Features

Compact, Single-Point Devices for Error-Proofing of Bin-Picking Operations



Standard Model



Compact Model

- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Rugged, cost-effective, and easy-to-install solutions for error-proofing and parts-verification applications
- Compact devices are completely self-contained, no controller is needed
- Waterproof construction for washdown environments
- Easy actuation, no force required
- 12 V DC to 30 V DC operation
- Can be actuated with bare hands or gloves
- Compact models available for lower profile applications

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.

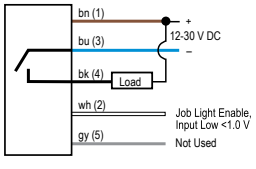
Models

Model[1]	Function	Output[2]	Connection	Indicators		
				Job	Mispick	Sense
K50APT2GRYC3Q	• Job light always illuminated with job input until touched • Touch activates output and overrides job light with sense light • Touch with inactive job input activates mispick light and activates output	PNP, N.O.	Integral 5-pin M12 male quick-disconnect connector	Green	Red	Yellow
K50RPT2GRYC3Q		PNP, N.C.				
K50APT2GRYC4Q	• Job light always illuminated with job input until touched • Touch activates output and overrides job light with sense light until job input is removed • Touch with inactive job input activates mispick light for 5 seconds after touched and activates output	PNP, N.O.		Green	Red	Yellow
K50RPT2GRYC4Q		PNP, N.C.				

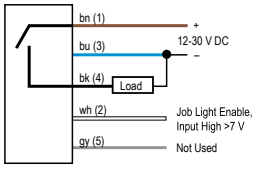
Wiring Diagrams

Cabled wiring diagrams are shown. Quick disconnect wiring diagrams are functionally identical.

NPN Models



PNP Models



[1] Integral 5-pin M12 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 K50APT2GRYC3.
- To order the 150 mm (6 in) PUR cable model with a 5-Pin M12 quick disconnect, replace the suffix "Q" with "QPMA" in the model number. For example, K50APT2GRYC3QPMA.
- To order the 150 mm (6 in) PVC cable model with a 5-pin M12 quick disconnect, replace the suffix "Q" with "QP" in the model number. For example, K50APT2GRYC3QP.
- To order a compact model, add the suffix "C" after K50 in the model number. For example, K50CAPTLGRYC3Q.
- Models with a quick disconnect require a mating cordset.

[2] PNP models only are listed. For other output types, contact Banner Engineering.

Original Instructions
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189831
p/n: 189831 Rev. E

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Indicator and Output Behavior

Sensor Conditions		Indicator		Output Signal Status
		C3 Models	C4 Models	
Job input active	Hand/pick absent	On Green	On Green	Off
	Hand/pick present	On Yellow	On Yellow until job input is removed	On
No job input	Hand/pick absent	Off	Off	Off
	Hand/pick present	On Red	On Red for 5 seconds after hand/pick is removed	On

NOTE: C3 and C4 models as referenced in the table pertain to a part of the product model number, immediately preceding the designation.

Specifications

Supply Voltage
12 V DC to 30 V DC

Supply Current
< 75 mA max current at 12 V DC (exclusive of load)
< 50 mA max current at 30 V DC (exclusive of load)

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Output Rating
Maximum load: 150 mA
ON-state saturation voltage: < 2 V DC at 10 mA; < 2.5 V DC at 150 mA
OFF-state leakage current: <10 µA at 30 V DC

Output Response Time
50 milliseconds On
500 milliseconds leading edge Off

Power-Up Delay
300 milliseconds

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

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

Construction
Housing: polycarbonate
Translucent dome: polycarbonate
Mounting nut: PBT

Connections
Integral 5-pin M12 male quick-disconnect connector, 2 m (6.5 ft) integral PVC-jacketed cable, 150 mm (6 in) PUR-jacketed cable with 8-pin M12 male quick-disconnect connector, or 150 mm (6 in) PVC-jacketed cable with 5-pin M12 male quick-disconnect connector

Vibration and Mechanical Shock
Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6
Shock: 30G 11 ms duration, half sine wave per IEC 60068-2-27

Certifications

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

Indicator Lumens

Color	Typical Wavelength	Typical Intensity (lm)
Green	525 nm	29
Red	625 nm	13
Yellow	591 nm	24

Mounting
M30 × 1.5 threaded base max. torque 4.5 N·m (40 in·lbf)

Environmental Rating
IP67, IP69K per ISO 20653
Cabled models also meet IP69K per ISO 20653 if the cable and cable entrance are protected from high-pressure spray.

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

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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)

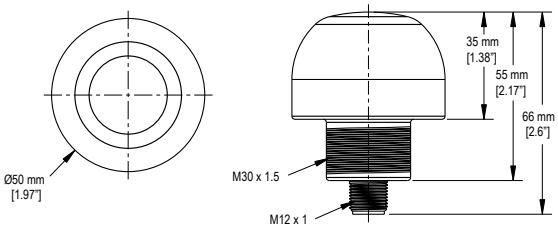
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

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.

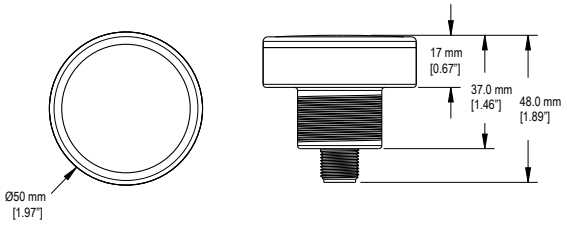
Dimensions

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

Standard Models



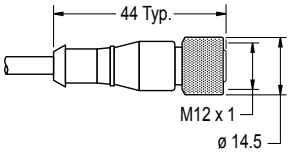
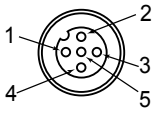
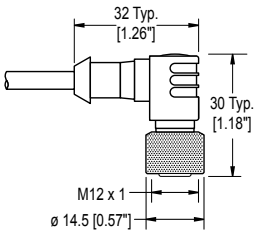
Compact Models



Accessories

Cordsets

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

5-Pin Single-Ended M12 Female Cordsets				
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
MQDC1-503	0.9 m (2.9 ft)			
MQDC1-506	2 m (6.5 ft)			
MQDC1-515	5 m (16.4 ft)			
MQDC1-530	9 m (29.5 ft)			
MQDC1-560	18 m (59 ft)			
MQDC1-5100	31 m (101.7 ft)			
MQDC1-506RA	2 m (6.5 ft)	Right-Angle		
MQDC1-515RA	5 m (16.4 ft)			
MQDC1-530RA	9 m (29.5 ft)			
MQDC1-560RA	19 m (62.3 ft)			

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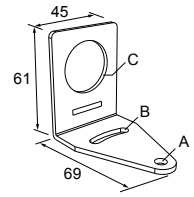
Brackets

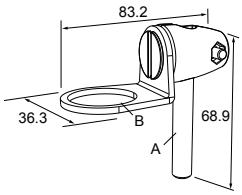
SMB30A
- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-gauge stainless steel

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



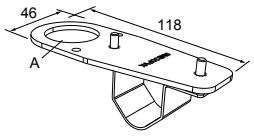
SMB30FA
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available

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



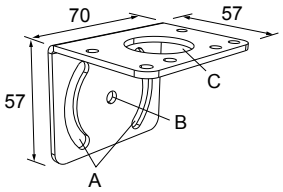
SMB30FVK
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors

Hole size: A= ø 31



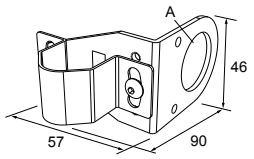
SMB30MM
- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor

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



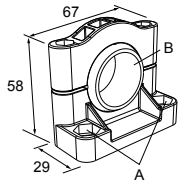
SMB30RAVK
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors

Hole size: A = ø 30.5



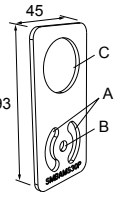
SMB30SC
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included

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



SMBAMS30P
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel

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



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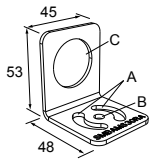
SMBAMS30RA

- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge (2.6 mm) cold-rolled steel

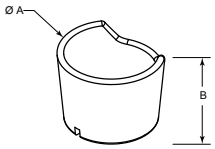
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



TC-K50-CL

- Touch cover

Diameter: A = 67 mm
Height: B = 42.5 mm



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