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

- 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 needed
- Waterproof IEC IP69K 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: 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**

<table>
<thead>
<tr>
<th>Model</th>
<th>Function</th>
<th>Output</th>
<th>Connection</th>
<th>Job Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50APT2GXDQ</td>
<td>Job light is illuminated at all times while job input is active</td>
<td>PNP, N.O.</td>
<td>Integral 4-pin M12/Euro-style male quick disconnect (QD)</td>
<td>Green</td>
</tr>
<tr>
<td>K50RPT2GXDQ</td>
<td>Touch activates output</td>
<td>PNP, N.C.</td>
<td>Integral 4-pin M12/Euro-style male quick disconnect (QD)</td>
<td>Green (Red)</td>
</tr>
<tr>
<td>K50ANT2GXDQ</td>
<td></td>
<td>NPN, N.O.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50RNT2GXDQ</td>
<td></td>
<td>NPN, N.C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50APT2GRCQ</td>
<td>Job light is Green while job input is active</td>
<td>PNP, N.O.</td>
<td></td>
<td>Green (Red)</td>
</tr>
<tr>
<td>K50RPT2GRCQ</td>
<td>Touch activates output and overrides job light (turns Red) for visual verification that action was sensed</td>
<td>PNP, N.C.</td>
<td>Integral 4-pin M12/Euro-style male quick disconnect (QD)</td>
<td>Green (Red)</td>
</tr>
<tr>
<td>K50ANT2GRCQ</td>
<td></td>
<td>NPN, N.O.</td>
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<td>K50RNT2GRCQ</td>
<td></td>
<td>NPN, N.C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50APT2GREQ</td>
<td>Job light is Green at all times while job input is active</td>
<td>PNP, N.O.</td>
<td></td>
<td>Green (Red)</td>
</tr>
<tr>
<td>K50RPT2GREQ</td>
<td>Touch activates output</td>
<td>PNP, N.C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50ANT2GREQ</td>
<td>A touch while job input is inactive causes unit to light Red, providing visual verification that sensor is functioning properly</td>
<td>NPN, N.O.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50RNT2GREQ</td>
<td></td>
<td>NPN, N.C.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Wiring Diagrams**

**NPN**

1. 12-30V dc
2. Job Light Enable < 1.5V dc
3. +
4. Load

**PNP**

1. 12-30V dc
2. Job Light Enable > 7V dc
3. +
4. Load

**Color Key**

1 = Brown
2 = White
3 = Blue
4 = Black

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

1. To order the 2 m (6.5 ft) PVC cable model, omit the suffix “Q” in the model number. For example, K50APT2GXD.
2. To order a compact model, add the suffix “C” after K50 in the model number. For example, K50CAPT2GXDQ.
3. Models with a quick disconnect require a mating cordset.
Specifications

Supply Voltage
12 V 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 and Off

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

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

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

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

Power-Up Delay
300 milliseconds

Connections
Integral 4-pin M12/Euro style QD, or 2 m (6.5 ft) PVC integral cable

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

Certifications

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

Indicator Lumens

<table>
<thead>
<tr>
<th>Color</th>
<th>Typical Wavelength</th>
<th>Typical Intensity (lm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>525 nm</td>
<td>29</td>
</tr>
<tr>
<td>Red</td>
<td>625 nm</td>
<td>13</td>
</tr>
</tbody>
</table>

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

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.

<table>
<thead>
<tr>
<th>Supply Wiring (AWG)</th>
<th>Required Overcurrent Protection (Amps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>5.0</td>
</tr>
<tr>
<td>22</td>
<td>3.0</td>
</tr>
<tr>
<td>24</td>
<td>2.0</td>
</tr>
<tr>
<td>26</td>
<td>1.0</td>
</tr>
<tr>
<td>28</td>
<td>0.8</td>
</tr>
<tr>
<td>30</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Dimensions

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

#### Cordsets

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Style</th>
<th>Dimensions</th>
<th>Pinout (Female)</th>
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<tbody>
<tr>
<td>MQDC-406</td>
<td>1.83 m (6 ft)</td>
<td>Straight</td>
<td>44 Typ. W12 x 1 ø 14.5</td>
<td>1 = Brown, 2 = White, 3 = Blue, 4 = Black</td>
</tr>
<tr>
<td>MQDC-415</td>
<td>4.57 m (15 ft)</td>
<td>Straight</td>
<td>32 Typ. W12 x 1 [1.24&quot;]</td>
<td></td>
</tr>
<tr>
<td>MQDC-430</td>
<td>9.14 m (30 ft)</td>
<td>Straight</td>
<td>30 Typ. W12 x 1</td>
<td></td>
</tr>
<tr>
<td>MQDC-450</td>
<td>15.2 m (50 ft)</td>
<td>Right-Angle</td>
<td>1 = Brown, 2 = White, 3 = Blue, 4 = Black</td>
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<tr>
<td>MQDC-406RA</td>
<td>1.83 m (6 ft)</td>
<td>Right-Angle</td>
<td>32 Typ. ø 14.5</td>
<td></td>
</tr>
<tr>
<td>MQDC-415RA</td>
<td>4.57 m (15 ft)</td>
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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-ga. stainless steel

Hole center spacing: A to B=40
Hole size: A= ø 6.3, B= ø 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 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-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= ø 42.6 x 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

**SMB305C**
- 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-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 |

### TC-K50-CL
- Touch cover

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

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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.

**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:

- Reseat 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.

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