

Retroreflectors

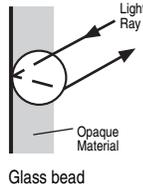
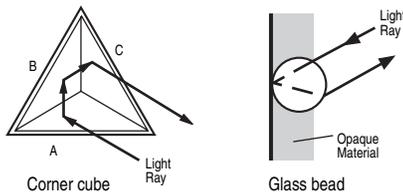
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Cutler-Hammer® Retroreflectors from Eaton's electrical business are used with reflex-type sensors. Two types of retroreflective target material are available: corner cube and embedded glass bead.

Corner Cube Retroreflectors

This type provides the highest signal return to the sensor, typically 2000 to 3000 times the reflectivity of white paper. Three adjoining sides are arranged at right angles to each other. When a ray of light strikes one of these sides (A), it is reflected to the second (B), then the third (C), and then back to the source parallel to its original course. Thousands of these cube shapes are molded into a rugged plastic reflector or vinyl tape material. Corner cube retroreflectors are suitable for use with both standard reflex and polarized reflex sensors.



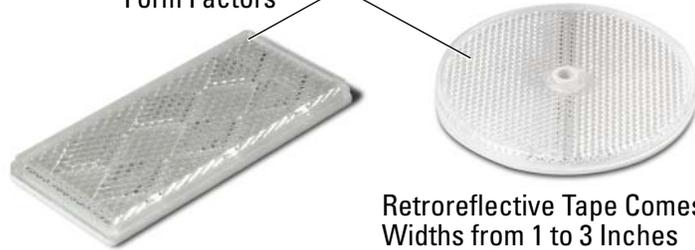
Glass Bead Retroreflectors

Glass bead retroreflectors are available in tape form with an adhesive backing. The bead style surface is typically rated at 200 to 900 times the reflectivity of white paper — much lower than corner cube reflectors. Glass bead retroreflectors are not suitable for use with polarized reflex sensors.

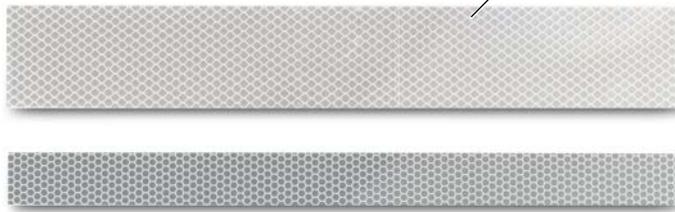
For the most current information on this product, visit our web site: www.EatonElectrical.com

High Quality Retroreflectors and Retroreflective Tape in a Wide Variety of Sizes to Meet Your Needs

Retroreflectors Available in Both Rectangular and Round Form Factors



Retroreflective Tape Comes in Widths from 1 to 3 Inches



Retroreflector Size

The size of the retroreflective target has a significant effect on the excess gain and range of a reflex sensor. In general, we recommend you use the largest possible reflector in every reflex sensing application to maximize performance of the sensor and simplify alignment. To provide an even larger reflective area, multiple retroreflectors can be grouped together as shown.



7 Retroreflectors Grouped Together

Using Retroreflectors with Polarized Reflex Sensors

Only corner cube retroreflective material can be used with polarized reflex sensors. When polarized light from the sensor's light source strikes a corner cube retroreflector, it is returned to the sensor in a depolarized state. This allows some of the light to pass through the detector's polarizer, which is positioned at 90° to the source polarizer, to allow the sensor to operate.

Glass bead retroreflectors do not depolarize light and will not work with polarized reflex sensors.

Molded plastic corner cube retroreflectors are always recommended as they provide the highest signal return to the sensor.

Corner cube tape works with polarized reflex sensors but returns less light to the sensor. In all cases, Eaton recommends testing sensor and tape prior to final installation.

For Customer Service in the U.S. call **1-800-356-1243**,
in Canada call **1-800-268-3578**.
For Application Assistance in the U.S. and Canada
call **1-800-426-9184**.

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Model Selection — Retroreflectors

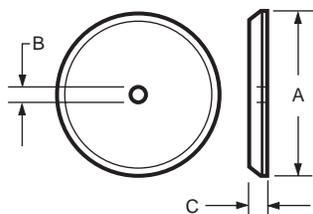
	Description	Catalog Number
Retroreflector		
	1.5 x 3.25 inch, adhesive backed, one per package	6200A-6507
	3 inch diameter, with mounting hole, two per package	6200A-6501
	Bulk packaged version of above (ordered quantity will be bulk packaged)	6200AS6501
	3 inch diameter, with mounting hole, one per package	E51KR84
	3 inch diameter, metal backed, with mounting hole, one per package	6200A-6506
	2.18 inch diameter, with mounting hole, one per package	6200A-6505
	2.18 inch diameter, adhesive backed, one per package	6200A-6502
	1.25 inch diameter, adhesive backed, one per package	6200A-6504
	Bulk packaged version of above (ordered quantity will be sent bulk packaged)	6200AS6504
	1.25 inch diameter, no adhesive, one per package	E51KR32

Retroreflective Tape

	Corner Cube Style ①	
	2 inch wide, 1 piece, quantity is length in feet	6201A-XXXX
	3 inch wide, 1 piece, quantity is length in feet	6203A-XXXX
	Glass Bead Style (Not for use with polarized reflex sensors)	
	1 inch wide, 1 piece, quantity is length in feet	6200A-XXXX
	2 inch wide, 1 piece, quantity is length in feet	6202A-XXXX

① Although corner cube tape works with polarized reflex sensors, we recommend testing sensor and tape prior to installation.

Approximate Dimensions in Inches (mm)



Round Retroreflectors

Catalog Number	Approximate Dimensions in Inches (mm)		
	A — Diameter	B — Hole Size	C — Thickness
6200A-6501	3.30 (84)	0.20 (5)	0.35 (9)
6200A-6502	2.40 (61)	None	0.30 (7.5)
6200A-6504	1.30 (33)	None	0.25 (6)
6200A-6505	2.40 (61)	0.25 (6)	0.30 (7.5)
6200A-6506	3.30 (84)	0.20 (5)	0.30 (7.5)
E51KR32	1.25 (32)	None	0.35 (9)
E51KR84	3.30 (84)	0.20 (5)	0.35 (9)

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Glass Fiber Optic Adapter

This simple adapter allows glass fiber optic cables to be used with standard Prism Series diffuse reflective sensors.



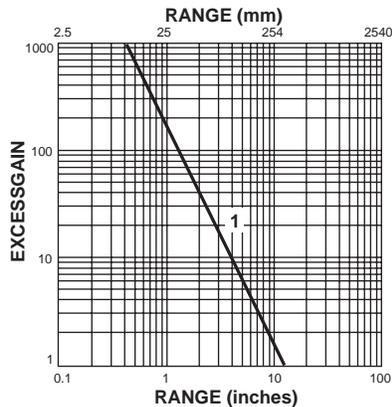
Model Selection — Glass Fiber Optic Adapter

	Sensors	Fibers	Catalog Number
Glass Fiber Optic Adapter with Hex Wrench Patent #5,559,919	 Forward Viewing, Diffuse Reflective Sensors (ordered separately, see Page 6-42)	Glass Fiber Optic Cables (ordered separately, see Section 9)	6235A-6501

Excess Gain

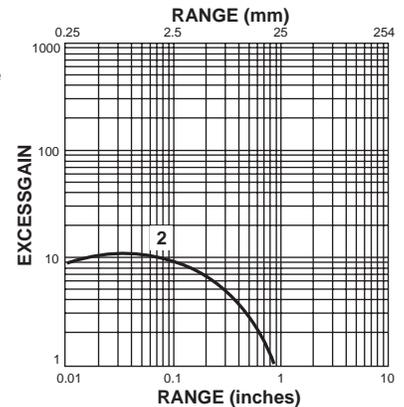
When Using Single Fibers for Thru-Beam Sensing
(Gain using E51KF823 fibers)

1. 13150A Prism



When Using Duplex Fibers for Diffuse Reflective Sensing
(Gain using E51KF723 fibers, based on 90% reflective white card)

2. 13150A Prism

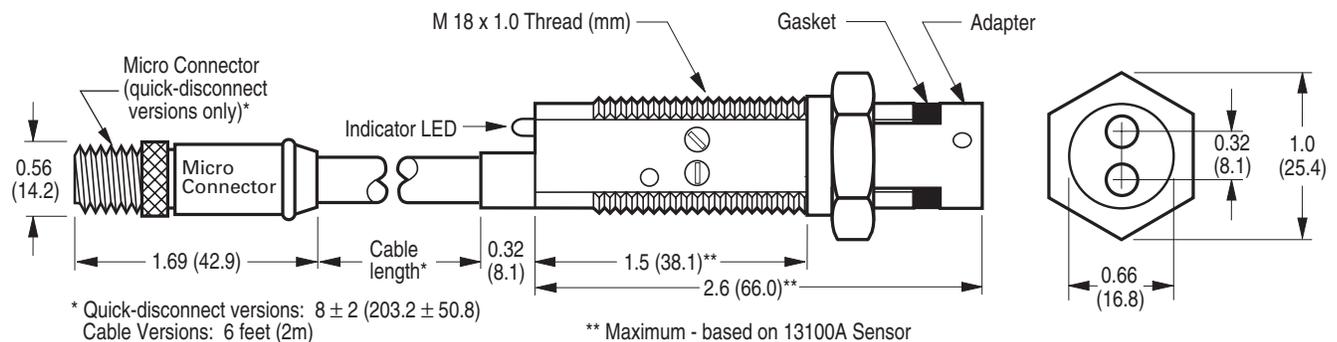


Specifications — Glass Fiber Optic Adapter

Sensor Specifications	See Prism Series Specifications on Page 6-46
Material of Construction	Adapter: 360 Brass; Gasket: Silicone
Vibration (Sensor/Adapter)	30g over 10 Hz to 2 kHz
Shock (Sensor/Adapter)	50g for 10 ms 1/2 sinewave pulse
Enclosure Ratings	NEMA 1 ①

① The adapter will resist the entrance of moisture in the area between the lenses and the fiber ends when properly assembled. However, moisture entry is possible during direct high pressure sprays. Since the Prism Series sensors are rated NEMA 1, 2, 3, 4, 4X, 6, 12 and 13, this will not result in damage to the sensors themselves.

Approximate Dimensions — Sensor with Adapter Installed — in Inches (mm) Except Where Noted



Model Selection — Compatible Connector Cables ①

	Voltage Style	Number of Pins	Gauge	Length	Catalog Number			Pin Configuration/Wire Colors (Face View Female Shown)
					PVC Jacket	PUR Jacket	IRR PUR Jacket	
Standard Cables — Micro Style								
 Micro Style Straight Female	AC	4-pin 4-wire	22 AWG	6.0 feet (2m)	CSAS4F4CY2202	CSAS4F4RY2202	CSAS4F4IO2202	 1-Red/Black 2-Red/White 3-Red 4-Green
	DC	4-pin 4-wire	22 AWG	6.0 feet (2m)	CSDS4A4CY2202	CSDS4A4RY2202	CSDS4A4IO2202	 1-Brown 2-White 3-Blue 4-Black

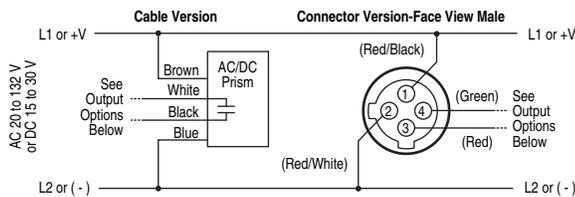
① For a full selection of connector cables, see **Section 10**.

Fast turn product with typical one day lead-time to shipment.

Wiring Diagrams

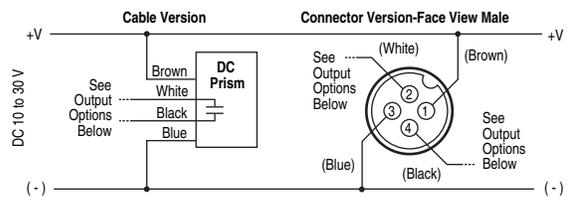
AC/DC Models ② ③

All AC/DC Models (except Thru-Beam)

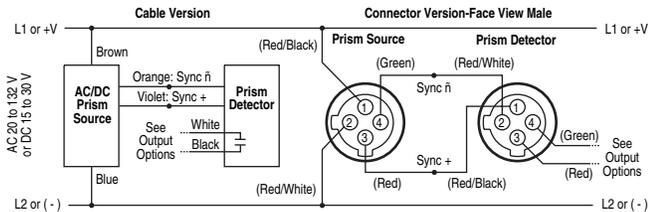


DC Models ② ③ ④

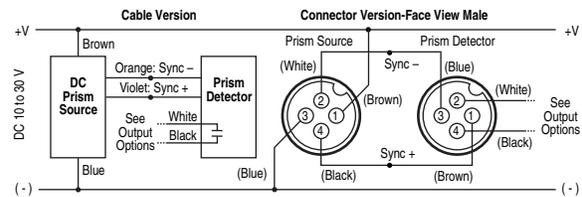
All DC Models (except Thru-Beam)



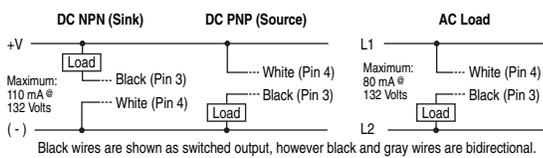
AC/DC Thru-Beam Wiring



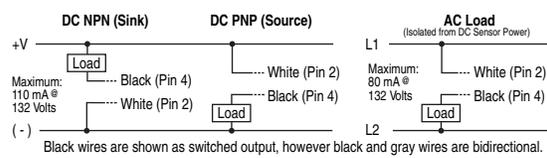
DC Thru-Beam Wiring



Isolated Output Options



Isolated Output Options

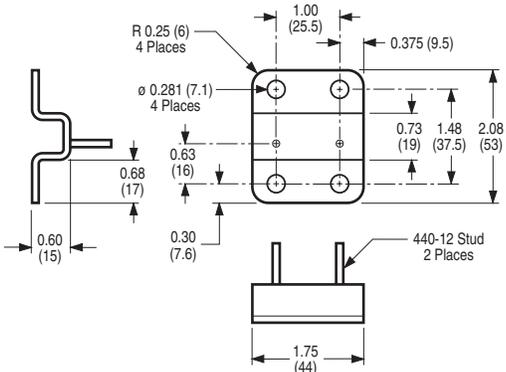
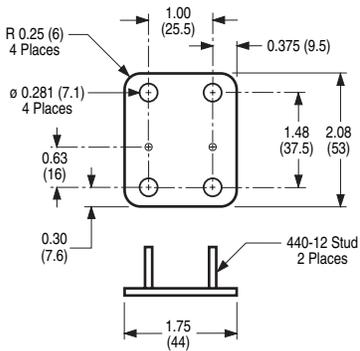
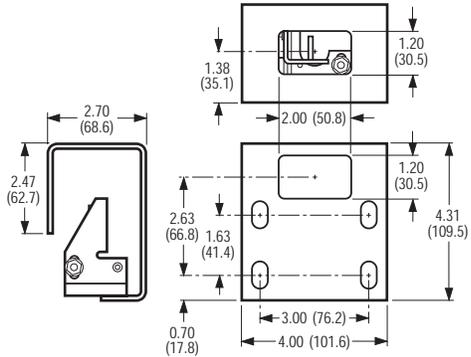
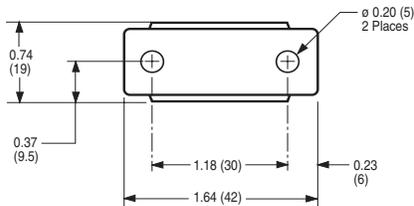


② Cable Versions: The color codes are the actual wire colors emanating from the sensor.

③ Connector Versions: The pin numbering and wire colors, shown in (), are typical of several manufacturers, however, variations are possible. **NOTE:** In case of discrepancies, rely on function indicated and pin location rather than pin number or wire color.

④ **NOTE:** Sensor operates on DC voltage, but isolated output can switch AC or DC loads.

Model Selection — Accessories

	Description	Catalog Number	Approximate Dimensions in Inches (mm)
Retroreflectors	Retroreflectors and retroreflective tape	See Section 8	
Mounting Brackets	A wide variety of mounting brackets for tubular sensors	See Section 8	
	<p>Flush Mount Bracket</p> <p>Contoured design is ideal for flush mounting of right-angle Prism Series reflex to mounting surface using 1/4-inch hardware. No alignment adjustment. Sensor mounts on #4 studs. 304 Stainless Steel</p>	6161AS5296	
	<p>Flush Mount Bracket</p> <p>Same as above except without contour. Ideal for right-angle diffuse and thru-beam sensors. 304 Stainless Steel</p>	6161AS5297	
	<p>Adjustable Protective Bracket</p> <p>Heavy-duty bracket protects the sensor from damage. Works with all Prism Series sensors. Ideal for material handling applications with the Prism right-angle reflex sensor. Provides locking vertical and horizontal adjustments for independent adjustment in each axis. Sensor mounts on #4 studs. 10 ga. painted steel</p>	E58KS5200	
	<p>Comet/Prism Ball Swivel Bracket</p> <p>Allows 360° rotation and 10° vertical tilt. Hole spacing is identical to our 50 and 55 Series sensors. Ideal for mounting right-angle sensors. Made of Noryl®.</p>	6181AS5200	
Accessories	Replacement mounting nuts and other accessories	See Section 8	
Connector Cables	A variety of cables, connector blocks and accessories	See Section 10	