50 Hz to 60 Hz

### Supply Protection Circuitry

**12 V dc to 30 V dc models:** Protected against reverse polarity and transient voltages  
**120 V ac and 230 V ac models:** Protected against transient voltages

### Indicators

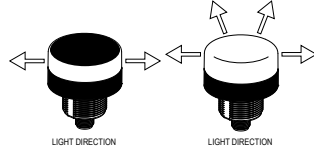
LED colors are independently selected, depending on model  
**For 3-color models:** only one color can be on at a time. The higher color number overrides the lower color number.

### Environmental Rating

Rated IEC IP67 and IP69K per DIN 40050-9  
 NEMA/UL Type 4X, 13

### Application Note

Light emits 360° from housing sides in K50BL models and housing sides and tops in K50BCL models.



### Certifications



dc models only

### Construction

Base and covers: polycarbonate

### Connections

Integral 4-pin M12/Euro-style (dc models) QD, 3-pin Micro-style (ac models) QD, or 2 m (6.5 ft) integral cable, depending on model

### Operating Conditions

-40 °C to +50 °C (-40 °F to +122 °F)  
 90% at +50 °C maximum relative humidity (non-condensing)

### Vibration and Mechanical Shock

All models meet Mil. Std. 202F requirements method 201A (vibration: 10 to 60 Hz max., double amplitude 0.06 in, maximum acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave.

### Indicator Power-up Response Time

**DC 1, and 2-color models**

ON: 10 ms; OFF: 7 ms

**DC 3-color models**

ON: 250 ms; OFF: 10 ms

**AC models**

ON/OFF: 500 µs

### Required Overcurrent Protection

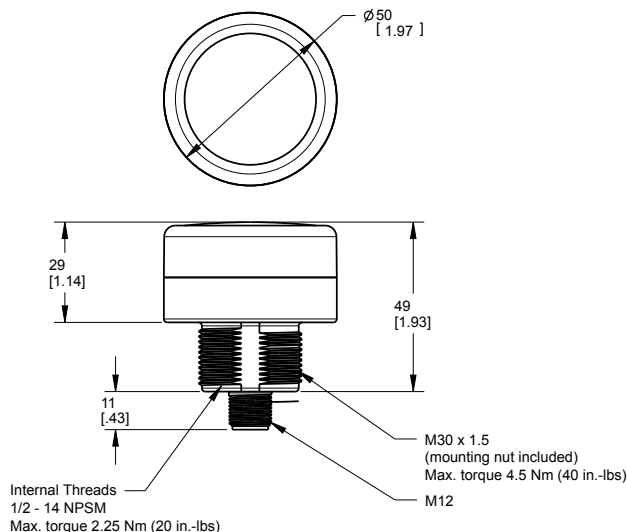


**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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](http://www.bannerengineering.com).

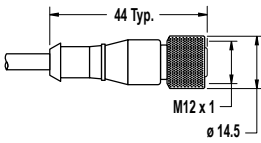
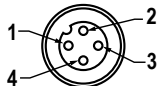
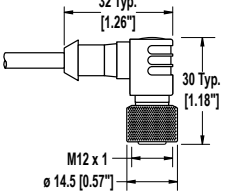
| Supply Wiring (AWG) | Required Overcurrent Protection (Amps) |
|---------------------|----------------------------------------|
| 20                  | 5.0                                    |
| 22                  | 3.0                                    |
| 24                  | 2.0             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

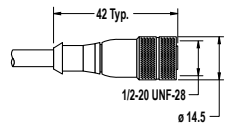
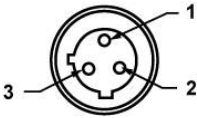
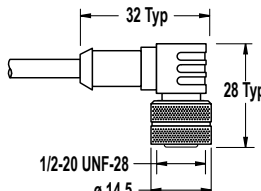
## Dimensions



## Accessories

### Cordsets

| 4-Pin Threaded M12/Euro-Style Cordsets—Single Ended |                |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |
|-----------------------------------------------------|----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Model                                               | Length         | Style       | Dimensions                                                                                                                                                                                                                                         | Pinout (Female)                                                                                                                            |
| MQDC-406                                            | 1.83 m (6 ft)  | Straight    |                                                                                                                                                                  | <br><br>1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black |
| MQDC-415                                            | 4.57 m (15 ft) |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |
| MQDC-430                                            | 9.14 m (30 ft) |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |
| MQDC-450                                            | 15.2 m (50 ft) |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |
| MQDC-406RA                                          | 1.83 m (6 ft)  | Right-Angle |  |                                                                                                                                            |
| MQDC-415RA                                          | 4.57 m (15 ft) |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |
| MQDC-430RA                                          | 9.14 m (30 ft) |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |
| MQDC-450RA                                          | 15.2 m (50 ft) |             |                                                                                                                                                                                                                                                    |                                                                                                                                            |

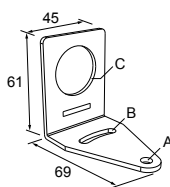
| 3-Pin Micro-Style Cordsets |                |             |                                                                                      |                                                                                                                                            |
|----------------------------|----------------|-------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Model                      | Length         | Style       | Dimensions                                                                           | Pinout (Female)                                                                                                                            |
| MQDC-306                   | 1.83 m (6 ft)  | Straight    |   |  <p>1 = Green<br/>2 = Red/Black<br/>3 = Red/White</p> |
| MQDC-315                   | 4.57 m (15 ft) |             |                                                                                      |                                                                                                                                            |
| MQDC-330                   | 9.14 m (30 ft) |             |                                                                                      |                                                                                                                                            |
| MQDC-306RA                 | 1.83 m (6 ft)  | Right-Angle |  |                                                                                                                                            |
| MQDC-315RA                 | 4.57 m (15 ft) |             |                                                                                      |                                                                                                                                            |
| MQDC-330RA                 | 9.14 m (30 ft) |             |                                                                                      |                                                                                                                                            |

### Mounting Brackets

All measurements are listed in millimeters, unless noted otherwise.

#### SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (1/4 in) hardware
- Mounting hole for 30 mm sensor
- 12-ga. stainless steel

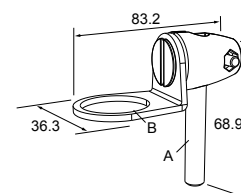


**Hole center spacing:** A to B=40

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

#### 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

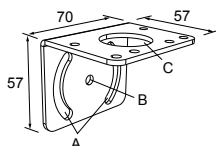


**Bolt thread:** SMB30FA, A= 3/8 - 16 x 2 in; SMB30FAM10, A= M10 - 1.5 x 50

**Hole size:** B= ø 30.1

**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

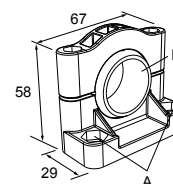


**Hole center spacing:** A = 51. A to B = 25.4

**Hole size:** A = 42.6 x 7, B =  $\varnothing$  6.4, C =  $\varnothing$  30.1

**SMB30SC**

- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included

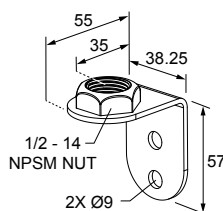


**Hole center spacing:**  $A=\varnothing 50.8$

**Hole size:** A=Ø 7.0, B=Ø 30.0

## LMBE12RA35

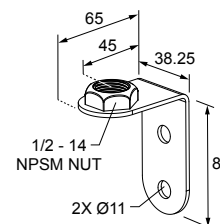
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm



Hole center spacing: 20.0

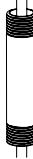
## LMBE12RA45

- 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

## Elevated Mount System

| Model                             |                                  |                                   | Features                                                                                                                                                                                                                                                                                        | Components                                                                            |
|-----------------------------------|----------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| SA-M30E12 - Black Acetal          |                                  |                                   | <ul style="list-style-type: none"> <li>Streamlined black acetal stand-off pipe adapter/cover</li> <li>Connects between 30 mm light base and ½ in. NPSM/DN15 pipe</li> <li>Mounting hardware included</li> </ul>                                                                                 |   |
| Polished 304 Stainless Steel      | Black Anodized Aluminum          | Clear Anodized Aluminum           | <ul style="list-style-type: none"> <li>Elevated-use stand-off pipe (½ in. NPSM/DN15)</li> <li>Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface</li> <li>½ in. NPT thread at both ends</li> <li>Compatible with most industrial environments</li> </ul> |  |
| 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"> <li>Streamlined black acetal mounting base adapter/cover</li> <li>Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole</li> <li>Mounting hardware included</li> </ul>                                                                    |  |

## 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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For patent information, see [www.bannerengineering.com/patents](http://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.