**Description**

Series 6000 photoelectric sensors provide reliable general purpose sensing in a compact package.

Each Series 6000 sensor has a single red output indicator. The Transmitted Beam Light Source has a red power indicator. Each sensor has a clutch-protected four-turn adjustment potentiometer. Each sensor can be supplied with a 3m (9.8ft) four or five conductor PVC cable or with a 4-pin DC or AC micro-style quick disconnect on the end of a 300mm (12in) length cable ("pigtail").

Low voltage DC sensors have both NPN and PNP outputs with 200ma output for each. Typical response is 1ms.

Two AC/DC versions are available. The 20–132V AC/DC sensor offers a single 300mA Power MOSFET output. The 20–264V AC/DC sensor offers a single 150mA Power MOSFET output. Light operate or dark operate is selected by catalog number for all Series 6000 sensors.

**Features**

- Compact cylindrical package
- Wide selection of sensing modes
- Universal supply voltage models
- Both NPN or PNP outputs (DC)

**General Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Source</td>
<td>Infrared 880nm or visible red 650nm</td>
</tr>
<tr>
<td>Unit Protection</td>
<td>Reverse Polarity, False Pulse</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>10–30V DC; 20–132V AC/DC; 20–264V AC/DC</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>35mA maximum</td>
</tr>
<tr>
<td>Output Type</td>
<td>Both NPN and PNP (DC); MOSFET (AC/DC)</td>
</tr>
<tr>
<td>Output Mode</td>
<td>Light or dark operate by model</td>
</tr>
<tr>
<td>Housing Material</td>
<td>Noryl</td>
</tr>
<tr>
<td>Lens Material</td>
<td>Acrylic</td>
</tr>
<tr>
<td>LED Indicators</td>
<td>Red: When on (or illuminated) the sensor output is activated; when dark it is off.</td>
</tr>
<tr>
<td>Connection Types</td>
<td>3m 300V cable, 4-pin DC micro QD, 4-pin AC micro QD</td>
</tr>
<tr>
<td>Supplied Accessories</td>
<td>Mounting kit #129-106-1 and 129-106-2</td>
</tr>
<tr>
<td>Operating Environment</td>
<td>IP67; NEMA 3, 4X, 6, 12, 13</td>
</tr>
<tr>
<td>Vibration</td>
<td>10–55Hz, 1mm amplitude, meets or exceeds IEC 60947-5-2</td>
</tr>
<tr>
<td>Shock</td>
<td>30g with 1ms pulse duration, meets or exceeds IEC 60947-5-2</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +65°C (-40°F to +150°F)</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>95% max</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL listed, CSA approved, and CE marked for all applicable directives</td>
</tr>
</tbody>
</table>

**Dimensions—mm (inches)**

<table>
<thead>
<tr>
<th>Model Type</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Except Fiber Optic</td>
<td>66 (2.60)</td>
<td>31.8 (1.25)</td>
<td>20.4 (0.81)</td>
</tr>
<tr>
<td>Fiber Optic</td>
<td>73.7 (2.90)</td>
<td>31.8 (1.25)</td>
<td>24.9 (1.05)</td>
</tr>
<tr>
<td>AC/DC Models</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Except Fiber Optic</td>
<td>91.4 (3.6)</td>
<td>57.2 (2.25)</td>
<td>20.4 (0.81)</td>
</tr>
<tr>
<td>Fiber Optic</td>
<td>99.1 (3.9)</td>
<td>57.2 (2.25)</td>
<td>24.9 (1.05)</td>
</tr>
</tbody>
</table>
Alignment

Retroreflective/Polarized Retroreflective
Adjust the sensitivity to the maximum setting, by turning the sensitivity potentiometer clockwise. Aim the sensor on the reflector until the alignment indicator on the sensor turns On (light operate) or Off (dark operate). To be certain that the beam is centered, sweep the beam on the reflector in the horizontal plane and determine the position the alignment indicator turns On and then Off. Set the beam halfway between both positions. Do the same in the vertical plane. Break the beam with the object to be detected and check to see if the alignment indicator turns Off. It may be necessary to reduce the sensitivity or change to a smaller sized reflector to detect small, translucent or transparent objects. Restore the beam by removing the object and check to see if the alignment indicator turns On again. For shiny objects angle the sensor so that the beam is not perpendicular to the object. For highly reflective materials use a polarized retroreflective sensor.

Transmitted Beam
Adjust the sensitivity to the maximum setting, by turning the sensitivity potentiometer clockwise. Aim the receiver at the light source until the alignment indicator on the receiver turns On (light operate) or Off (dark operate). To be certain the beam is centered, sweep the beam across the receiver in the horizontal plane and determine the position the alignment indicator turns On and then Off. Set the beam halfway between both positions. Do the same in the vertical plane. It may be necessary to reduce the sensitivity to a lower setting for transparent or translucent materials or to detect objects smaller than the effective beam.

Diffuse Modes (Including standard, extended range, wide angle and fixed focus)
Adjust the sensitivity to the maximum setting by turning the sensitivity potentiometer clockwise. Aim the sensor at the object to be detected until the alignment indicator on the control turns On (light operate) or Off (dark operate). To be certain that the beam is centered, sweep the beam on the object in the horizontal plane and determine the position the alignment indicator turns On and then Off. Set the beam halfway between both positions. Do the same in the vertical plane. Remove the object to be detected from in front of the sensor. If the sensor remains On reduce the sensitivity to eliminate background signals. Restore the object being detected and check if the output indicator turns On again. It may be necessary to move the sensor closer to detect darker or smaller objects.

Wiring Diagrams

DC All Models Except Transmitted Beam Source

Cable Version:
Models: 42SR_-6__2 and 6__3

Models: 42SR_-6__2-QD and 6__3-QD
Wiring Diagrams (continued)

AC/DC All Models Except Transmitted Beam Source

Models: 42SR-6_4 and 6_5

[Diagram showing wiring connections for White, Orange, Black (+) and (-) with connections marked by arrows.]

Models: 42SR-6_6 and 6_7

[Diagram showing wiring connections for Brown, Black, Blue (+) and (-) with connections marked by arrows.]

Transmitted Beam Source

42SRL-6006

[Diagram showing wiring connections for Brown (+) and Blue (-) with connections marked by arrows.]

42SRL-6006-QD

[Diagram showing wiring connections for 2 Red/White (+) and 1 Red/Black (-) with connections marked by arrows.]

AC/DC Pin Out

[Diagram showing AC/DC pin layout with numbers indicating pin positions.

Supplied Accessories

Mounting Kit #129-106-1 contains 2 plastic nuts, anti-vibration mount, and slip pads.

Mounting Kit #129-106-2 contains 2 plastic nuts, anti-vibration mount, slip pads, and fiber optic mounting hardware.

Installation

The 6000 Series sensor must be mounted on a firm, stable surface or support. A mounting, which is subject to excessive vibration or shifting may cause intermittent operation. For installation convenience, we offer the following mounting brackets.

Swivel/Tilt Mounting Assembly #60-2618

[Diagram showing swivel/tilt mounting assembly with dimensions marked.]

Not: Details regarding connection of Allen-Bradley Series 6000 photoelectric sensors to Allen-Bradley Programmable Controllers can be found in Publication 42SR-4.0.

All wire colors shown refer to Allen-Bradley quick-disconnect cables.
### Single Hole Bracket #60-2006

- **14 Gage Cold Rolled Steel (Painted)**
- **Clearance for #10-32 Hdw (M3) (2 Slots)**

### Tilt Mounting Bracket #60-2007

- **AC/DC Control Mounting**
- **Clearance for #10-32 Hdw (M3) (2 Slots)**

### Universal Mounting Bracket #60-2008

- **Clearance for #8-32 Hdw (M4) (2 Slots)**
- **Clearance for #6-32 Hdw (M3) (3 Slots)**

### Right Angle Mirror Assembly

- **#6-32 SS Pan head screw 8in-lbs torque max**

### Typical Bracket/Machine Mounting

- **Either threaded #6-32 hole or #6-32 SS nut**
- **Mounting bracket or plate**

### Description | Catalog Number
--- | ---
Reflector, 0.76mm (3in) diameter with center mount hole | 92-39
2m (6.5ft) micro QD Cordset (DC only) 1 Keyway | 889D-F4AC-2
2m (6.5ft) micro QD Cordset (AC/DC models) 2 Keyways | 889R-F4AEA-2