**Q08 SENSORS**

Low-Profile Infrared Sensors with Metal Housings

- Ultra-thin; only 8 mm (0.3 in) deep
- Miniature right-angle dc photoelectric sensors in rugged die-cast metal housings
- Totally self-contained; 10 to 30V dc operation
- Circuitry is completely sealed and epoxy-encapsulated; rated IP67 and NEMA 6
- Select models with NPN (sinking) or PNP (sourcing) output
- Select light operate or dark operate models
- 3-wire hookup; output load capacity to 150 milliamps
- LED indicators for Power ON and Output ON; Output indicator may be used for alignment
- 2 m (6.5 ft) is standard integral cable length; 9 m (30 ft) cable is also available
- Diffuse mode models with quick-disconnect have pico-style connector; mating cables are ordered separately

### Q08 Sensing Mode Options

- Opposed
- Diffuse

### Q08 Opposed Mode Emitter (S) and Receiver (E)

<table>
<thead>
<tr>
<th>Models</th>
<th>Range</th>
<th>Cable</th>
<th>Supply Voltage</th>
<th>Output Type</th>
<th>Excess Gain</th>
<th>Beam Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO60-Q08</td>
<td>510 mm (20 in)</td>
<td>2 m (6.5 ft)</td>
<td>10-30V dc</td>
<td>NPN/LO</td>
<td>100</td>
<td>Effective Beam: 6.4 mm</td>
</tr>
<tr>
<td>EO60-Q08-AN6X</td>
<td>500 mm</td>
<td>2 m (6.5 ft)</td>
<td>10-30V dc</td>
<td>NPN/DO</td>
<td>10</td>
<td>Effective Beam: 6.4 mm</td>
</tr>
<tr>
<td>EO60-Q08-RN6X</td>
<td>400 mm</td>
<td>2 m (6.5 ft)</td>
<td>10-30V dc</td>
<td>PNP/LO</td>
<td>100</td>
<td>Effective Beam: 6.4 mm</td>
</tr>
<tr>
<td>EO60-Q08-AP6X</td>
<td>325 mm</td>
<td>2 m (6.5 ft)</td>
<td>10-30V dc</td>
<td>PNP/DO</td>
<td>100</td>
<td>Effective Beam: 6.4 mm</td>
</tr>
<tr>
<td>EO60-Q08-RP6X</td>
<td>250 mm</td>
<td>2 m (6.5 ft)</td>
<td>10-30V dc</td>
<td>PNP/DO</td>
<td>100</td>
<td>Effective Beam: 6.4 mm</td>
</tr>
</tbody>
</table>
### Q08 Diffuse Mode

<table>
<thead>
<tr>
<th>Models</th>
<th>Range</th>
<th>Cable</th>
<th>Supply Voltage</th>
<th>Output Type</th>
<th>Excess Gain</th>
<th>Beam Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO5-Q08-AN7</td>
<td>2.5 mm to 61 mm (0.1 in to 2.4 in)</td>
<td>2 m (6.5 ft) 3-Pin Pico QD</td>
<td>10-30V dc</td>
<td>NPN/LO</td>
<td>Performance based on 90% reflectance white test card</td>
<td></td>
</tr>
<tr>
<td>NO5-Q08-RN7</td>
<td>2 m (6.5 ft) 3-Pin Pico QD</td>
<td>NPN/DO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO5-Q08-AP7</td>
<td>2 m (6.5 ft) 3-Pin Pico QD</td>
<td>PNP/LO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO5-Q08-RP7</td>
<td>2 m (6.5 ft) 3-Pin Pico QD</td>
<td>PNP/DO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### For Q08 Sensors:

i) 9 m (30 ft) cables are available by adding suffix “W/30” to the model number of any cabled sensor (e.g. - S066-Q08 W/30)

ii) A model with a QD connector requires an accessory mating cable. See page 411 and the Accessories section for more information.

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Infrared, 880 nm
### Q08 Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
</table>
| **Supply Voltage and Current**  | *Opposed:* 10 to 30V dc at 50 mA total maximum; 30 mA for emitter, 20 mA for receiver (exclusive of load);  
*Diffuse:* 10 to 30V dc at 25 mA  
Both modes at 10% maximum ripple |
| **Supply Protection Circuitry** | Protected against reverse polarity and continuous overload or short circuit       |
| **Output Configuration**        | Solid-state dc output, with four output types available:  
NPN sinking/light operate  
NPN sinking/dark operate  
PNP sourcing/light operate  
PNP sourcing/dark operate  
*Opposed:* Light operate outputs conduct when the receiver sees the emitter’s pulse-synchronized light source;  
Dark operate outputs conduct when the receiver does not see the emitter’s pulse-synchronized source  
*Diffuse:* Light operate outputs conduct when the sensor sees the reflection of its own modulated light source;  
Dark operate outputs conduct when the sensor sees dark |
| **Output Rating**               | 150mA maximum, continuous  
**Off-state leakage** current is 100 microamps at 30V dc  
**On-state saturation** voltage is <200 millivolts at 10 mA dc and <1 volt at 150 mA dc |
| **Output Protection Circuitry** | Protected against false pulse on power-up                                      |
| **Output Response Time**        | 1 millisecond ON and OFF independent of signal strength                        |
| **Repeatability**               | 200 microseconds (0.2 milliseconds), independent of signal strength            |
| **Indicators**                  | Two LED indicators:  
GREEN LED lights to indicate dc power “ON”  
YELLOW LED (except opposed emitters) lights when sensor output is conducting (in “light” condition for light operate models; in “dark” condition for dark operate models) |
| **Construction**                | Black epoxy-painted die-cast zinc housing, polysulfone thermoplastic lens with two through-mounting holes to accommodate M3 (#4) hardware |
| **Environmental Rating**        | Meets NEMA standards 1, 2, 4, 6, 12 and 13; IEC IP67                           |
| **Connections**                 | PVC-jacketed 2 m (6.5 ft) or 9 m (30 ft) cable or 3-pin pico-style quick-disconnect (QD) fitting (diffuse models) available. See page 411 and Accessories section. Cable is 4.0 mm (0.16 in) in diameter. |
| **Operating Conditions**        | **Temperature:** 0° to 50° C (32° to +122°F)  
**Maximum relative humidity:** 90% at 50°C (non-condensing) |
| **Application Notes**           | Be aware that optimum mechanical alignment of Q08 emitter/receiver pairs may not always result in optimum optical alignment. This may be a factor at longer sensing ranges. Once optimum mechanical alignment has been achieved, optical alignment can often be optimized by tilting one unit (emitter or receiver) up/down and right/left. Look for the center of the “movement zone” within which the receiver’s output remains in the desired output state: “ON” for light operate units, and “OFF” for dark operate units. |
| **Certifications**              | CE                                                                            |
Q08 Sensors

Q08 Hookup Diagrams

Opposed Mode NPN (Sinking) Receiver

Opposed Mode PNP (Sourcing) Receiver

Diffuse Mode Cabled Models NPN (Sinking)

Diffuse Mode Cabled Models PNP (Sourcing)

Diffuse Mode QD Models NPN (Sinking) (3-Pin Pico-Style)

Diffuse Mode QD Models PNP (Sourcing) (3-Pin Pico-Style)
**Q08 Sensors**

**Q08 Dimensions**

**Q08 Opposed Mode Sensor with Attached Cable**

- Beam emits from mechanical center of lens
- Dimensions:
  - 9.0 mm (0.35")
  - 32.0 mm (1.26")
  - 2 m (6.5') Cable

**Q08 Diffuse Mode Sensor with Attached Cable**

- Output “ON” Indicator (Yellow LED, receivers only)
- Power “ON” Indicator (Green LED)
- 3.40 mm (0.134") (2 Holes)
- #4 (M3) Screw Clearance
- Dimensions:
  - 13.00 mm (0.512")

**Q08 Diffuse Mode Sensor with Quick-Disconnect**

- 3 pin Pico-Style Quick-Disconnect
- Dimensions:
  - 39.1 mm (1.54")

**Q08 Diffuse Mode Sensor Optical Center**

- 9.7 mm (0.38")
- Optical Center of Beam
- Dimensions:
  - 7.7 mm (0.30")

**3-Pin Pico-Style Pin-out**

- Black Wire
- Blue Wire
- Brown Wire
## Accessories

### Modifications

<table>
<thead>
<tr>
<th>Model Suffix</th>
<th>Modification</th>
<th>Description</th>
<th>Example of Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/30</td>
<td>9 m (30 ft) cable</td>
<td>All Q08 sensors may be ordered with an integral 9 m (30 ft) cable in place of the standard 2 m (6.5 ft) cable</td>
<td>S060-Q08 W/30</td>
</tr>
</tbody>
</table>

### Quick-Disconnect (QD) Cables

Following is the selection of cables available for Q10 QD models. See the Accessories section at back of catalog for more cable information.

<table>
<thead>
<tr>
<th>Style</th>
<th>Model</th>
<th>Length</th>
<th>Connector</th>
<th>Used with:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Pin Pico</td>
<td>PKG3-2</td>
<td>2 m (6.5 ft)</td>
<td>Straight</td>
<td>Q08 with QD fitting</td>
</tr>
<tr>
<td></td>
<td>PKW3-2</td>
<td>2 m (6.5 ft)</td>
<td>Right-angle</td>
<td></td>
</tr>
</tbody>
</table>