

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

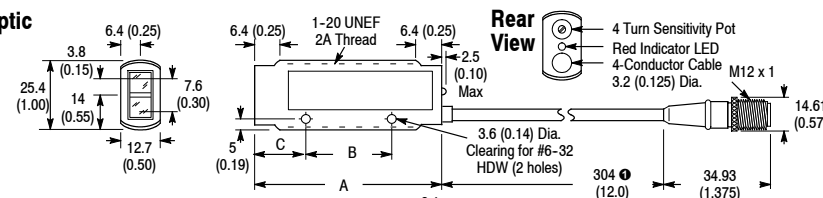
- Compact cylindrical package
- Wide selection of sensing modes
- Universal supply voltage models
- Both NPN or PNP outputs (DC)

General Specifications

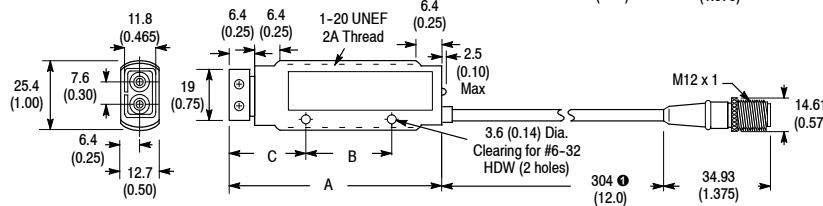
Light Source	Infrared 880nm or visible red 650nm
Unit Protection	Reverse Polarity, False Pulse
Supply Voltage	10-30V DC; 20-132V AC/DC; 20-264V AC/DC
Current Consumption	35mA maximum
Output Type	Both NPN and PNP (DC); MOSFET (AC/DC)
Output Mode	Light or dark operate by model
Housing Material	Noryl
Lens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

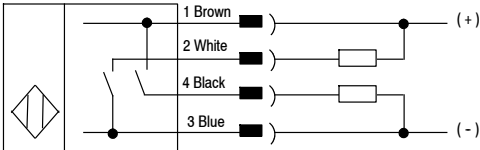
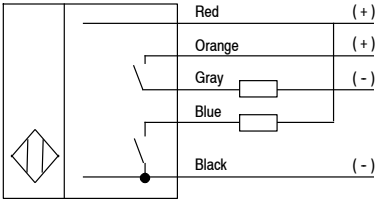
Adjust the sensitivity to the maximum setting by turning the sensitivity potentiometer clockwise. Aim the sensor at the object to be detected until the alignment indicator on the control turns *On* (light operate) or *Off* (dark operate). To be certain that the beam is centered, sweep the beam on the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

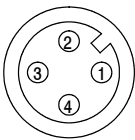
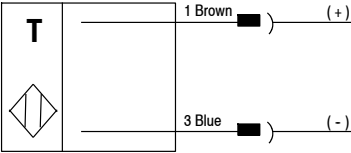
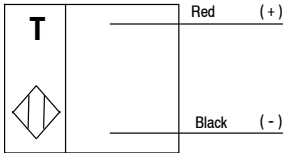
Models: 42SR_-6__2-QD and 6__3-QD



DC Transmitted Beam Source
42SRL-6000

42SRL-6000-QD

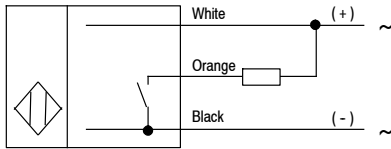
DC QD Pin Out ①



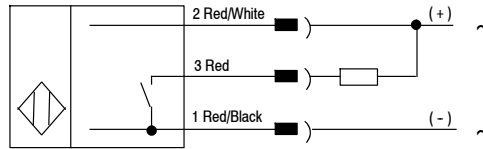
Wiring Diagrams (continued)

AC/DC All Models Except Transmitted Beam Source

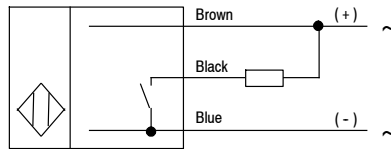
Models: 42SR_-6__4 and 6__5



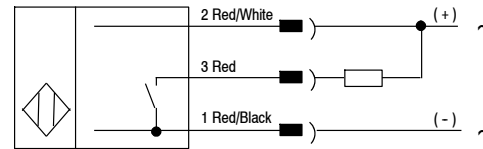
Models: 42SR_-6__4-QD and 6__5-QD



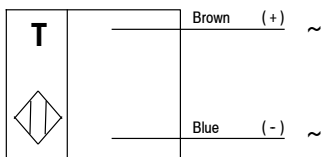
Models: 42SR_-6__6 and 6__7



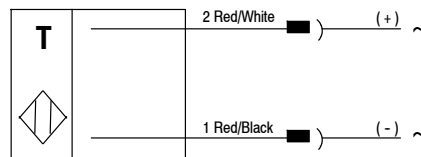
Models: 42SR_-6__6-QD and 6__7-QD



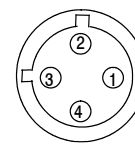
Transmitted Beam Source
42SRL-6006



42SRL-6006-QD



AC/DC Pin Out ❶



❶ Looking at male pins.

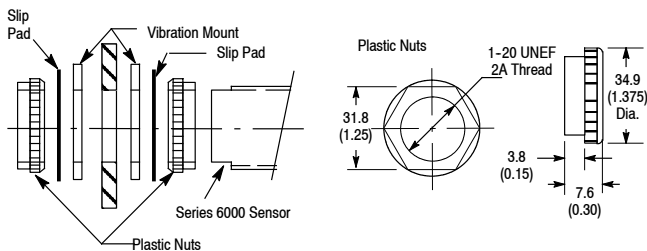
Note: Details regarding connection of Allen-Bradley Series 6000 photoelectric sensors to Allen-Bradley Programmable Controllers can be found in Publication 42SR-4.0.

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.

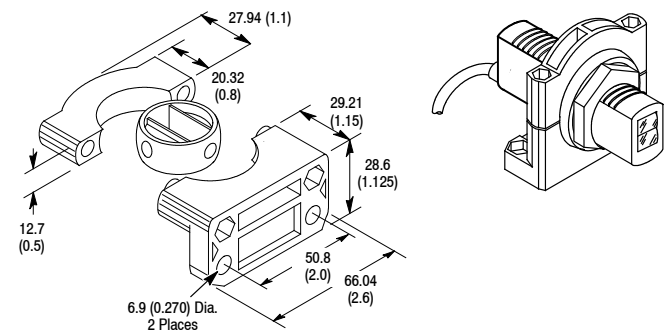
Mounting Kit #129-106-2 contains 2 plastic nuts, anti-vibration mount, slip pads, and fiber optic mounting hardware.



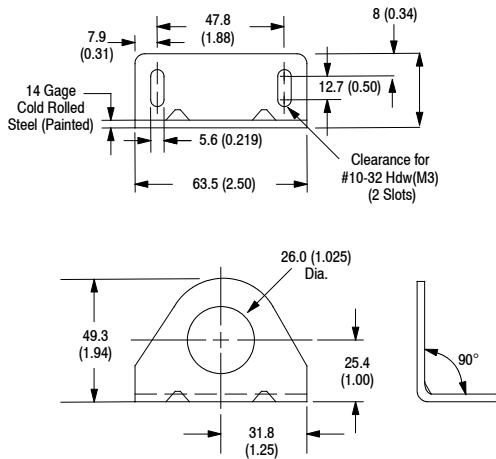
Installation

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.

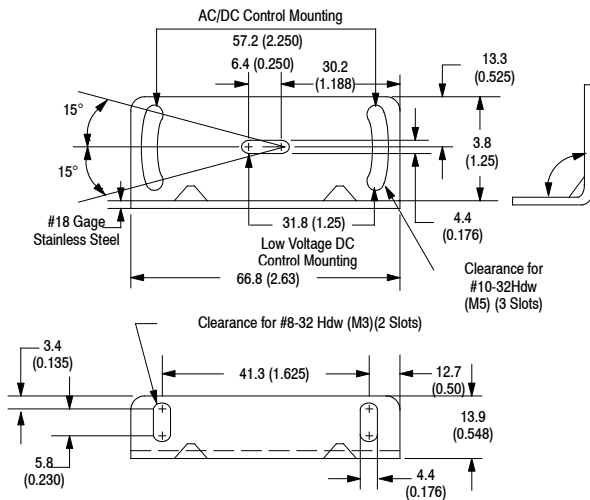
Swivel/Tilt Mounting Assembly #60-2618



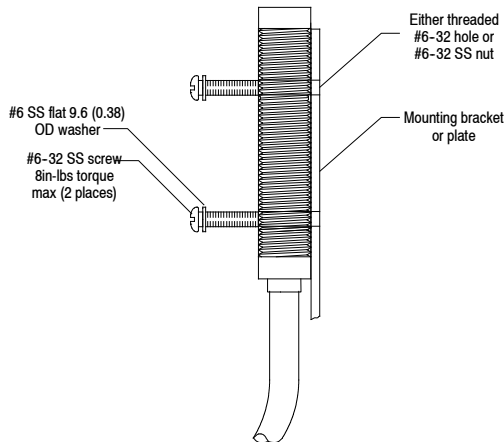
Single Hole Bracket #60-2006



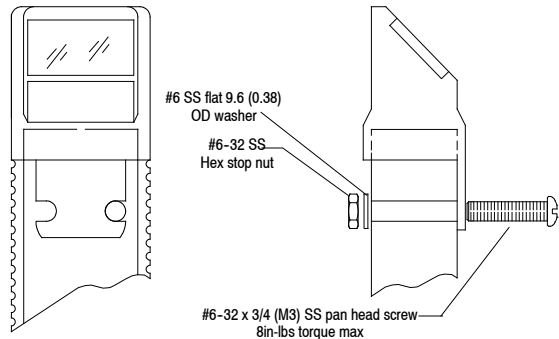
Tilt Mounting Bracket #60-2007



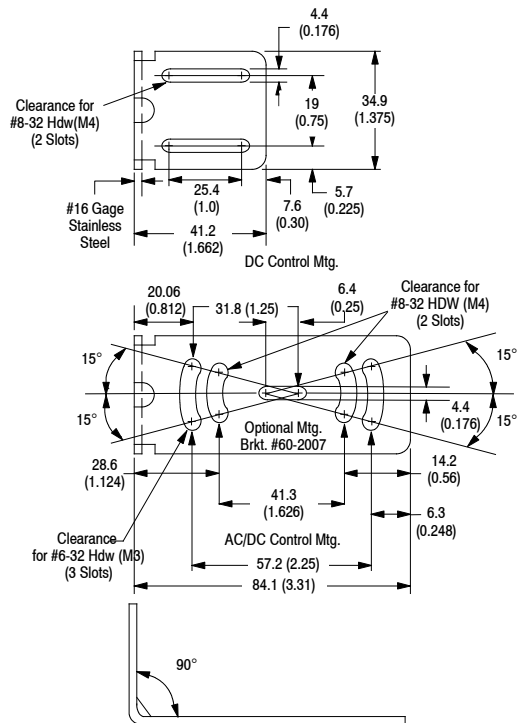
Typical Bracket/Machine Mounting



Right Angle Mirror Assembly



Universal Mounting Bracket #60-2008



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	