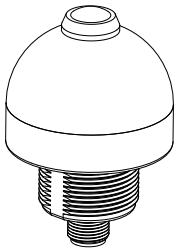


Datasheet

Self-Contained Indicator for Bin-Picking Operations



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.

To view or download the latest technical information about this product, including specifications, dimensions, accessories, and wiring, see www.bannerengineering.com.

Standard Models - Single Color

- Job light is ON at all times while job input is active
- Presence of hand (or pressing push button) activates output

Model	Sensing Mode / LED	Housing	Range	Connection ¹	Output ²	Job Light	
K50APLPGXDQ	Polarized retroreflective, visible red, 680 nm	50 mm dome 30 mm mount polycarbonate	2 m (6 ft)	Integral 4-pin M12/Euro-style QD	PNP, N.O.	Green	
K50RPLPGXDQ					PNP, N.C.		
K50ANLPGXDQ					NPN, N.O.		
K50RNLPGXDQ					NPN, N.C.		
K50APFF50GXDQ	Fixed field, infrared, 880 nm		50 mm dome 30 mm mount polycarbonate		50 mm cutoff		PNP, N.O.
K50RPFF50GXDQ							PNP, N.C.
K50ANFF50GXDQ							NPN, N.O.
K50RNFF50GXDQ							NPN, N.C.
K50APFF100GXDQ					100 mm cutoff		PNP, N.O.
K50RPFF100GXDQ							PNP, N.C.
K50ANFF100GXDQ							NPN, N.O.
K50RNFF100GXDQ							NPN, N.C.
K50APPBGXDQ	Push button	50 mm dome 30 mm mount polycarbonate	—	PNP, N.O.			
K50RPPBGXDQ				PNP, N.C.			
K50ANPBGXDQ				NPN, N.O.			
K50RNPBGXDQ				NPN, N.C.			

¹ Integral 4-pin M12/Euro-style quick disconnect models are listed.

- To order the 2 m (6.5 ft) PVC cable model, omit the suffix "Q" in the model number. For example, K50APLPGXD.
- To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, K50APLPGXD W/30.
- To order the 150 mm (6 in) PVC cable model with a 4-pin M12/Euro-style quick disconnect, replace the suffix "Q" with "QP" in the model number. For example, K50APLPGXDQP.
- Models with a quick disconnect require a mating cordset.

² N.O. = Normally Open; N.C. = Normally Closed



Specialty C-Series — Two-Color Models, 12 V dc to 30 V dc

- Job light is green while the job input is active (unless a hand is present)
- Presence of hand (or pressing push button) activates output and overrides job light (turns red) for visual verification that action was sensed
- Retroreflective models: To simplify alignment, the sensor provides a red signal when the retroreflective target is incorrectly aligned

Model	Sensing Mode / LED	Range	Cable ¹	Output ²	Job Light
K50RPLPGRCQ	Polarized retroreflective, Visible red, 680 nm	2 m (6 ft)	Integral 4-pin M12/ Euro-style QD	PNP, N.C.	Green (Red)
K50RNLPGRQC				NPN, N.C.	
K50APFF50GRCQ	Fixed-field, Infrared, 880 nm	50 mm cutoff		PNP, N.O.	
K50ANFF50GRCQ				NPN, N.O.	
K50APFF100GRCQ		100 mm cutoff		PNP, N.O.	
K50ANFF100GRCQ				NPN, N.O.	
K50APPBGRQC	Push button	—		PNP, N.O.	
K50ANPBGRQC				NPN, N.O.	

Specialty E-Series — Two-Color Models

- Job light is green at all times while job input is active
- Presence of hand (or pressing push button) activates output
- Presence of hand (or pressing push button) while job input is inactive causes unit to light red, for visual verification that sensor is functioning properly

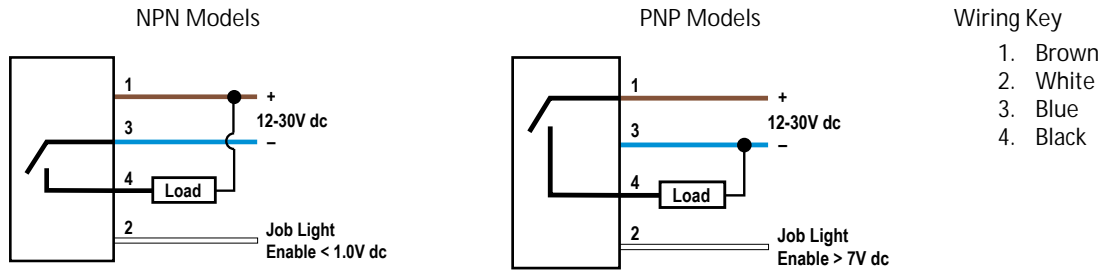
Model	Sensing Mode / LED	Range	Cable ¹	Output ²	Job Light
K50RPLPGREQ	Polarized retroreflective, visible red, 680 nm	2 m (6 ft)	Integral 4-pin M12/Euro- style QD	PNP, N.C.	Green (Red)
K50RNLPGREQ				NPN, N.C.	
K50APFF50GREQ	Fixed field infrared, 880 nm	50 mm cutoff		PNP, N.O.	
K50ANFF50GREQ				NPN, N.O.	
K50APFF100GREQ		100 mm cutoff		PNP, N.O.	
K50ANFF100GREQ				NPN, N.O.	
K50APPBGREQ	Push button	—		PNP, N.O.	
K50ANPBGREQ				NPN, N.O.	

Installation

For push-button models, install the sensor at such a height and in a location that will be easy for the user and/or supervisor to see the indicator and will be comfortable for the user to press the push-button.

For other models, install the sensor in a location that will be comfortable for the user to break the beam when reaching for the required part. When multiple sensors will be located in close proximity, to monitor multiple bins for example, mount all the sensors in a similar sensing position (all mounted at the tops of the bins and pointing down, for example). This may reduce potential optical crosstalk, where one sensor detects another sensor's beam.

Wiring Diagrams



Note: Cabled wiring diagrams are shown. Quick disconnect (QD) wiring diagrams are functionally identical.

Specifications

Supply Voltage and Current

- 12 V dc to 30 V dc
- < 75 mA max current at 12 V dc (exclusive of load)
- < 40 mA max current at 30 V dc (exclusive of load)
- AS-i compatible

Supply Protection Circuitry

- Protected against transient voltages (fast-transient and over-voltage) and reverse polarity

Output Configuration

- PNP or NPN, depending on model

Output Rating

- Maximum load: 150 mA
- OFF-state leakage current: <10 μ A at 30 V dc
- ON-state saturation voltage: < 2 V dc at 10 mA; < 2.5 V dc at 150 mA

Output Protection Circuitry

- Protected against false pulse on power-up and continuous overload or short-circuit of output

Output Response Time

- 3 milliseconds On and Off

Power-Up Output Delay Time

- 300 milliseconds

Indicators

- Entire translucent dome provides indicator light; either job or pick sensed indicator inhibits the other light, depending on model.
- Job ("pick") indicator: Green
- Pick sensed indicator: Red or Off, depending on model

Environmental Rating

- Fully encapsulated; IEC IP67
- Integral QD models: DIN 40050 (IP69K) when using IP69K-rated cables; Cable models: IP69K when mounted with conduit

Operating Conditions

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

Certifications



Job Light Enable Input

- Input impedance: 8000 ohms
- Sinking - Input low < 1.5 V
- Sourcing - Input high > 7 V

Construction

- Base: polycarbonate
- Translucent dome: polycarbonate
- Push button: thermoplastic
- Lens: polycarbonate or acrylic

Connections

- Depending on model: 4-wire, 2 m (6.5 ft) integral cable; 4-pin M12/Euro-style quick disconnect fitting; 150 mm PVC cable with quick disconnect; accessory cordset required for QD models

Ambient Light Immunity

- Up to 5,000 lux

EMI-RFI Immunity

- Immune to EMI and RFI noise sources, per IEC 947-5-2

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.

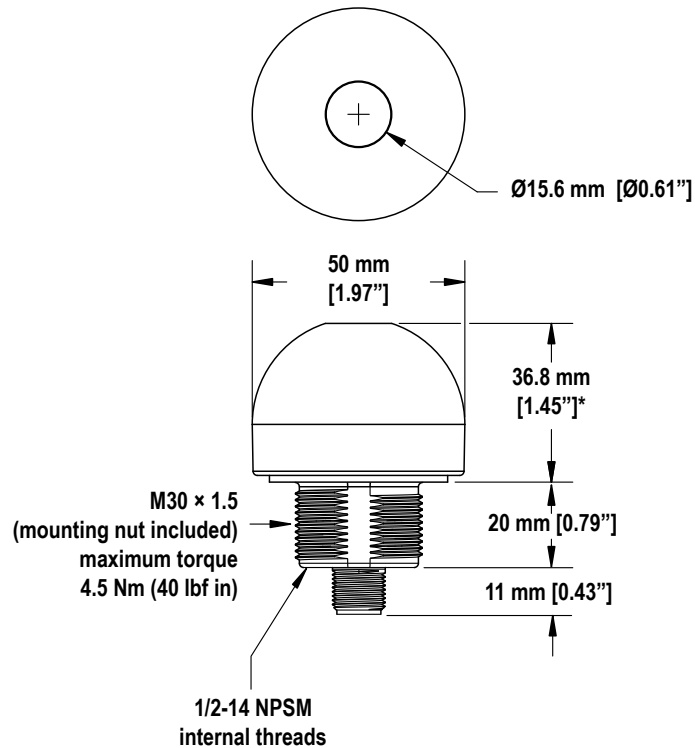
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

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



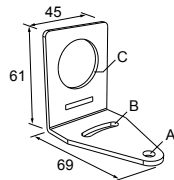
*For push-button models, this dimension is 44.2 mm (1.74 in)

Accessories

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

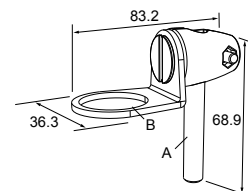


Hole center spacing: A to B=40

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

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

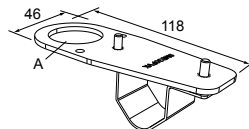


Bolt thread: SMB30FA, A= 3/8 - 16 x 2 in; SMB30FAM10, A= M10 - 1.5 x 50

Hole size: B= Ø 30.1

SMB30FVK

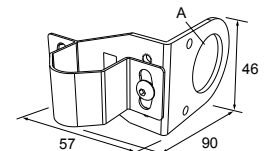
- V-clamp, flat bracket and fasteners for mounting to pipe or extrusions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



Hole size: A = Ø 31

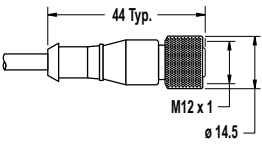
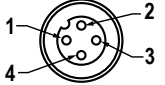
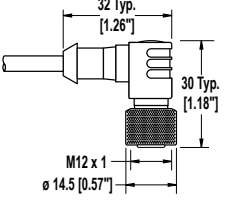
SMB30RAVK

- V-clamp, right-angle bracket and fasteners for mounting 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

Cordsets

4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight		 1 = Brown 2 = White 3 = Blue 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)			

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