Features

Self-Contained Indicator for Bin-Picking Operations

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



- Rugged, cost-effective and easy-to-install solutions for error-proofing and parts-verification applications
- Compact devices are completely self-contained — no controller needed
- Illuminated dome provides a big, easy-to-see green job light, some models also light red for alternate operation
- Push-button and passive-actuation models available
- Fully encapsulated IP67 construction — ideal for use in environments rated to IP69K per ISO 20653, depending on installation
- Immune to ambient light, EMI, and RFI interference
- AS-i module compatible
- 12 V DC to 30 V DC operation

WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

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 male quick-disconnect connector	PNP, N.O.	Green
K50RPLPGXDQ					PNP, N.C.	
K50APFF50GXDQ	Fixed field, infrared, 880 nm		50 mm cutoff		PNP, N.O.	
K50ANFF50GXDQ					NPN, N.O.	
K50APFF100GXDQ			100 mm cutoff		PNP, N.O.	
K50RPFF100GXDQ					PNP, N.C.	
K50APPBGXDQ	Push button		—		PNP, N.O.	
K50ANPBGXDQ					NPN, N.O.	

The following models are no longer available for order but are still covered by the information in this document.

[1] Integral 4-pin M12 male quick-disconnect connector models are listed.
- To order the 2 m (6.5 ft) PVC-jacketed cable model, omit the suffix "Q" in the model number. For example, K50APLPGXD.
- To order the 9 m (30 ft) PVC-jacketed 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-jacketed cable model with a 4-pin M12 male quick-disconnect connector, replace the suffix "Q" with "QP" in the model number. For example, K50APLPGXDQP.
- Models with a quick-disconnect connector require a mating cordset.

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

Original Instructions
09-May-25

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125680
p/n: 125680 Rev. G

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

- K50APLPGXD W/30
- K50RPLPGXD
- K50RPLPGXDQP
- K50ANLPGXDQ
- K50ANLPGXD
- K50ANLPGXDQP
- K50RNLPGXDQ
- K50RNLPGXD
- K50RNLPGXDQP
- K50APFF50GXD W/30
- K50RPFF50GXDQ
- K50RPFF50GXD
- K50RNFF50GXDQ
- K50RNFF50GXD
- K50RNFF50GXDQP
- K50APFF100GXD W/30
- K50RPFF100GXD
- K50RPFF100GXDQP
- K50ANFF100GXDQ
- K50ANFF100GXD
- K50ANFF100GXD W/30
- K50ANFF100GXDQP
- K50RNFF100GXDQ
- K50RNFF100GXD
- K50RNFF100GXDQP
- K50APPBGXD W/30
- K50APPBGXDQP
- K50RPPBGXDQ
- K50RPPBGXD
- K50RPPBGXDQP
- K50ANPBGXDQP
- K50RNPBGXDQ
- K50RNPBGXD
- K50RNPBGXDQP

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	Connection[1]	Output[2]	Job Light
K50RPLPGRCQ	Polarized retroreflective, Visible red, 680 nm	2 m (6 ft)	Integral 4-pin M12 male quick-disconnect connector	PNP, N.C.	Green (Red)
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.	
K50APPBGRCQ	Push button	—		PNP, N.O.	

The following models are no longer available for order but are still covered by the information in this document.

- K50RPLPGRC
- K50RPLPGRC W/30
- K50RPLPGRCQP
- K50RNLPGRCQ
- K50RNLPGRC
- K50RNLPGRCQP
- K50APFF50GRC W/30
- K50ANFF50GRC
- K50ANFF50GRCQP
- K50APFF100GRC
- K50APFF100GRC W/30
- K50ANFF100GRC
- K50ANFF100GRCQP
- K50APPBGRC
- K50APPBGRCQP
- K50ANPBGRCQ
- K50ANPBGRC
- K50ANPBGRCQP

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	Connection[1]	Output[2]	Job Light
K50RPLPGREQ	Polarized retroreflective, visible red, 680 nm	2 m (6 ft)	Integral 4-pin M12 male quick-disconnect connector	PNP, N.C.	Green (Red)
K50RNLPGREQ				NPN, N.C.	
K50APFF50GREQ	Fixed field infrared, 880 nm	50 mm cutoff		PNP, N.O.	
K50APFF100GREQ		100 mm cutoff		PNP, N.O.	
K50ANFF100GREQ				NPN, N.O.	
K50APPBGREQ	Push button	—		PNP, N.O.	
K50ANPBGREQ				NPN, N.O.	

The following models are no longer available for order but are still covered by the information in this document.

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- K50RPLPGRE
- K50RNLPGRE
- K50RNLPGREQP
- K50APFF50GRE
- K50ANFF50GREQ
- K50ANFF50GRE
- K50ANFF50GREQP
- K50APFF100GRE W/30
- K50ANFF100GRE
- K50ANFF100GREQP
- K50ANPBGRE
- K50ANPBGREQP

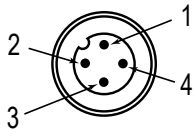
Installation

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

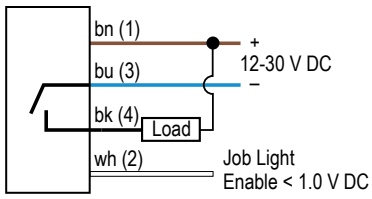
For other models, install the sensor in a location that is comfortable for the user to break the beam when reaching for the required part. When multiple sensors are located in close proximity (for example, to monitor multiple bins), mount all the sensors in a similar sensing position (for example, all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

Wiring Diagrams

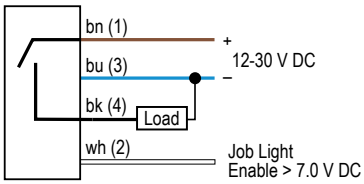
4-pin M12 Male Quick-Disconnect Connector



NPN Models



PNP Models



NOTE: Cabled wiring diagrams are shown. Quick-disconnect 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 reverse polarity and transient voltages (fast-transient and overvoltage)

Output Configuration
PNP or NPN, depending on model

Output Rating
Maximum load: 150 mA
OFF-state leakage current: < 10 µA 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 output short-circuit, continuous overload, and false pulse on power-up

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, depend on model
Job (pick) indicator: Green
Pick sensed indicator: Red or unilluminated, depending on model

Environmental Rating
Fully encapsulated; IP67
Integral quick-disconnect connector models: IP69K per ISO 20653 when using IP69K-rated cables
Cabled models: IP69K per ISO 20653 when mounted with conduit
NEMA/UL Type 4X, 13

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

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

Job Light Enable Input
Input impedance: 8000 ohms
PNP Input low < 1.5 V
NPN Input high > 7 V

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

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Connections

Integral 4-pin M12 male quick-disconnect connector, 2 m (6.5 ft) unterminated 4-wire PVC-jacketed cable, or 150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector, depending on model

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

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)

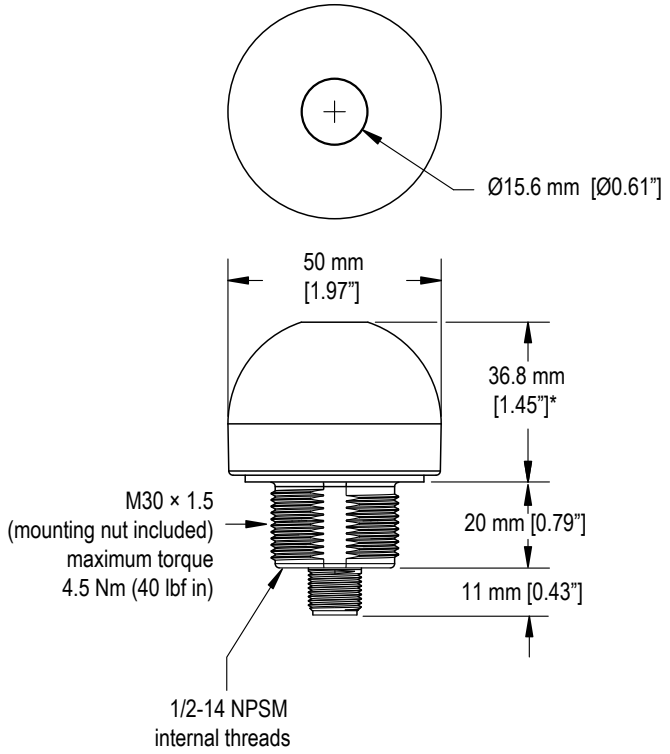
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

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.

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Dimensions

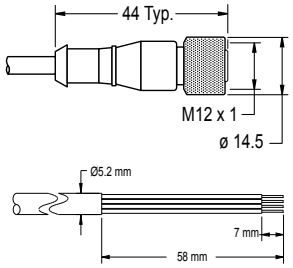
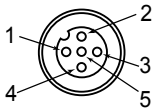
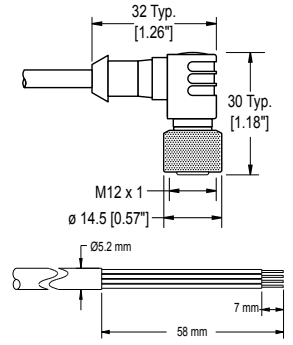
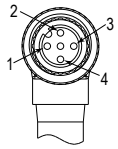
All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.



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

Accessories

Cordsets

4-Pin Single-Ended M12 Female Cordsets					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**	
MQDC-406	2 m (6.56 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Not used
MQDC-415	5 m (16.4 ft)				
MQDC-430	9 m (29.5 ft)				
MQDC-450	15 m (49.2 ft)				
MQDC-406RA	2 m (6.56 ft)	Right-Angle			
MQDC-415RA	5 m (16.4 ft)				
MQDC-430RA	9 m (29.5 ft)				
MQDC-450RA	15 m (49.2 ft)				

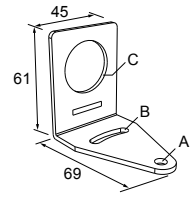
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Brackets

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

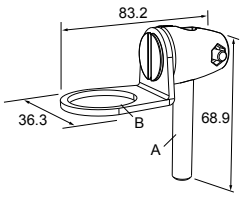
Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5



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

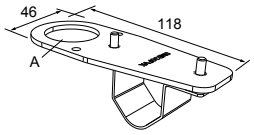
Bolt thread: SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50
Hole size: B= ø 30.1



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

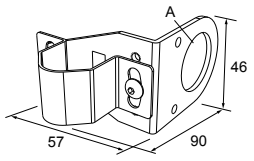
Hole size: A= ø 31



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



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