



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

| 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<br>24 – 240 VAC   | 12 – 240 VDC<br>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)  |                                |                |
| <b>Output Load</b>   | 3A @ 120VAC<br>3A @ 28VAC<br>3A @ 240VAC   | 300mA @ 240 VAC/VDC            | 250mA          |
| <b>Response Time</b>   | 15ms   | 2ms                            |                |
| <b>No Load Current Draw</b>                                    | <30 mA   |                                |                |
| <b>Leakage Current (max.)</b>                                  | —  | 1mA @ 240VAC                   | <10µA          |
| <b>Indicator LEDs</b>  | Through-Beam Source..... All Others:<br>Red: Power..... Green: Output<br>..... Yellow: Power<br>..... Red: Alignment |                                |                |



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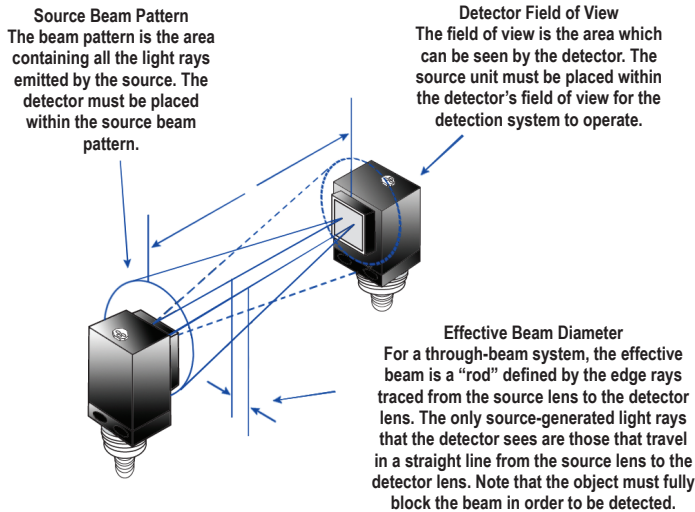
## Sensors

### 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 (Through-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.

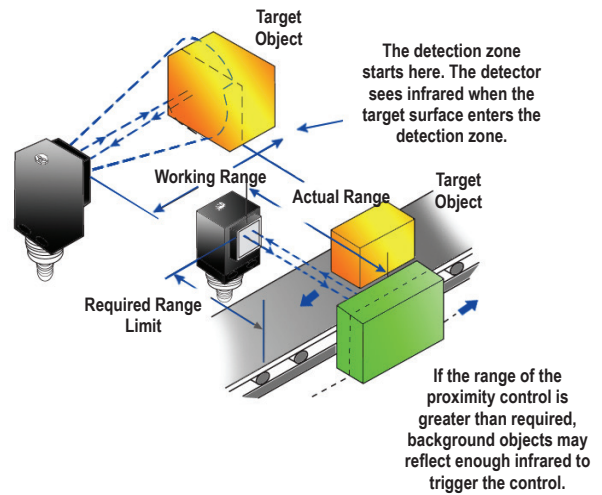
#### Through-Beam

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



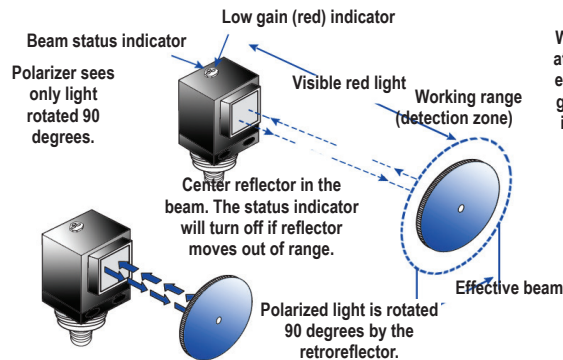
#### Diffuse

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



#### Polarized Reflex

- Lower cost than Through-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.

