Retroreflectors

Contents

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.


Corner cube
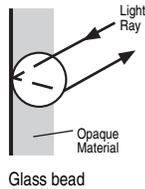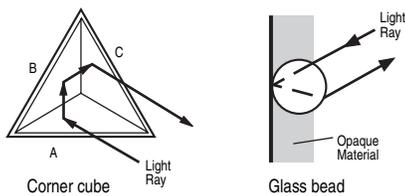
Glass bead

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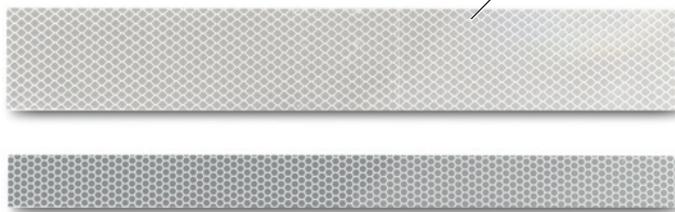
For the most current information on this product, visit our web site: www.EatonElectrical.com

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
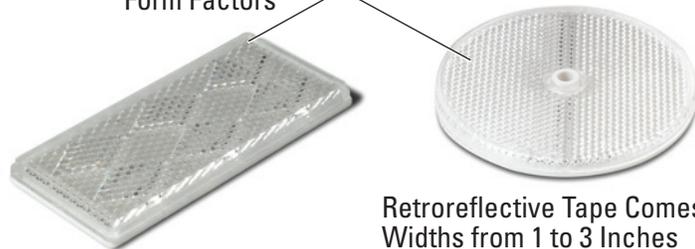
Retroreflective Tape Comes in Widths from 1 to 3 Inches

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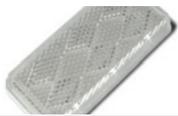
Molded plastic corner cube retroreflectors are always recommended as they provide the highest signal return to the sensor.

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.

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SENSOR ACCESSORIES

Model Selection — Retroreflectors

|	Description	Catalog Number
Corner Cube 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

	Description	Catalog Number
	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.

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

☐ Stocked product, typical order quantities guaranteed in stock.

Approximate Dimensions in Inches (mm)
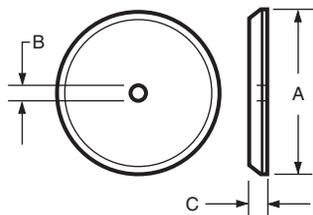
Round Retroreflectors

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)

August 2007

Sensor Accessories

A Variety of Items for Replacement, Testing or Additional Functionality

Contents

Cutler-Hammer® Accessories from Eaton's electrical business include Portable Power Supplies for testing or demonstrating DC sensors, a variety of Replacement Mounting Nuts, Protective End Caps for tubular proximity sensors, and Conduit Adapters for tubular sensors.

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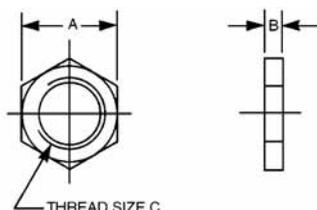

DC Sensor
Testers / Demonstrators

Replacement
Mounting Nuts

And More...

Model Selection — Sensor Accessories

	Description	Sensor Diameter	Catalog Number	Approximate Dimensions in Inches (mm) Except Where Noted
	DC Sensor Tester/Demonstrator For 2-, 3- and 4-wire DC sensors Provides 27V DC power from three 9V batteries (included) Test output connections for both NPN and PNP outputs	—	9902A-6501	W x H x D 2.5 x 4.75 x 2.1 inches (65 x 120 x 55 mm)
	AC Sensor Tester/Demonstrator For AC sensors Provides AC power from wall mount Includes AC adapter	—	9902A-6502	W x H x D 2.5 x 4.5 x 1.5 inches (65 x 114 x 38 mm)
	Replacement Mounting Nuts — Stainless Steel Where Used: Harsh environment for tubular sensors Material of Construction: Stainless Steel Packaging: Two per package	8 mm 12 mm 18 mm 30 mm	E57KNM8 E57KNS12 E57KNS18 E57KNS30	
	Replacement Mounting Nuts — Brass Where Used: General purpose for tubular sensors. These are the standard mounting nuts shipped with the Comet, Prism and OEM Prism Photoelectric Sensors. Material of Construction: Brass Packaging: Two nuts and two wave washers per package	18 mm	E60KNS18	
	Replacement Mounting Nuts — Stainless Steel Where Used: Harsh environment for tubular sensors Material of Construction: Stainless Steel Packaging: Two per package	18 mm 30 mm	E58KNS18 E58KNS30	

Size	Dimensions in Inches (mm) Except Where Noted		
	A	B	C
8 mm	0.5 (13)	0.16 (4)	M8 x 1
12 mm	0.7 (17)	0.16 (4)	M12 x 1
18 mm	0.94 (24)	0.16 (4)	M18 x 1
30 mm	1.4 (36)	0.16 (4)	M30 x 1.5

▦ Stocked product, typical order quantities guaranteed in stock.

For Customer Service in the U.S. call **1-877-ETN CARE (386-2273)**,
in Canada call **1-800-268-3578**.
For Application Assistance in the U.S. and Canada
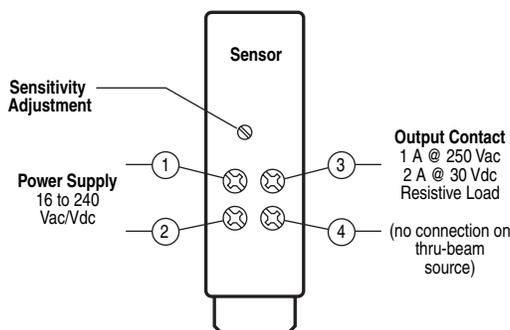call **1-800-426-9184**.

SENSOR ACCESSORIES

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Model Selection — Accessories

	Description	Catalog Number
	2 inch retroreflector Supplied with reflex and polarized reflex sensors Additional retroreflectors, see **Section 8**	**E65KR55**
	Mounting Bracket Supplied with all thru-beam, polarized reflex, clear object, diffuse reflective and fiber optic sensors	**E64KH3**

▢ Stocked product, typical order quantities guaranteed in stock.

Wiring Diagram

Sensor

Sensitivity Adjustment

Power Supply
16 to 240 Vac/Vdc

1
2
3
4

Output Contact
1 A @ 250 Vac
2 A @ 30 Vdc
Resistive Load

(no connection on thru-beam source)

Specifications

Description	Specification
Input Voltage	16 – 240V AC/DC; 50/60 Hz
Power Dissipation	3 VA maximum
Output Type	SPST relay
Current Switching Capacity	1A @ 250V AC (resistive load) 2A @ 30V DC (resistive load)
Response Time	20 mS maximum
Operating Temperature	+14° to +140°F (-10° to +60°C)
Storage Temperature	-4° to +158°F (-20° to +70°C)
Light/Dark Operation	Switch selectable
Sensitivity Control	Included on all models
Indicators	Red output LED; Green stability LED
Enclosure Rating	NEMA 1, 3, 4, 12, and 13; IP66 ①
Humidity	35% to 85% RH, non-condensing
Material of Construction	Housing: P.B.T. ; Lenses: PMMA Methacrylate
Vibration	10 to 55 Hz, amplitude 0.06 inch (1.5 mm) p-p, 2 hours each in axis X, Y, Z
Sunlight Immunity	1,000 foot-candles
Timing Functions	Switch selectable for normal, on delay, off delay, on-off delay, one-shot delay. 0.6 to 16 second adjustable timing range

① NOTE: Our products conform to NEMA tests as indicated, however, some severe washdown applications can exceed these NEMA test specifications. If you have questions about a specific application, contact Eaton's Cutler-Hammer Sensor Applications Department at 1-800-426-9184.

PHOTOELECTRIC SENSORS

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