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Enhanced 50 Series™ Photoelectric Sensors

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The new Enhanced versions of the Cutler-Hammer® 50 Series™ Photoelectric Sensors from Eaton's electrical business offer flexibility, durability and high optical performance in a cost-effective self-contained package. Choose from three output types, four time delay functions, six sensing modes and four connection styles to tailor the sensor to exactly meet your needs.

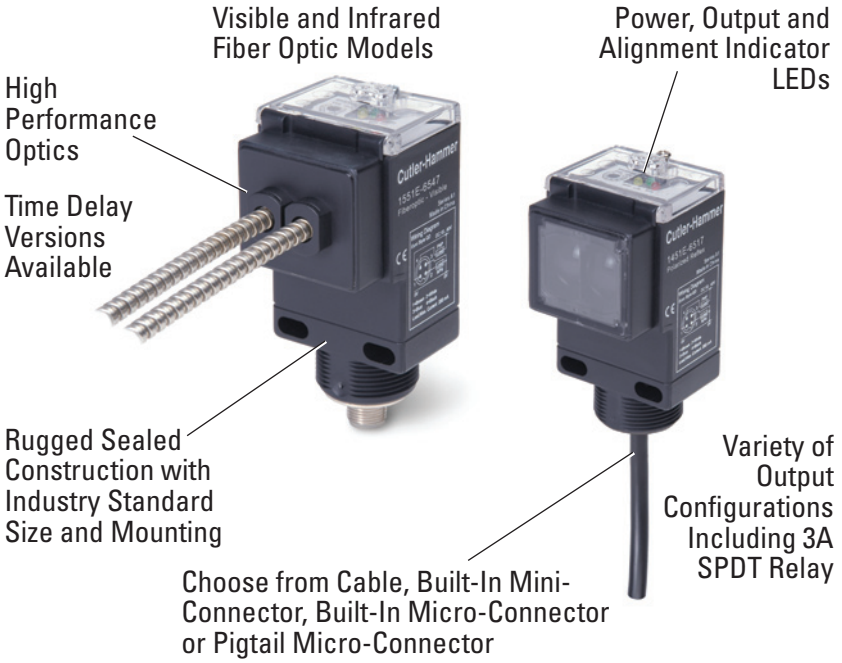
Sensors are available in thru-beam, reflex, polarized reflex, diffuse reflective, clear object, and fiber optic sensing modes. Brackets are available for easy mounting and to allow precise adjustment of sensor alignment.

Approvals

- CSA Approved
- Certified to UL Standard, UL 508

CE

High Performance Sensors for Demanding Applications



Product Features

- High optical performance models including a 500-foot (152m) Thru-Beam and a 10-foot (3m) Diffuse Reflective unit
- Output options include a 3 Amp SPDT relay
- All units offer light/dark selection
- Logic options include ON-delay, OFF-delay and One-Shot delay
- Fiber optic sensors operate in thru-beam or diffuse reflective mode depending on the fiber optic cable selected
- Fully potted construction for use in areas subject to washdown, high shock and/or vibration
- Choice of pre-wired power cable, built-in mini-connector, built-in micro-connector and pigtail micro-connector versions. Standard pre-wired cable length is 6 feet (1.8m)
- Variety of brackets available including ball swivel

Connection Options



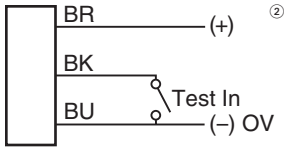
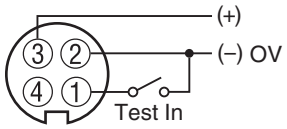
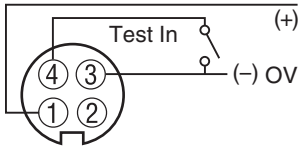
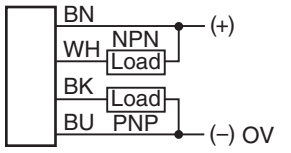
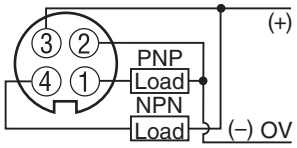
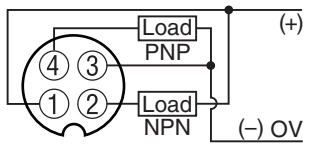
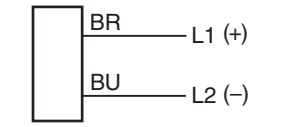
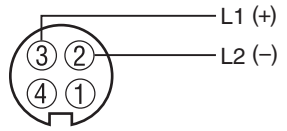
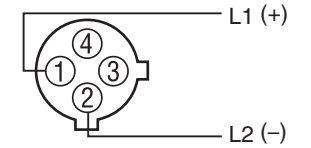
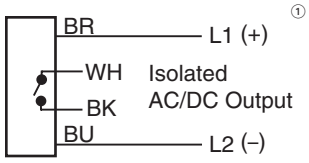
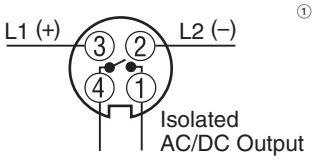
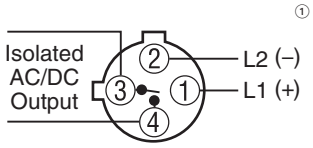
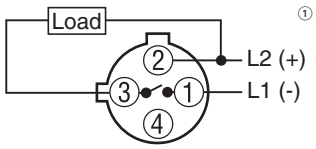
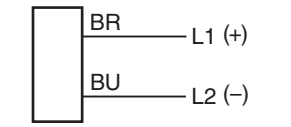
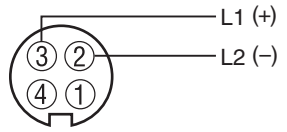
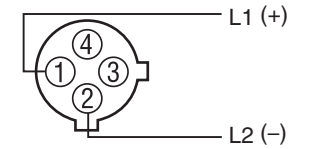
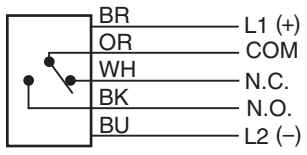
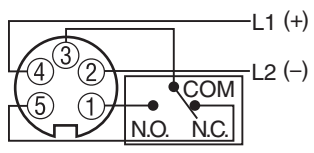
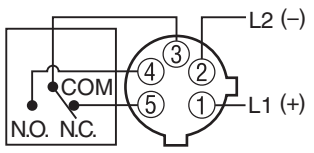
Model Selection — Sensors (Continued)

	Voltage Range	Sensing Range ①	Optimum Range ①	Sensing Beam	Output Type	Time Delay	Connection Type	Catalog Number
Standard Reflex ③  ***Field of View:*** *1.0°* For a complete system, order one Sensor and one Retroreflector (see **Section 8**)	10 – 40V DC	30 ft. (9m)	0.5 – 15 ft. (0.2 – 4.6m)	Visible Red	NPN/PNP 250 mA	no	6-foot Cable	**1450E-6517**
						yes		**1450E-8517**
						no	4-pin Euro (Micro) Connector	**1450E-6547** ⊛
						yes		**1450E-8547** ⊛
						no	4-pin Euro (Micro) Connector (pigtail)	**1450E-6537** ⊛
						yes		**1450E-8537** ⊛
						no	4-pin Mini-Connector	**1450E-6507** ⊛
						yes		**1450E-8507** ⊛
	12 – 240V DC 24 – 240V AC				Isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no	6-foot Cable	**1450E-6513**
						yes		**1450E-8513**
						no	4-pin Micro Connector	**1450E-6543** ⊛
						yes		**1450E-8543** ⊛
						no	4-pin Micro Connector (pigtail)	**1450E-6533** ⊛
						yes		**1450E-8533** ⊛
						no	4-pin Mini-Connector	**1450E-6503** ⊛
						yes		**1450E-8503** ⊛
					Non-isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no	4-pin Micro Connector	**1450E-6545** ⊛
						yes		**1450E-8545** ⊛
					SPDT EM Relay 3A @ 120V AC	no	6-foot Cable	**1450E-6514**
						yes		**1450E-8514**
						no	5-pin Micro Connector (pigtail)	**1450E-6534** ⊛
						yes		**1450E-8534** ⊛
						no	5-pin Mini-Connector	**1450E-6504** ⊛
						yes		**1450E-8504** ⊛
Polarized Reflex ②③  ***Field of View:*** *1.0°* For a complete system, order one Sensor and one Retroreflector (see **Section 8**)	10 – 40V DC	16 ft. (4.9m)	0.5 – 8 ft. (0.2 – 2.5m)	Visible Red	NPN/PNP 250 mA	no	6-foot Cable	**1451E-6517**
						yes		**1451E-8517**
						no	4-pin Euro (Micro) Connector	**1451E-6547** ⊛
						yes		**1451E-8547** ⊛
						no	4-pin Euro (Micro) Connector (pigtail)	**1451E-6537** ⊛
						yes		**1451E-8537** ⊛
						no	4-pin Mini-Connector	**1451E-6507** ⊛
						yes		**1451E-8507** ⊛
	12 – 240V DC 24 – 240V AC				Isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no	6-foot Cable	**1451E-6513**
						yes		**1451E-8513**
						no	4-pin Micro Connector	**1451E-6543** ⊛
						yes		**1451E-8543** ⊛
						no	4-pin Micro Connector (pigtail)	**1451E-6533** ⊛
						yes		**1451E-8533** ⊛
						no	4-pin Mini-Connector	**1451E-6503** ⊛
						yes		**1451E-8503** ⊛
					Non-isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no	4-pin Micro Connector	**1451E-6545** ⊛
						yes		**1451E-8545** ⊛
					SPDT EM Relay 3A @ 120V AC	no	6-foot Cable	**1451E-6514**
						yes		**1451E-8514**
						no	5-pin Micro Connector (pigtail)	**1451E-6534** ⊛
						yes		**1451E-8534** ⊛
						no	5-pin Mini-Connector	**1451E-6504** ⊛
						yes		**1451E-8504** ⊛

① Ranges based on 3-inch retroreflector for reflex sensors.
② Polarized sensors may not operate with reflective tape. Test tape selection before installation.
③ For brackets compatible with these sensors, see Accessories on **Page 5-19**.

⊛ See listing of compatible connector cables on **Page 5-14**.
Stocked product, typical order quantities guaranteed in stock.

Wiring Diagrams (Pin numbers are for reference only, rely on pin location when wiring)

Operating Voltage	Models	Cable Models	Mini-Connector Models (Face View Male Shown)	Micro-Connector Models (Face View Male Shown)
10 – 40V DC	Thru-Beam Source			
	All others			
12 – 240V DC or 24 – 240V AC Solid-State Relay ③	Thru-Beam Source			
	All others with Isolated AC/DC Output			
	All others with Non-isolated AC/DC Output	—	—	
12 – 240V DC or 24 – 240V AC SPDT EM Relay ③	Thru-Beam Source			
	All others			

① Connect load to appropriate output for either sinking or sourcing operation.
② Connecting the Test input to 0V DC allows you to switch the light source off for troubleshooting while leaving the sensor under power.
③ Over current protection is to be provided in the field. Conductor size for 20 AWG: 5 amp; 22 AWG: 3 amp; 24 AWG: 2 amp.

Specifications

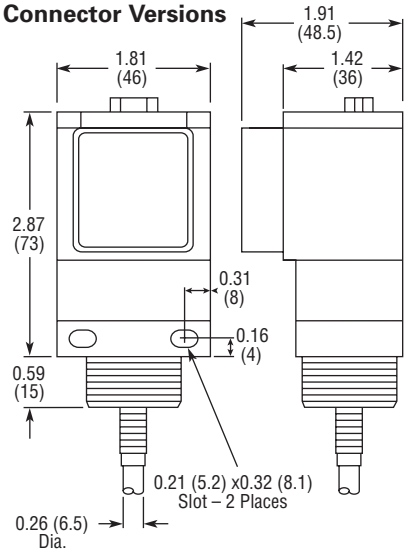
	AC/DC EM Relay Models	AC/DC Solid-State Relay Models	DC Only Standard Range Models	DC Only Extended Range Models
Input Voltage	12 – 240V DC 24 – 240V AC		10 – 40V DC	
Light/Dark Operation	Switch selectable			
Operating Temperature	-13 – 131°F (-25 – 55°C)			
Humidity	95% Relative humidity, non-condensing			
Case Material	Fiberglass reinforced plastic			
Lens Material	Acrylic			

Specifications (Continued)

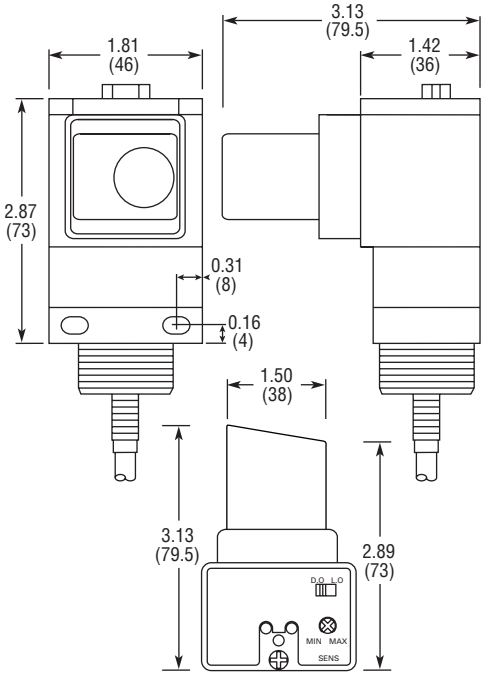
	AC/DC EM Relay Models	AC/DC Solid-State Relay Models	DC Only Standard Range Models	DC Only Extended Range Models
Vibration	IEC 60947-5-2 part 7.4.2			
Shock	IEC 60947-5-2 part 7.4.1			
Protection	Output short circuit and overcurrent protection Reverse polarity protection			
Enclosure Ratings	IP67			
Output Load	3A @ 120V AC 3A @ 240V AC 3A @ 28V AC	300 mA @ 240V AC/ DC	250 mA @ 40V DC	
Response Time	15 mS	2 mS		
Timer Timing Response	0 – 15 sec.			
No Load Current	<30 mA			
Leakage Current (max.)	—	1 mA @ 240V AC	<10 µA	
Indicator LEDs	Green: Output; Yellow: Power; Red: Alignment			
Emitter LED	Diffuse, Infrared Fiber Optic, Thru-Beam Models: Infrared 880 mm Reflex, Polarized Reflex, Clear Object, Visible Fiber Optic Units: Visible Red 660 mm			

Approximate Dimensions in Inches (mm)

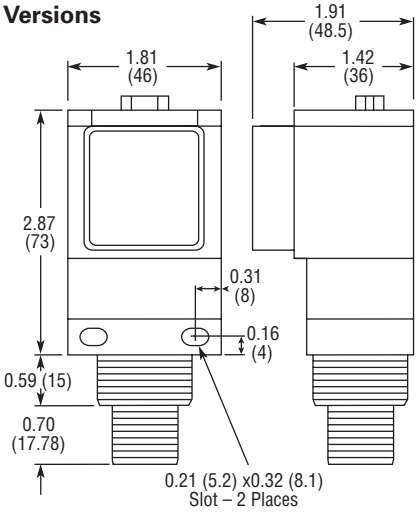
Cable and Pigtail Connector Versions



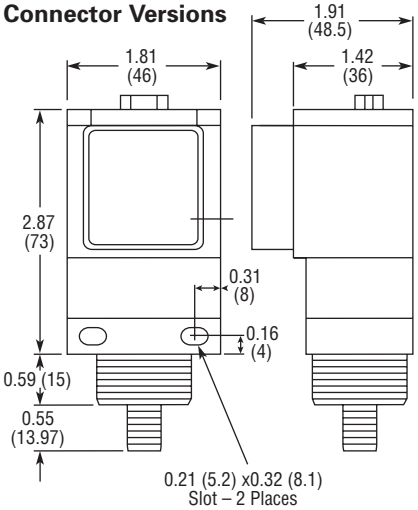
Clear Object Versions



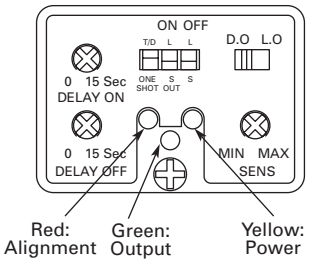
Mini-Connector Versions



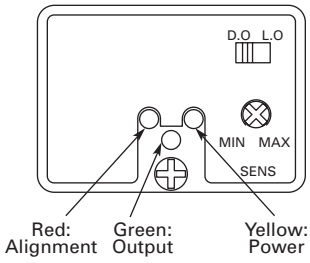
AC/DC Micro or Euro (Micro) Connector Versions



Top View with Timing



Top View without Timing



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