



Cutler-Hammer

# Enhanced 50 Series Photoelectric Sensors Selection Guide

## Overview

The Enhanced 50 family of high performance photoelectric sensors offers outstanding features, flexibility and durability at an incredible price. Choose from a wide selection of Thru-beam, Polarized Reflex, Diffuse and even Clear

Object models all designed in a rugged, industry standard, rectangular package. Each model comes with a variety of input options for maximum flexibility across many voltage ratings. Cabling choices include built-in mini-connector, micro-connector, pigtail micro-connector or a 6 ft. integrated cable.

Other convenient features included are Dark-On/Light-On selectability and Gain adjustment, available on all models. Use the Selection Guide below to find the sensor model that best suits your requirements.



**Enhanced 50 Photoelectric Sensors Specifications by Model Type**

Specifications	Thru-Beam	Diffuse	Polarized Reflex	Clear Object Detector
<b>Voltage Range</b>	10 - 40 VDC 12 - 240 VDC 24 - 240 VAC	10 - 40 VDC 12 - 240 VDC 24 - 240 VAC	10 - 40 VDC 12 - 240 VDC 24 - 240 VAC	10 - 40 VDC 12 - 240 VDC 24 - 240 VAC
<b>Sensing Range</b>	500 ft. (152 m)	10 ft. (3 m)	16 ft. (4.9 m)	45 in. (1.2 m)
<b>Optimum Power</b>	0.1 to 250 ft. (0.03 to 77 m)	1 to 60 in. (25 to 1520 mm)	0.5 to 8 ft. (0.2 to 2.5 m)	1 to 24 in. (25 to 610 mm)
<b>Sensing Beam</b>	Infrared	Infrared	Visible Red	Visible Red
<b>Output Types</b>	NPN/PNP 250 mA, Solid-state relay 300 mA @ 240 VAC/VDC, SPDT EM relay 3 A @ 120 VAC	NPN/PNP 250 mA, Solid-state relay 300 mA @ 240 VAC/VDC, SPDT EM relay 3 A @ 120 VAC	NPN/PNP 250 mA, Solid-state relay 300 mA @ 240 VAC/VDC, SPDT EM relay 3 A @ 120 VAC	NPN/PNP 250 mA, Solid-state relay 300 mA @ 240 VAC/VDC, SPDT EM relay 3 A @ 120 VAC

**Enhanced 50 Photoelectric Sensors Specifications by Input Type**

Specifications	AC/DC EM Relay Models	AC/DC Solid-State Relay Models	DC Only Models
<b>Input Voltage</b>	12 - 240 VDC 24 - 240 VAC	12 - 240 VDC 24 - 240 VAC	10 - 40 VDC
<b>Light/Dark Operation</b>	Switch selectable		
<b>Operating Temperature</b>	-13° to 131°F (-25° to 55°C)		
<b>Humidity</b>	95% relative humidity, non-condensing		
<b>Case Material</b>	Fiberglass reinforced plastic		
<b>Lens Material</b>	Acrylic		
<b>Vibration</b>	IEC 60947-5-2 part 7.4.2		
<b>Shock</b>	IEC 60947-5-2 part 7.4.1		
<b>Protection</b>	Output short circuit and overcurrent protection, reverse polarity protection		
<b>Enclosure Ratings</b>	IP67		
<b>Agency Approvals</b>	IEC IP67, cCSAus, UL508 (CSA File 224447)	IEC IP67, cCSAus, UL508 (CSA File 224447)	IEC IP67, cCSAus, UL508 (CSA File 224447)
<b>Output Load</b>	3A @ 120 VAC 3A @ 28 VAC 3A @ 240 VAC	300 mA @ 240 VAC/VDC	250 mA
<b>Response Time</b>	15 ms	2 ms	
<b>No Load Current Draw</b>	<30 mA		
<b>Leakage Current (max.)</b>	—	1 mA @ 240 VAC	<10 µA
<b>Indicator LEDs</b>	Thru-Beam Source ..... All Others: Red: Power ..... Green: Output ..... Yellow: Power ..... Red: Alignment		

# EATON Enhanced 50 Series Cutler-Hammer Photoelectric Sensors

## Application Guide

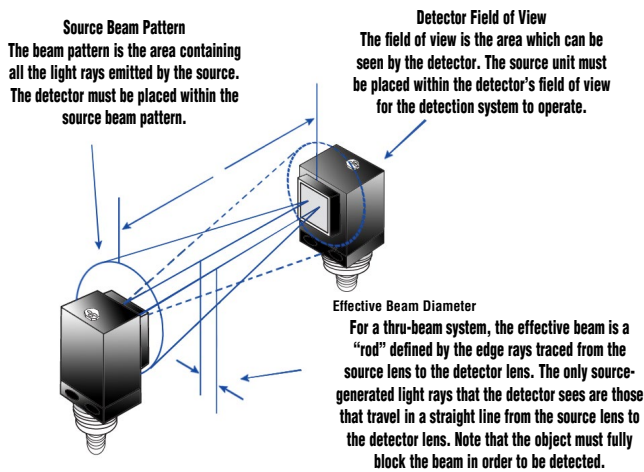
The Enhanced 50 Series Photoelectric Sensors are a great fit for applications such as material handling, packaging, wrapping and sortation.

This family of sensors, with its four basic models (Thru-beam, Polarized Reflex, Diffuse and Clear Object), meets the needs for almost any sensing requirement, including harsh environments with excessive dust or high temperature.

Follow the application guide below to choose the best sensor model for your application.

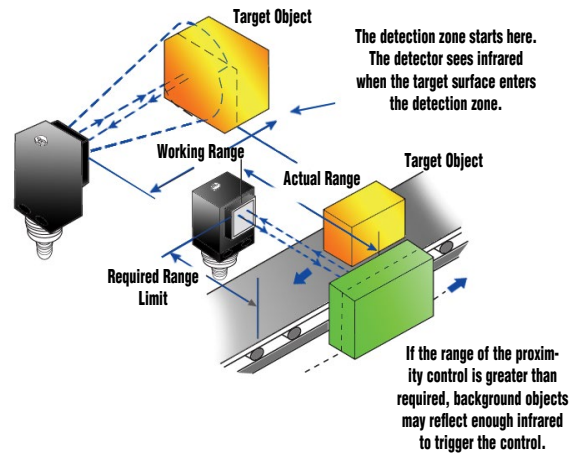
### Thru-Beam

- Most accurate
- Longest sensing range
- Most reliable
- Must be installed in two points on system: emitter and receiver
- More costly



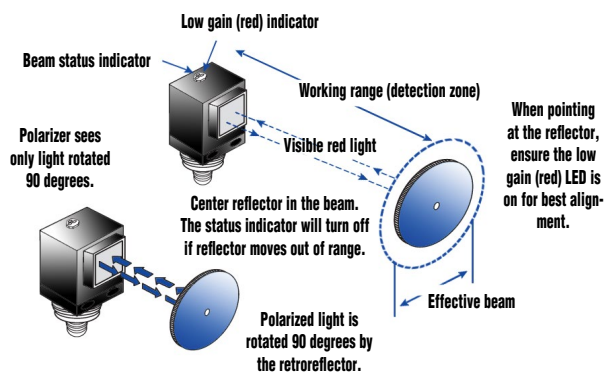
### Diffuse

- Lower cost
- Install at one point
- Less accurate than Thru-Beam or Polarized Reflex
- More setup time involved



### Polarized Reflex

- Lower cost than Thru-Beam
- Longer sensing range than Diffuse
- Very reliable
- Must be installed in two points on system: sensor and reflector



### Clear Object Detector

- Most reliable for sensing transparent objects
- Must be installed in two points on system: sensor and reflector.
- Short sensing distance: 45 inches max.

