Installation Instructions — E67 Long Range Perfect Prox® Photoelectric Sensor

⚠ WARNING

IN ORDER TO AVOID ELECTRIC SHOCK OR OTHER POSSIBLE INJURY:

- **DO NOT USE THIS PRODUCT FOR HUMAN SAFETY APPLICATIONS. IT WAS NOT DESIGNED, TESTED OR RECOMMENDED FOR THIS USE.**
- **DO NOT USE THIS PRODUCT IN HAZARDOUS LOCATIONS (E.G. EXPLOSIVE ATMOSPHERES). IT WAS NOT DESIGNED, TESTED OR RECOMMENDED FOR THIS USE.**
- **INSURE THAT THE PRODUCT IS CONNECTED TO THE CORRECT POWER SUPPLY FOR THE APPLICATION. REFER TO THE WIRING DIAGRAMS IN THIS MANUAL.**
- **DO NOT USE TOOLS TO APPLY FORCE OR TORQUE DIRECTLY TO THE SENSOR BODY. ALIGN THE SENSOR BY HAND BEFORE TIGHTENING THE MOUNTING HARDWARE.**
- **USE SPECIFIED MOUNTING HARDWARE. USE OF INCORRECT HARDWARE CAN DAMAGE THE SENSOR AND POSSIBLY EXPOSE HAZARDOUS LIVE VOLTAGES.**
- **AC/DC CONNECTOR VERSION SENSORS ARE EQUIPPED WITH AN AC-TYPE CONNECTOR. THE USE OF DC POWER WITH AC-TYPE CONNECTORS MAY NOT CONFORM WITH ESTABLISHED STANDARDS.**

INTRODUCTION

The E67 is a line of advanced Perfect Prox diffuse reflective sensors. A Perfect Prox sensor is a special diffuse reflective sensor that includes precise background rejection. It has all of the sensing power of a standard diffuse reflective sensor, but ignores any object past a defined cutoff range. In addition to ignoring unwanted background objects, the Perfect Prox can sense objects of different color or reflectively at virtually the same range. This makes the Perfect Prox one of the most reliable and simple sensors to set-up and use.

The E67 Long Range Perfect Prox, unlike other versions, can be applied without regard to orientation to the sensing target. Regardless of object geometry or direction of travel relative to the sensor, the E67 sensor will properly detect the target. In addition, the E67 has significantly improved the ability of a Perfect Prox sensor to ignore shiny targets beyond cutoff range. The gain has also been increased tenfold over previous Perfect Prox offerings.

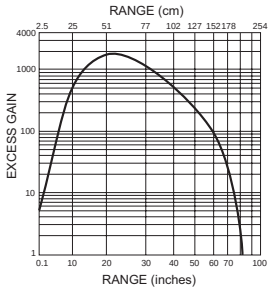
MOUNTING

The E67 sensor features a threaded 30mm mounting base and includes a jam nut. This allows mounting in a 1.25 inch hole, and allows for 360 degree rotation of the sensor for alignment purposes. Minimum panel thickness is 0.150 inches and the maximum torque to be applied to the jam nut is less than 100 in-lbs.

A second mounting method is to use #10-32 x 0.25 inch mounting hardware with the integral threaded inserts located in both sides of the sensor. This is ideal for mounting the E67 flush against a piece of equipment, rail, mounting bracket, etc. See specifications for further information on flush-mounting the sensor in this manner.

OPTICAL PERFORMANCE

All optical specifications are guaranteed to be the minimum performance under clean conditions of any product delivered from stock. Typical performance may be higher. Dirt in the environment will affect optical performance by reducing the amount of light the control receives. For best results, sensors should be used at distances where excess gain is higher than 1.5 (1.5 times the amount of sensing power required to detect an object under ideal conditions). Higher excess gain will allow the sensor to overcome higher levels of contamination on the lens.

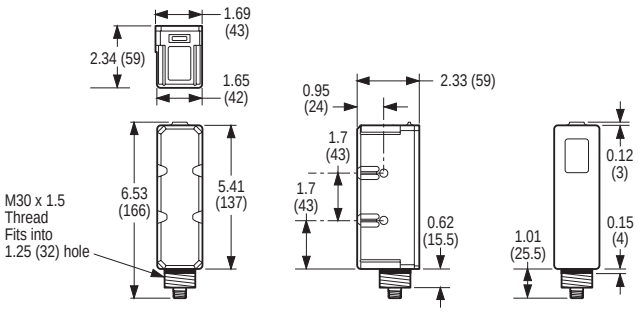


Sensing Range[1]	79 inches (200 cm)
Optimum Range[2]	12 to 60 inches (30 to 150 cm)
Cutoff Range[3]	91 inches (230 cm)
Field of View	6 inches (15 cm) diameter at 79 inches (200cm)
Sensing Beam	Infrared Beam

[1] Ranges based on an 18 inch white card.
[2] Sensor will detect a 90% reflectance card at this range.
[3] Sensor will ignore a 90% reflectance card at this range.

NOTE: Also consider the cutoff range when selecting a sensing range. Guaranteed cutoff will be approximately 12 inches (30 cm) beyond the sensing range. If a background is present within this zone, adjustments to the application or the sensing range will need to be made.

APPROXIMATE DIMENSIONS



SPECIFICATIONS

	AC/DC MODELS	DC Only Models
Input Voltage	20 to 132V AC, 50/60 Hz 20 to 132V DC	18 to 30V DC
Power Dissipation	2W maximum	0.5W maximum
Output Type	Solid-state relay, 1500 V isolation	NPN and PNP
Voltage Switching Capacity	400V AC/DC	30V DC
Current Switching Capacity	75 mA maximum	100 mA maximum
Off-State Leakage	100 mA maximum	50 mA maximum
On-State Characteristics	35W maximum resistance	NPN: 1.5V drop at 100 mA, Maximum PNP: 2.5V drop at 100 mA, Maximum
Response Time	50 mS	15 mS
Short Circuit Protection	Thermally current limited at approximately 200 ma **IMPORTANT**: Output will reset automatically when short is removed (there is no visual indication of a short circuit condition)	Protected against dead shorts only **IMPORTANT**: Output will reset automatically when short is removed (there is no visual indication of a short circuit condition) **CAUTION:** Will not protect against overloads between 100 mA and 250 mA
Light/Dark Operation	Specified by Catalog Number	
Temperature Range	Operating: -31° to +131°F (-35° to +55°C); Storage: -40° to + 158°F (-40° to 70°C)	
Material of Construction	Enclosure: Lexan® Polycarbonate; Back cover: Cycoloy® Polycarbonate/ABS; Indicator viewing window: Lexan® Polycarbonate; Jam nut and connector: 15% Glass-filled Nylon 6/6; Threaded inserts: Brass. **IMPORTANT**: Do not expose to concentrated acids, alcohols or ketones.	
Connector Models	Micro connector, 4-pin male	
Vibration and Shock	Vibrations: 10g over 10Hz to 2 kHz; Shock: 30g for 6 mS 1/2 sine wave pulse	
Indicator LED	Red: Lights steady when output is on; Green: Lights steady when power is applied to sensor	
Sunlight Immunity	5,000 foot-candles	
Enclosure Ratings	NEMA 1, 2, 3, 4, 4x, 6, 12 and 13[1]	

[1]**NOTE:** Our products conform to NEMA tests as indicated, however, some severe washdown applications can exceed these NEMA test specifications. For questions about a specific application, contact our Applications Department at 1-800-426-9184.

CATALOG NUMBER COMPONENTS

E67-LRDP200-HLD

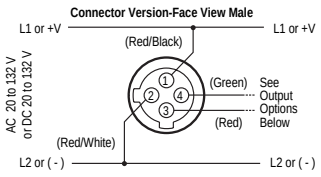
a b c d e f

"a"	Product Family	E67-LR	E67 Long Range Perfect Prox
"b"	Optical Type	DP	Diffuse, Perfect Prox
"c"	Sensing Range[2]	200	Standard range of 200cm
"d"	Voltage Style	H	18 - 30V DC
		K	20 - 132 V AC/DC
"e"	Operate Mode	L	Light Operate
		D	Dark Operate
"f"	Connection Style	D	Micro Connector, no cable version available

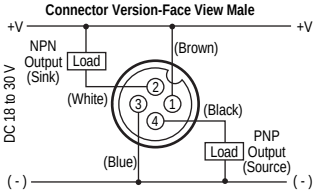
[2]The sensing range of this device can be set at the factory to between 100 cm and 240 cm, in 10 cm increments. To order substitute the range (in cm) in the model number in place of the standard 200 centimeters.

WIRING DIAGRAMS

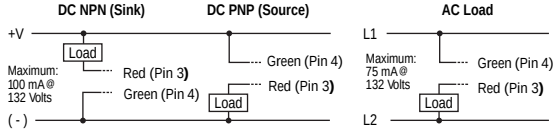
AC/DC MODELS [3, 4] (Isolated Output)



DC-ONLY MODELS [3] (NPN & PNP)



Isolated Output Options



[3] Connector Versions: The pin numbering and wire colors are typical of several manufacturers, however, variations are possible. **NOTE:** in case of discrepancies, rely on function indicated and pin location rather than pin number or wire color.

[4] Isolated output can switch AC or DC loads in either AC or DC operating modes.

Still Need Help?

Contact the Cutler-Hammer Sensor Application Engineers

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