

Prism Series Photoelectric Sensors

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The Cutler-Hammer® Prism Series from Eaton's electrical business is a cost-effective line of miniature photoelectric sensors with twice the optical gain of other sensors in this product class. Forward and right-angle viewing models feature identical gain and optical characteristics for the best fit on your machine. A gain control allows quick adjustment for peak optical performance in a variety of applications.

Four sensing modes are available, including polarized reflex to eliminate reliability problems when sensing shiny objects. Visible red sensing beams throughout the Prism Series allow you to see exactly where the sensors are aimed for easier setup. Models are available preconfigured in either Light or Dark Operate modes.

The unique threaded body with flat sides allows quick mounting in a 3/4 inch hole or against any flat surface. Internal components are rigidly sealed in a solid encapsulated package for excellent performance in high-vibration and high-shock applications.

See **Page 6-41** for details on the Prism Series' flexible isolated output.

Approvals

- UL Recognized
- C-UL Recognized



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

High Performance 18 mm Tubular Sensors with a Flexible Isolated Output

Industry Standard 18 mm Threaded Body with Flat Sides for Mounting Flexibility

Forward and Right-Angle Viewing Models Have Identical Optical Performance

Visible Red Beams on All Reflex and Diffuse Models

AC and DC Operation in the Same Unit

Visible Alignment Aid for Thru-Beam Models

Isolated Outputs For Wiring Flexibility

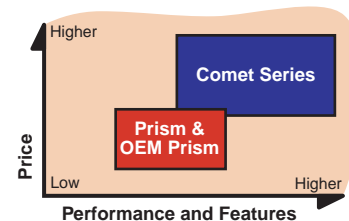
Micro-Connector Models

Product Features

- Small size for use in a wide variety of applications and locations
- High sensing power for longer ranges and resistance to dust and dirt
- Adjustable gain control to ensure peak optical performance
- High noise immunity which greatly reduces problems associated with electrical noise
- AC/DC models which allow you to order and stock one model for both voltages
- DC only models which offer lower cost options in all sensing modes
- Isolated outputs for wiring flexibility
- Short circuit protection
- Quick 3 mS response time on all models
- Highly visible output status LED
- Built-in cable models allow for lowest cost wiring
- Micro-connector models provide for quick installation or replacement
- Custom cable length options

Product Comparison

Eaton's cost-effective Prism Series, OEM Prism and premium Comet Series all share the same 18 mm flat-sided housing. This results in the largest interchangeable sensor family available, allowing you to select from well over 250 different models to solve the widest variety of sensing applications.



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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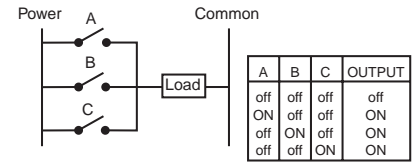
Easy and Flexible Wiring

Prism's isolated output simplifies wiring because it acts like a mechanical relay contact but with solid-state speed and reliability. Use the most convenient available voltage for the sensor while switching a different voltage with the isolated contact. NPN or PNP is easily determined by the way you wire the output.

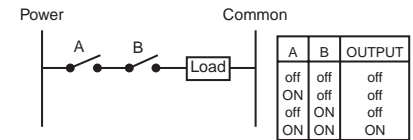
Wiring the Prism Series for Logic

With Prism, you can perform simple "and/or" logic without the need for the added cost of an external controller. Low leakage (10 μ A) and resistance ratings (25 Ω) allow Prism sensor outputs to be wired in series or parallel. Two common logic examples are shown at right:



"OR" Function

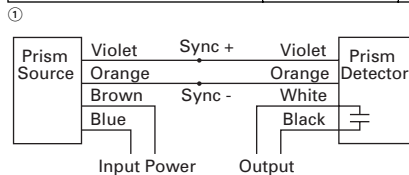


"AND" Function



Model Selection — Thru-Beam Sensors

	Operating Voltage	Sensing Range	Optimum Range	Field of View	Thru-Beam Component	Connection Type	Catalog Number	
							Light Operate	Dark Operate
3-Wire and 4-Wire Sensors								
 <p>Source</p> <p>Detector</p> <p>Synchronous design requires source and detector to be wired to one another</p>	20 – 132V AC 50/60 Hz or 15 – 30V DC	20 feet (6m)	0.1 to 10 feet (0.03 – 3m)	20 inch (0.5m) diameter at 10 feet (3m)	Source	6-foot Cable	11155AA14	
						4-Pin Micro AC Connector	11155AA04 ⊕	
					Detector	6-foot Cable	12155AL10	12155AD10
						4-Pin Micro AC Connector	12155AL04 ⊕	12155AD04 ⊕
	10 – 30V DC	20 feet (6m)	0.1 to 10 feet (0.03 – 3m)	20 inch (0.5m) diameter at 10 feet (3m)	Source	6-foot Cable	11155AA17	
						4-Pin Micro DC Connector	11155AA07 ⊕	
					Detector	6-foot Cable	12155AL10	12155AD10
						4-Pin Micro DC Connector	12155AL07 ⊕	12155AD07 ⊕
 <p>Source</p> <p>Detector</p> <p>Synchronous design requires source and detector to be wired to one another</p>	20 – 132V AC 50/60 Hz or 15 – 30V DC	20 feet (6m)	0.1 to 10 feet (0.03 – 3m)	20 inch (0.5m) diameter at 10 feet (3m)	Source	6-foot Cable	11155RA14	
						4-Pin Micro AC Connector	11155RA04 ⊕	
					Detector	6-foot Cable	12155RL10	12155RD10
						4-Pin Micro AC Connector	12155RL04 ⊕	12155RD04 ⊕
	10 – 30V DC	20 feet (6m)	0.1 to 10 feet (0.03 – 3m)	20 inch (0.5m) diameter at 10 feet (3m)	Source	6-foot Cable	11155RA17	
						4-Pin Micro DC Connector	11155RA07 ⊕	
					Detector	6-foot Cable	12155RL10	12155RD10
						4-Pin Micro DC Connector	12155RL07 ⊕	12155RD07 ⊕







See Prism Series wiring diagrams on Page 6-44 for details on wiring power and output.

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

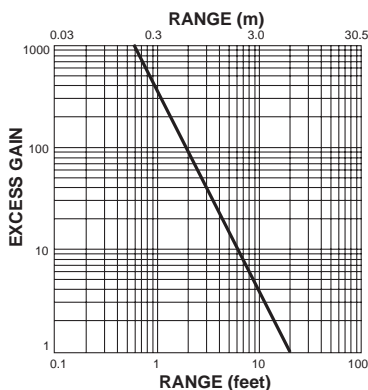
⊕ See listing of compatible connector cables on Page 6-44.

Model Selection — Reflex and Diffuse Reflective Sensors

	Operating Voltage	Type	Sensing Range ②	Optimum Range	Field of View	Connection Type	Catalog Number	
							Light Operate	Dark Operate
3-Wire and 4-Wire Sensors								
Reflex — Forward Viewing Retroreflector (Not Included)  Sensor For complete system, order Sensor and Retroreflector (See Section 8)	20 – 132V AC 50/60 Hz or 15 – 30V DC	Standard Reflex	15 feet (4.5m) ①	0.1 to 12 feet (0.03 – 3.6m)	3 inch (76 mm) diameter at 12 feet (3.6m)	6-foot Cable	14150AL14	14150AD14
		Polarized Reflex	10 feet (3m) ①	0.1 to 8 feet (0.03 – 2.4m)		4-Pin Micro AC Connector	14150AL04 ⊕	14150AD04 ⊕
	10 – 30V DC	Standard Reflex	15 feet (4.5m) ①	0.1 to 12 feet (0.03 – 3.6m)	3 inch (76 mm) diameter at 12 feet (3.6m)	6-foot Cable	14150AL17	14150AD17
		Polarized Reflex	10 feet (3m) ①	0.1 to 8 feet (0.03 – 2.4m)		4-Pin Micro DC Connector	14150AL07 ⊕	14150AD07 ⊕
Reflex — Right-Angle Viewing Retroreflector (Not Included)  Sensor For complete system, order Sensor and Retroreflector (See Section 8)	20 – 132V AC 50/60 Hz or 15 – 30V DC	Standard Reflex	15 feet (4.5m) ①	0.1 to 12 feet (0.03 – 3.6m)	3 inch (76 mm) diameter at 12 feet (3.6m)	6-foot Cable	14150RL14	14150RD14
		Polarized Reflex	10 feet (3m) ①	0.1 to 8 feet (0.03 – 2.4m)		4-Pin Micro AC Connector	14150RL04 ⊕	14150RD04 ⊕
	10 – 30V DC	Standard Reflex	15 feet (4.5m) ①	0.1 to 12 feet (0.03 – 3.6m)	3 inch (76 mm) diameter at 12 feet (3.6m)	6-foot Cable	14150RL17	14150RD17
		Polarized Reflex	10 feet (3m) ①	0.1 to 8 feet (0.03 – 2.4m)		4-Pin Micro DC Connector	14150RL07 ⊕	14150RD07 ⊕
Diffuse Reflective Forward Viewing 	20 – 132V AC 50/60 Hz or 15 – 30V DC	—	8 inches (200 mm) ①	0.15 to 5 inches (4 – 127 mm)	0.6 inch (15 mm) diameter at 5 inches (127 mm)	6-foot Cable	13150AL14	13150AD14
	10 – 30V DC	—	8 inches (200 mm) ①	0.15 to 5 inches (4 – 127 mm)	0.6 inch (15 mm) diameter at 5 inches (127 mm)	4-Pin Micro AC Connector	13150AL04 ⊕	13150AD04 ⊕
Diffuse Reflective Right-Angle Viewing 	20 – 132V AC 50/60 Hz or 15 – 30V DC	—	8 inches (200 mm) ①	0.15 to 5 inches (4 – 127 mm)	0.6 inch (15 mm) diameter at 5 inches (127 mm)	6-foot Cable	13150RL14	13150RD14
	10 – 30V DC	—	8 inches (200 mm) ①	0.15 to 5 inches (4 – 127 mm)	6 inch (15 mm) diameter at 5 inches (127 mm)	4-Pin Micro AC Connector	13150RL04 ⊕	13150RD04 ⊕
						6-foot Cable	13150RL17	13150RD17
						4-Pin Micro DC Connector	13150RL07 ⊕	13150RD07 ⊕

- ① Ranges based on a 3" diameter retroreflector.
- ② Sensor will detect a 90% reflectance white card at this range.
- Fast turn product with typical one day lead-time to shipment.
- ⊕ See listing of compatible connector cables on Page 6-44.

Excess Gain — Thru-Beam Sensors



Excess Gain — Reflex and Diffuse Reflective Sensors

