

Installation Instructions

PHOTOSWITCH® Bulletin 42CM Metal Body 18mm Cylindrical

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

The 42CM is a family of general purpose photoelectric sensors intended for heavy duty industrial applications. They are packaged in an industry standard 18mm cylindrical housing.

Five possible modes of sensing include transmitted beam, diffuse, retroreflective, polarized retroreflective, and background suppression, allowing the 42CM to be used in a variety of complex applications.

Indication of target presence is provided through a discrete NPN or PNP output which is compatible with most measurement and control circuits found in today's factory automation systems. Outputs are short-circuit protected to provide continuous operation even under unexpected conditions.

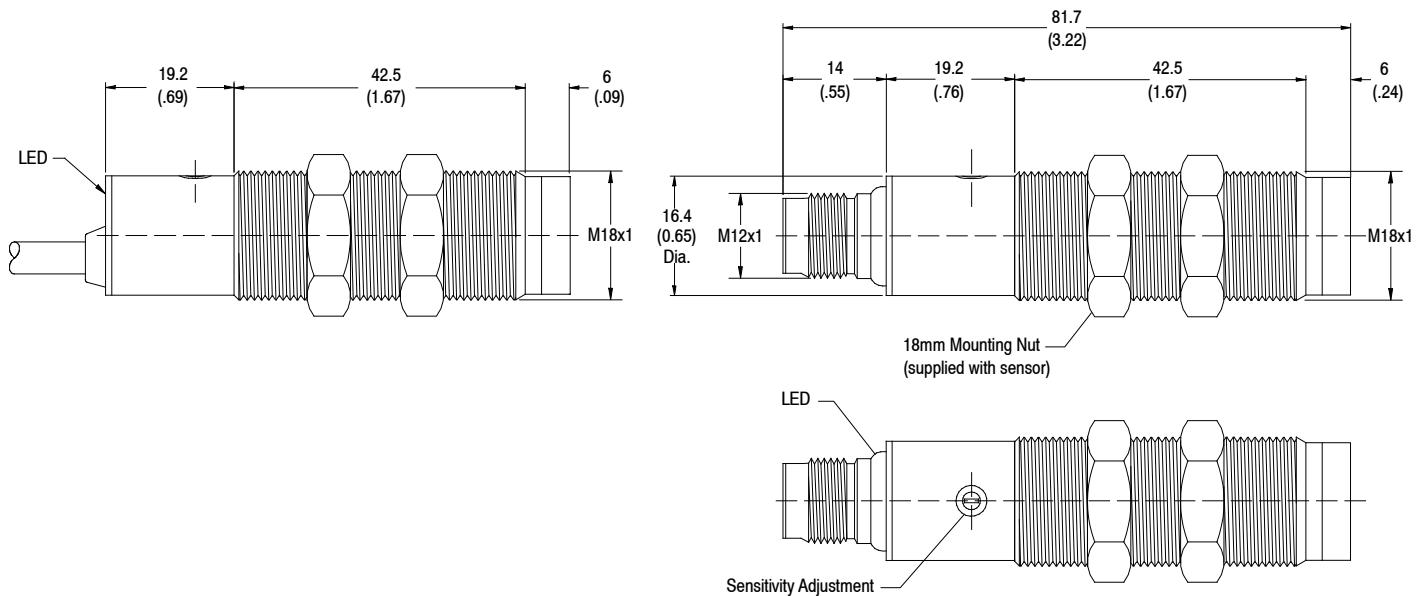
Features

- Short circuit protection
- Reverse polarity protection
- NPN or PNP outputs
- L.O. or D.O.
- Metal body

General Specifications

Light Source	Infrared 880nm or visible red 660nm
Unit Protection	Reverse polarity, output short-circuit and overload protection (SCP)
Supply voltage	10-30V DC
Current Consumption	30mA maximum
Output Type	NPN or PNP
Output Mode	Light or dark operate selectable
Output Rating	100mA
Response Time	2ms (0.5ms for background suppression)
Housing Material	Nickel-plated brass
Lens Material	PMMA/PC
LED Indicators	Yellow-output
Connection Types	2m cable, 4-pin DC micro QD
Supplied Accessories	18mm fastening nuts
Optional Accessories	Mounting brackets, reflectors, cordsets
Operating Environment	IP67, Type 1 enclosure
Vibration	10-55Hz, 0.5mm amplitude, Meets or exceeds IEC 60947-5-2
Shock	30g with 11ms pulse duration, Meets or exceeds IEC 60947-5-2
Operating Temperature	-25°C to +70°C (-13°F to +158°F)
Relative Humidity	29 to 90%
Ambient Light Immunity	3000 Lx
Approvals	cULus and CE marked for all applicable directives

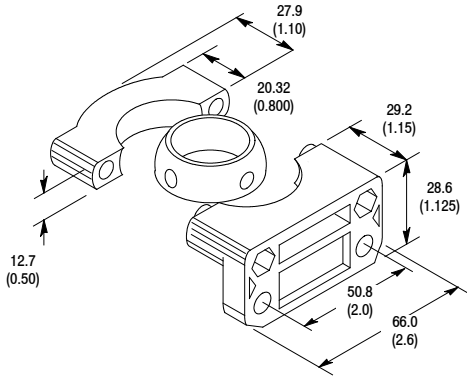
Dimensions—mm (inches)



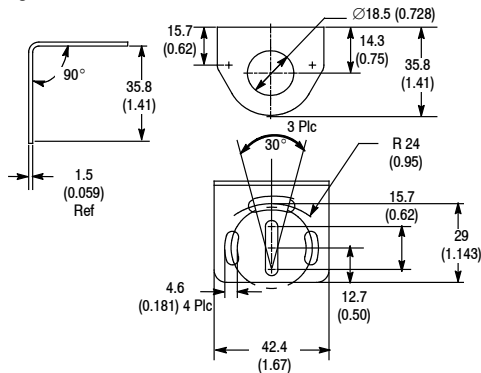
Installation

The Type 42C* 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 bracket.

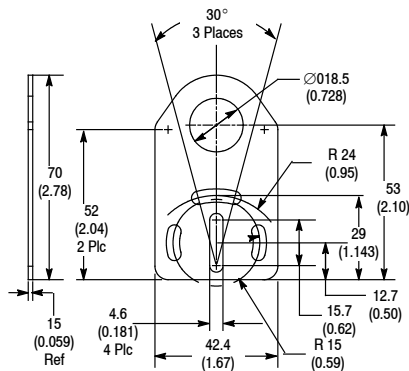
Swivel/Tilt Bracket #60-2649



Right Angle Bracket #60-2657



Straight Bracket #60-2656



Alignment

Retroreflective/Polarized Retroreflective

Aim the sensor on the reflector until the output 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 output 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 output indicator turns *Off*. It may be necessary to use a smaller sized reflector to detect small, translucent or transparent objects. Restore the beam by removing the object and check to see if the output 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

Aim the receiver at the light source until the output 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 output indicator turns *On* and then *Off*. Set the beam halfway between both positions. Do the same in the vertical plane.

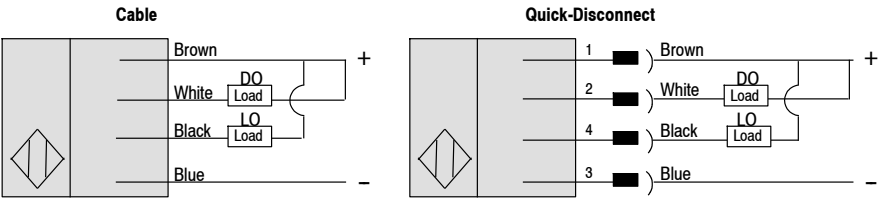
Diffuse/Background Suppression

Adjust the sensitivity to the maximum setting by turning the sensitivity potentiometer clockwise. Aim the sensor at the object to be detected until the output 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 output 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.

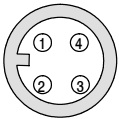
Wiring

Diffuse

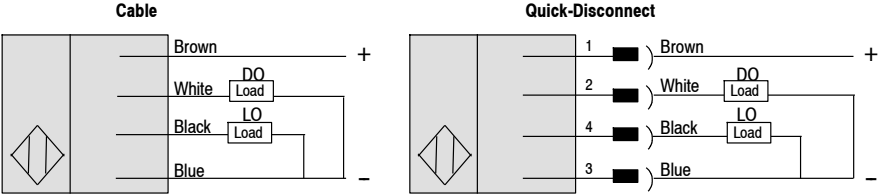
NPN Output



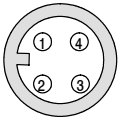
Face View Male Receptacle (Sensor)
DC Micro



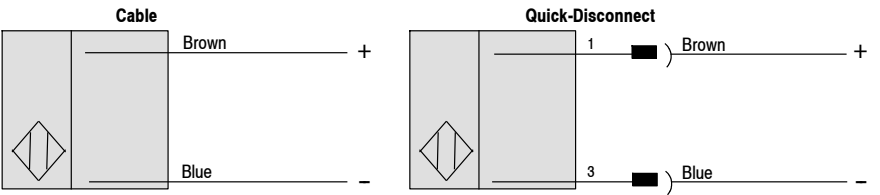
PNP Output



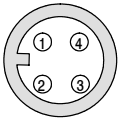
Face View Male Receptacle (Sensor)
DC Micro



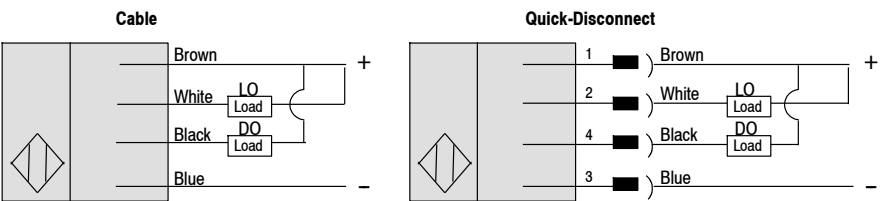
Transmitted Beam, Retroreflective, Polarized Retroreflective



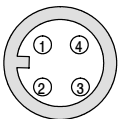
Face View Male Receptacle (Sensor)
DC Micro



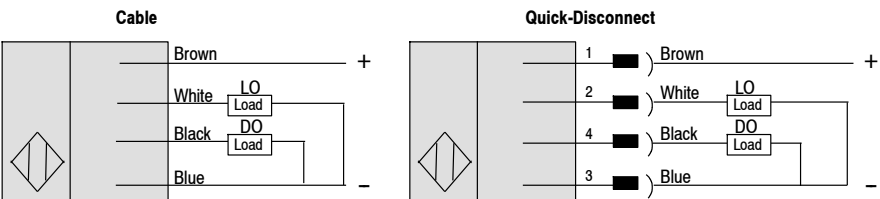
NPN Output



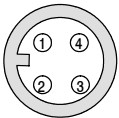
Face View Male Receptacle (Sensor)
DC Micro



PNP Output

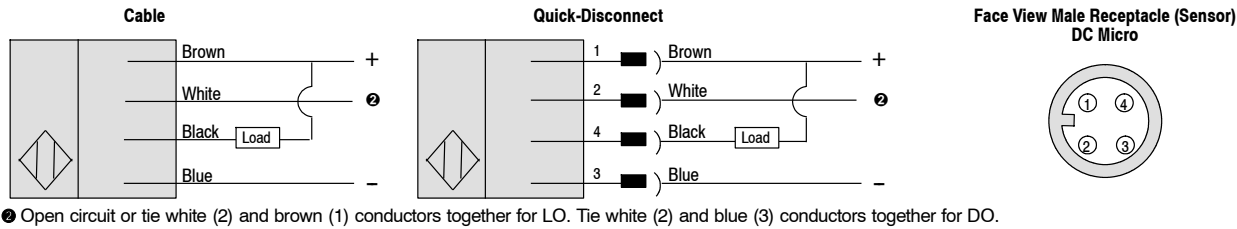


Face View Male Receptacle (Sensor)
DC Micro



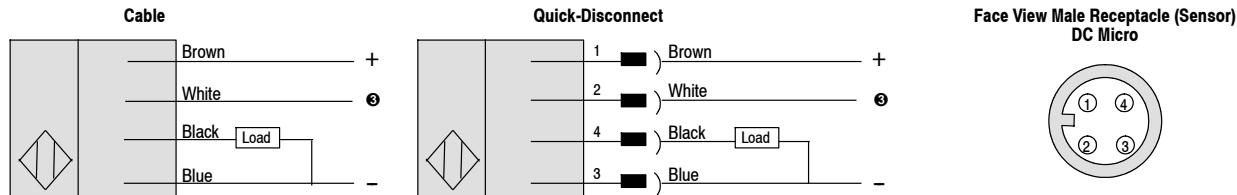
Background Suppression

NPN Output



● Open circuit or tie white (2) and brown (1) conductors together for LO. Tie white (2) and blue (3) conductors together for DO.

PNP Output



● Tie white (2) and brown (1) conductors together for LO. Open circuit or tie white (2) and blue (3) conductors together for DO.

Accessories

Description	Catalog Number	
Reflector, 0.76mm (3in) diameter with center mount hole	92-39	
2m (6.5ft) micro QD Cordset	889D-F4AC-2	