Quick Start Guide

Self-Contained, Photoelectric Sensors in Universal-Style Housing

For complete technical information about this product, including installation instructions, application requirements and guidelines, EU Declaration of Conformity, technical specifications, and accessories, see www.bannerengineering.com and search 119166.

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>Sensing Mode</th>
<th>Model</th>
<th>Range</th>
<th>LED</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opposed</td>
<td>QS303E Emitter</td>
<td>60 m (200 ft)</td>
<td>Infrared, 875 nm</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Effective Beam: 18 mm (0.7 in)</td>
<td></td>
</tr>
<tr>
<td>Polar Retro</td>
<td>QS30VR3R Receiver</td>
<td>60 m (200 ft)</td>
<td>-</td>
<td>SPDT</td>
</tr>
<tr>
<td></td>
<td>QS30VR3LP</td>
<td>8 m (26 ft)²</td>
<td>Visible red, 630 nm</td>
<td></td>
</tr>
</tbody>
</table>

Wiring Diagrams

Cabled Emitters

![Cabled Emitters Wiring Diagram]

Other Cabled Models

Cable and QPMA hookups are functionally identical.

![Other Cabled Models Wiring Diagram]

² Standard 2 m (6.5 ft) cable models are listed.
- For 9 m (30 ft) integral cable: add suffix "W/30" (for example, QS303E W/30).
- 5-pin Micro-style 152 mm (6 in) cable: add "QPMA" (for example, QS303EQPMA).
- Range is measured using a model BRT-84 retroreflector.
Specifications

Supply Voltage
- Universal Voltage: 24 V to 250 V ac (50 Hz/60 Hz) or 12 V to 250 V dc (1.0 watt maximum)

Supply Protection Circuitry
- Protected against transient voltages

Output Configuration
- SPDT (Single-Pole Double-Throw) electromechanical relay output (all models except emitters)

Output Rating
- Max. Switching Power (resistive load): 150 W, 1250 VA
- Max. Switching Voltage (resistive load): 250 V ac; 125 V dc
- Max. Switching Current (resistive load): 5 A at 250 V ac; 5 A at 30 V dc derated to 200 mA at 125 V dc
- Min. Voltage and Current: 5 V dc, 10 mA
- Mechanical life of relay: 50 million operations
- Electrical life of relay at full resistive load: 100,000 operations

Output Response
- 15 milliseconds ON and OFF

Cutoff Point Tolerance
- Fixed-Field Only: ± 5% of nominal cutoff distance

Indicators
- Two LEDs (Green and Amber) on top of sensor
  - Green ON: power to sensors is ON
  - Amber ON: light sensed
  - Amber flashing: excess gain marginal (1 to 1.5 times) in light condition
- Large, oval LED indicator on sensor back (except emitters)
  - Amber ON: normally open output is conducting

Construction
- ABS housing, rated IEC IP67, NEMA 6; acrylic lens cover

Connections
- 2 m (6.5 in) or 9 m (30 in) 5-wire PVC cable

Operating Conditions
- -20 °C to +70 °C (-4 °F to +158 °F)
- 95% at +50 °C maximum relative humidity (non-condensing)

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).

<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>

Certifications

[CE] [UL] [US LISTED]
Dimensions

Hardware included:
(2) M3 x 0.5 x 26 stainless steel machine screws, nuts and washers

M3 x 1.5 Thread
max. torque 6 Nm (53 in lbs)
with included
30 mm mounting nut

Amber and Green LEDs

Amber LED
Output Indicator

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