

**Enhanced 50 Series™
Photoelectric Sensors**

Contents

Overview 5-8
 Model Selection, Sensors 5-9
 Model Selection, Compatible
 Connector Cables 5-14
 Model Selection, Fiber
 Optic Cables 5-15
 Model Selection, Accessories 5-19
 Wiring Diagrams 5-20
 Specifications 5-20
 Dimensions 5-21

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.

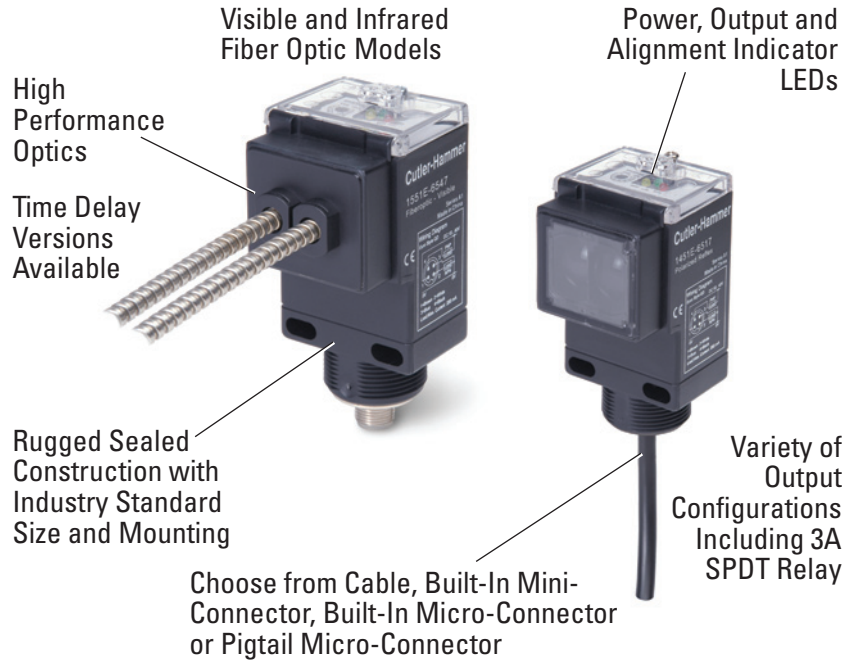
Sensors are available in thru-beam, reflex, polarized reflex, diffuse reflective, clear object, and fiber optic sensing modes. Brackets are available for easy mounting and to allow precise adjustment of sensor alignment.

Approvals

- CSA Approved
- Certified to UL Standard, UL 508



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	Optimum Range	Sensing Beam	Thru-Beam Component	Output Type	Time Delay	Connection Type	Catalog Number	
<p>Thru-Beam Extended Range ①</p>  <p>Field of View: 2.4°</p> <p>For a complete system, order one Sensor and one Detector</p>	10 – 40V DC	500 ft. (152m)	0.1 – 250 ft. (0.03 – 77m)	Infrared	Source	N/A	N/A	6-foot Cable	1151E-6517	
					Detector	NPN/PNP 250 mA	no		1251E-6517	
							yes		1251E-8517	
					Source	N/A	N/A		4-pin Euro (Micro) Connector	1151E-6547 ☹
					Detector	NPN/PNP 250 mA	no			1251E-6547 ☹
							yes			1251E-8547 ☹
					Source	N/A	N/A	4-pin Euro (Micro) Connector (pigtail)	1151E-6537 ☹	
					Detector	NPN/PNP 250 mA	no		1251E-6537 ☹	
							yes	1251E-8537 ☹		
					Source	N/A	N/A	4-pin Mini-Connector	1151E-6507 ☹	
					Detector	NPN/PNP 250 mA	no		1251E-6507 ☹	
							yes		1251E-8507 ☹	
	Source	N/A	N/A	6-foot Cable	1151E-6513					
	Detector	Isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no		1251E-6513					
			yes		1251E-8513					
		SPDT EM Relay 3A @ 120V AC	no		1251E-6514					
			yes		1251E-8514					
	Source	N/A	N/A		4-pin Micro Connector	1151E-6543 ☹				
	Detector	Isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no	1251E-6543 ☹						
			yes	1251E-8543 ☹						
		Non-isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no	1251E-6545 ☹						
			yes	1251E-8545 ☹						
	Source	N/A	N/A	4-pin Micro Connector (pigtail)	1151E-6534 ☹					
	Detector	Isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no		1251E-6533 ☹					
	yes		1251E-8533 ☹							
	SPDT EM Relay 3A @ 120V AC	no	5-pin Micro Connector (pigtail)	1251E-6534 ☹						
		yes	1251E-8534 ☹							
Source	N/A	N/A	4-pin Mini-Connector	1151E-6504 ☹						
Detector	Isolated Output Solid-State Relay 300 mA @ 240V AC/DC	no		1251E-6503 ☹						
		yes		1251E-8503 ☹						
	SPDT EM Relay 3A @ 120V AC	no	5-pin Mini-Connector	1251E-6504 ☹						
		yes	1251E-8504 ☹							

① For brackets compatible with these sensors, see Accessories on Page 5-19.

☹☹ See listing of compatible connector cables on Page 5-14.

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

☹ 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	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	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

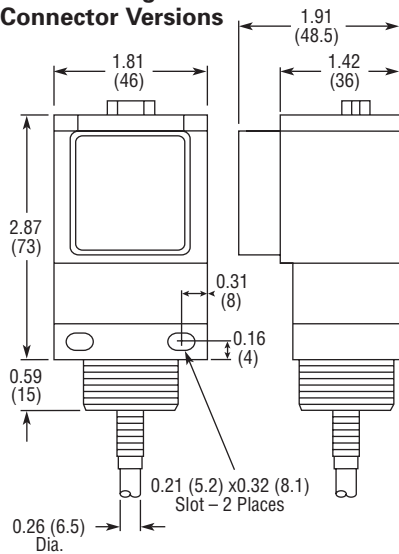
	AC/DC EM Relay Models	AC/DC Solid-State Relay Models	DC Only Standard Range Models	DC Only Extended Range Models
Input Voltage	12 – 240V DC 24 – 240V AC			10 – 40V DC
Light/Dark Operation	Switch selectable			
Operating Temperature	-13 – 131°F (-25 – 55°C)			
Humidity	95% Relative humidity, non-condensing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

Specifications (Continued)

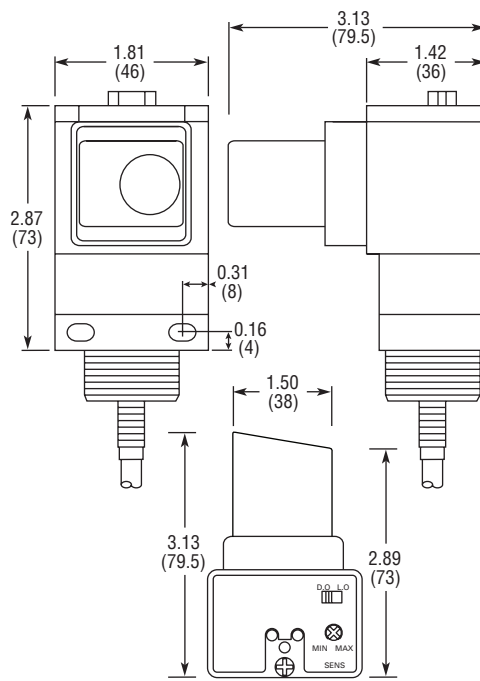
	AC/DC EM Relay Models	AC/DC Solid-State Relay Models	DC Only Standard Range Models	DC Only Extended Range Models
Vibration	IEC 60947-5-2 part 7.4.2			
Shock	IEC 60947-5-2 part 7.4.1			
Protection	Output short circuit and overcurrent protection Reverse polarity protection			
Enclosure Ratings	IP67			
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 nm Reflex, Polarized Reflex, Clear Object, Visible Fiber Optic Units: Visible Red 660 nm			

Approximate Dimensions in Inches (mm)

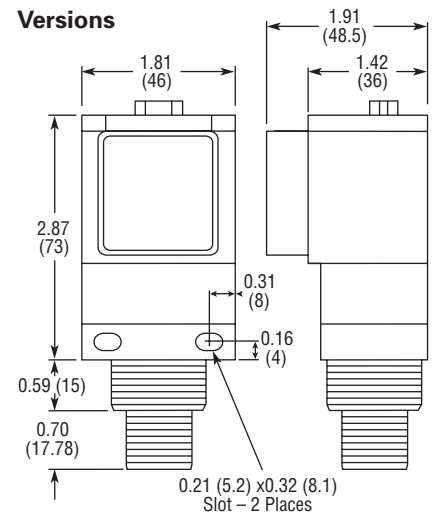
Cable and Pigtail
Connector Versions



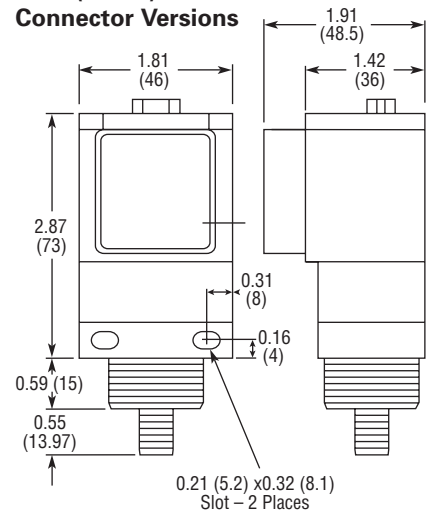
Clear Object Versions



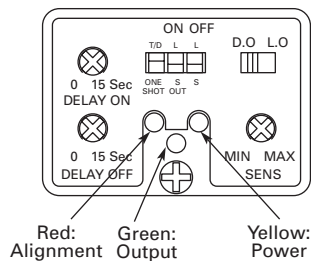
Mini-Connector
Versions



AC/DC Micro or
Euro (Micro)
Connector Versions



Top View with Timing



Top View without Timing

