

# Installation Instructions

## PHOTOSWITCH® Series 6000 General Purpose Compact

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

### 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

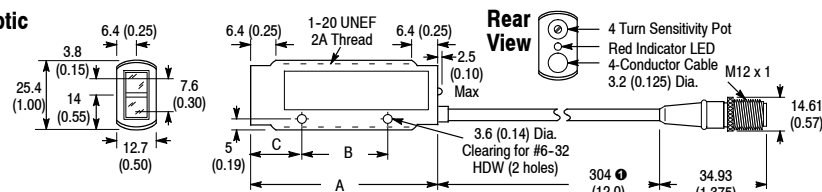
- Compact cylindrical package
- Wide selection of sensing modes
- Universal supply voltage models
- Both NPN or PNP outputs (DC)

### General Specifications

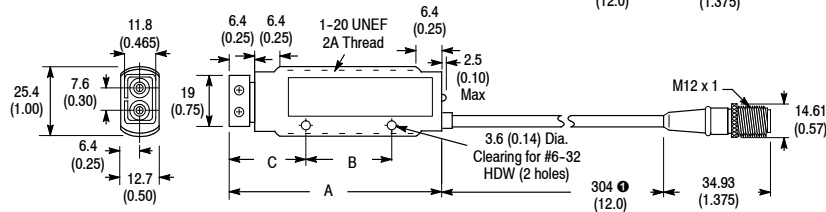
<b>Light Source</b>	Infrared 880nm or visible red 650nm
<b>Unit Protection</b>	Reverse Polarity, False Pulse
<b>Supply Voltage</b>	10–30V DC; 20–132V AC/DC; 20–264V AC/DC
<b>Current Consumption</b>	35mA maximum
<b>Output Type</b>	Both NPN and PNP (DC); MOSFET (AC/DC)
<b>Output Mode</b>	Light or dark operate by model
<b>Housing Material</b>	Noryl
<b>Lens Material</b>	Acrylic
<b>LED Indicators</b>	Red: When on (or illuminated) the sensor output is activated; when dark it is off.
<b>Connection Types</b>	3m 300V cable, 4-pin DC micro QD, 4-pin AC micro QD
<b>Supplied Accessories</b>	Mounting kit #129-106-1 and 129-106-2
<b>Operating Environment</b>	IP67; NEMA 3, 4X, 6, 12, 13
<b>Vibration</b>	10–55Hz, 1mm amplitude, meets or exceeds IEC 60947-5-2
<b>Shock</b>	30g with 1ms pulse duration, meets or exceeds IEC 60947-5-2
<b>Operating Temperature</b>	-40°C to +56°C (-40°F to +150°F)
<b>Relative Humidity</b>	95% max
<b>Approvals</b>	UL listed, CSA approved, and CE marked for all applicable directives

### Dimensions—mm (inches)

#### All Models Except Fiber Optic



#### Fiber Optic Models



DC Models	A	B	C
All Except Fiber Optic	66 (2.60)	31.8 (1.25)	20.4 (0.81)
Fiber Optic	73.7 (2.90)	31.8 (1.25)	24.9 (1.05)
AC/DC Models			
All Except Fiber Optic	91.4 (3.6)	57.2 (2.25)	20.4 (0.81)
Fiber Optic	99.1 (3.9)	57.2 (2.25)	24.9 (1.05)

## 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)

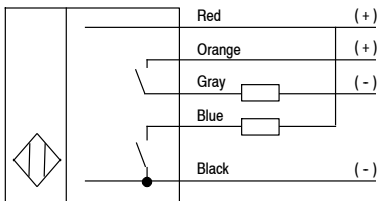
Adjust the sensitivity to the maximum setting by turning the sensitivity potentiometer clockwise. Aim the sensor at the object to be detected until the alignment indicator on the control turns *On* (light operate) or *Off* (dark operate). To be certain that the beam is centered, sweep the beam on the 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:

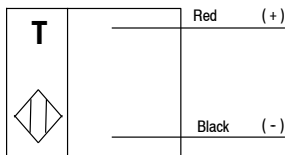
Models: 42SR\_-6\_\_2 and 6\_\_3



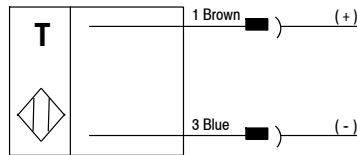
Models: 42SR\_-6\_\_2-QD and 6\_\_3-QD



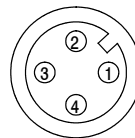
### DC Transmitted Beam Source 42SRL-6000



### 42SRL-6000-QD



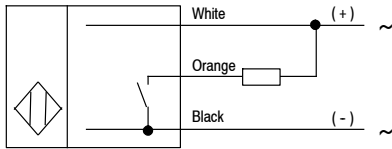
### DC QD Pin Out



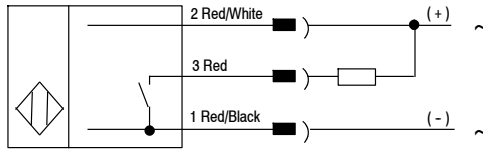
## Wiring Diagrams (continued)

### AC/DC All Models Except Transmitted Beam Source

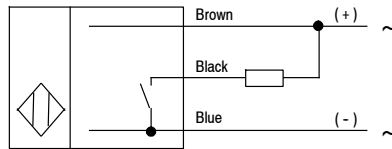
Models: 42SR\_-6\_\_4 and 6\_\_5



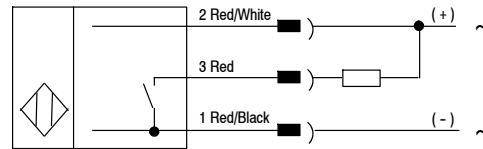
Models: 42SR\_-6\_\_4-QD and 6\_\_5-QD



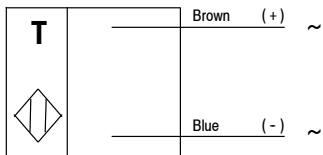
Models: 42SR\_-6\_\_6 and 6\_\_7



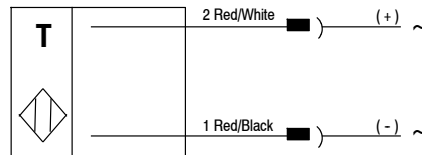
Models: 42SR\_-6\_\_6-QD and 6\_\_7-QD



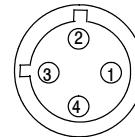
Transmitted Beam Source  
42SRL-6006



42SRL-6006-QD



AC/DC Pin Out



Looking at male pins.

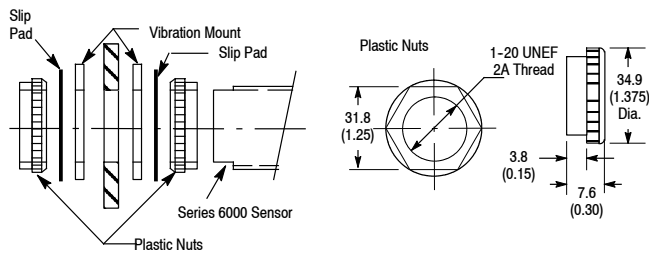
**Note:** Details regarding connection of Allen-Bradley Series 6000 photoelectric sensors to Allen-Bradley Programmable Controllers can be found in Publication 42SR-4.0.

All wire colors shown refer to Allen-Bradley quick-disconnect cables.

## Supplied Accessories

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

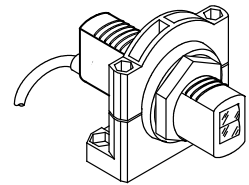
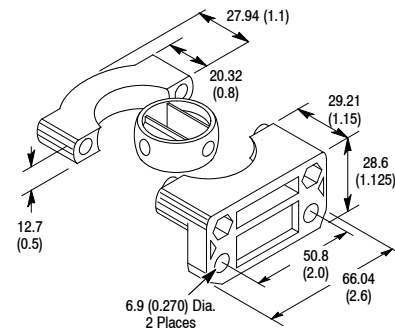
Mounting Kit #129-106-2 contains 2 plastic nuts, anti-vibration mount, slip pads, and fiber optic mounting hardware.



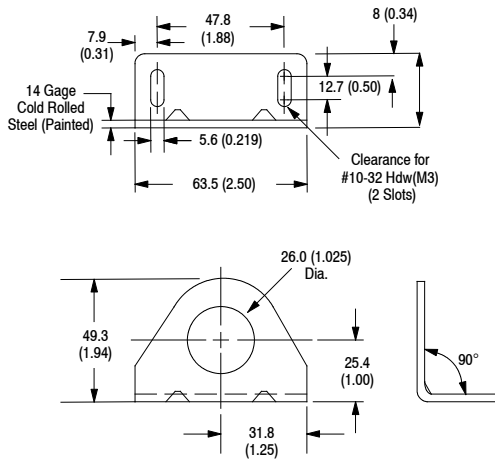
## Installation

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.

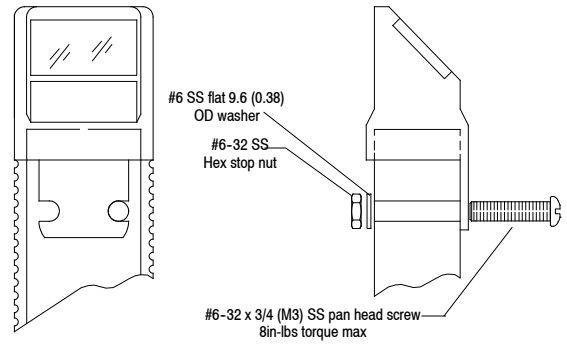
### Swivel/Tilt Mounting Assembly #60-2618



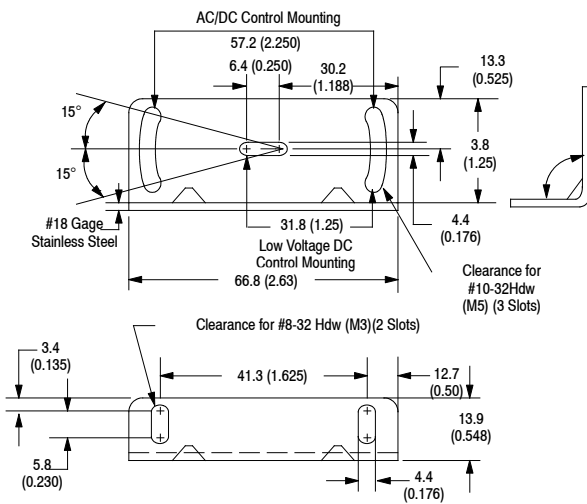
### Single Hole Bracket #60-2006



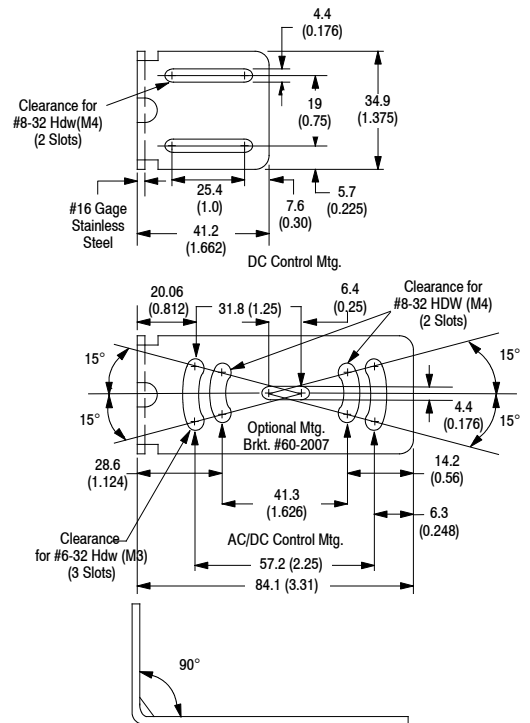
### Right Angle Mirror Assembly



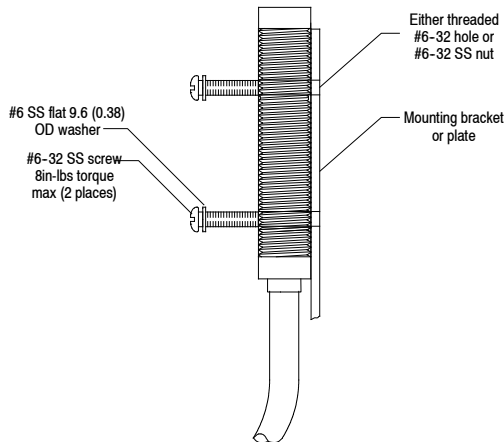
### Tilt Mounting Bracket #60-2007



### Universal Mounting Bracket #60-2008



### Typical Bracket/Machine Mounting



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