

E58 18 mm Tubular Series Photoelectric Sensors

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The Cutler-Hammer® E58 18 mm Tubular Series by Eaton's electrical business is an ideal choice for a wide variety of sensing tasks. The unique threaded body with flat sides allows quick mounting in a 3/4-inch hole or against any flat surface. Internal components are rigidly sealed in a solid encapsulated package for excellent performance in high-vibration and high-shock applications. Models are available with both AC and DC operation in a single unit or in a DC-only configuration.

For the most current information on this product, visit our web site: www.EatonElectrical.com

Industry Standard 18 mm Tubular Sensors Offer Wide Voltage Ranges and Reliable Performance

Solid Polyurethane Body for Rugged Use

Extra Long 3-Meter Cable



Industry Standard 18 mm Threaded Body with Flat Sides for Mounting Flexibility




Product Features

- Industry standard 18 mm diameter threaded body has flat sides, allowing it to be mounted like a tubular sensor or against any flat surface
- Solid polyurethane housing completely encapsulates internal circuits for high resistance to shock and vibration
- AC/DC models operate up to 264V AC
- Select models have visible beams for quick setup and alignment
- Gain adjustment on all models to ensure peak optical performance
- 80 foot range for all thru-beam models
- 25 foot range for both DC-only and AC/DC reflex models
- 8 inch range for all diffuse reflective models
- LED output status indicator
- 3 meter long 3-wire connecting cable
- Enclosure rating NEMA 1, 2, 3, 4, 4X, 6, 12 and 13

For Customer Service in the U.S. call **1-877-ETN CARE (386-2273)**,
in Canada call **1-800-268-3578**.
For Application Assistance in the U.S. and Canada
call **1-800-426-9184**.

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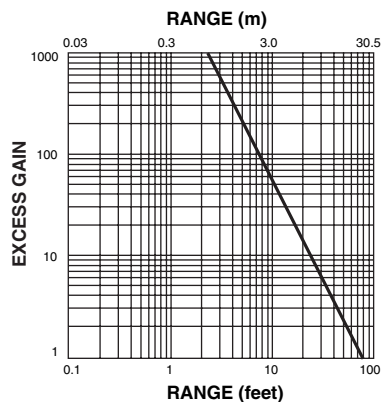
Model Selection — 18 mm Diameter Sensors (Connection Type: 3-Meter Cable)

	Input Voltage	Sensing Range	Maximum Load Current	Maximum Inrush	Thru-Beam Component	Output	Catalog Number	
							Dark Operate	Light Operate
3-Wire Sensors								
Thru-Beam ② 	20 – 264V AC, 50 – 60 Hz; or 15 – 30V DC	80 feet (24m)	300 mA	2.0A	Emitter	—	E58CAL18A2E2	
							10 – 30V DC	80 feet (24m)
	250 mA	—	Receiver	NPN	E58CAL18T110C2	E58CBL18T110C2		
					100 mA	—	—	PNP
Reflex 	20 – 264V AC, 50 – 60 Hz; or 15 – 30V DC	25 feet (7.6m) ①	300 mA	2.0A	—	—	E58CAL18A2R2	E58CBL18A2R2
	10 – 30V DC	25 feet (7.6m) ①	250 mA	—	—	NPN	E58CAL18T110R2	E58CBL18T110R2
			100 mA	—	—	PNP	E58CAL18T111R2	E58CBL18T111R2
Diffuse Reflective 	20 – 264V AC, 50 – 60 Hz; or 15 – 30V DC	8 inches (200 mm) ③	300 mA	2.0A	—	—	E58CAL18A2D2	E58CBL18A2D2
	10 – 30V DC	8 inches (200 mm) ③	250 mA	—	—	NPN	E58CAL18T110D2	E58CBL18T110D2
			100 mA	—	—	PNP	E58CAL18T111D2	E58CBL18T111D2

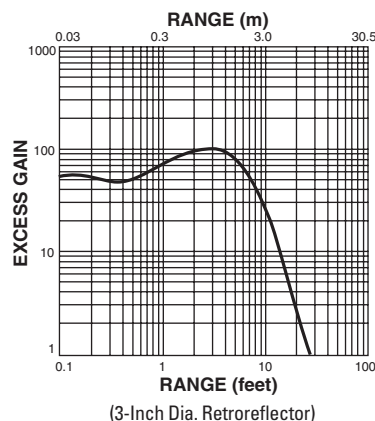
- ① Range is based on 3-inch retroreflector.
 - ② For replacement parts, order one complete pair including (1) emitter and (1) receiver otherwise the system will not function properly.
 - ③ Sensor will detect a 90% reflectance white card at this range.
- Stocked product, typical order quantities guaranteed in stock.

Excess Gain

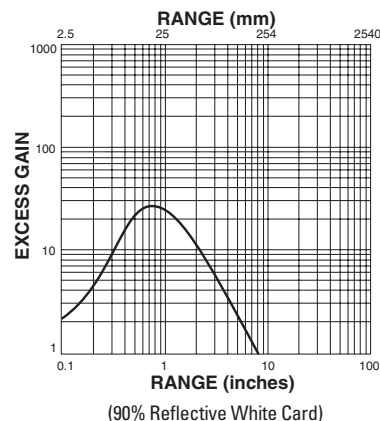
Thru-Beam



Reflex





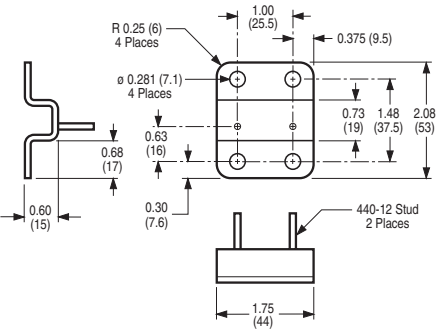

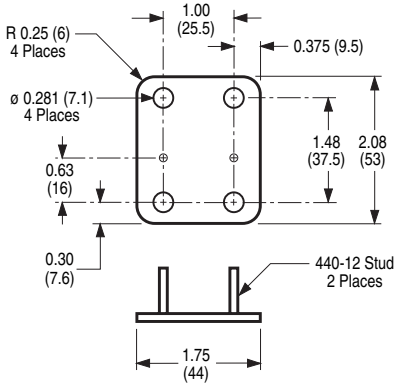

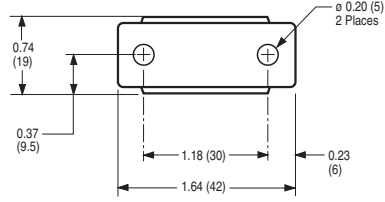
Diffuse Reflective



PHOTOELECTRIC SENSORS


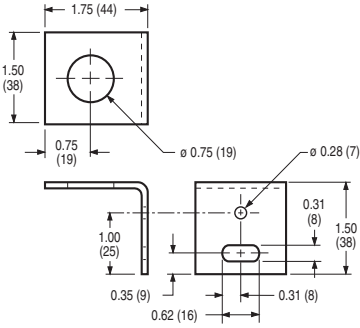

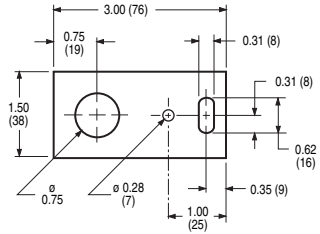


Model Selection — Accessories

	Description	Catalog Number	Approximate Dimensions in Inches (mm)
	Plastic mounting nuts (set of 2 for replacement only)	E57KNC18	
	Contoured design with no alignment adjustment. Sensor mounts on #4 studs. 304 Stainless Steel	6161AS5296	
	Same as above except without contour. 304 Stainless Steel	6161AS5297	
	Allows 360° rotation and 10° vertical tilt. Made of Noryl®	6181AS5200	

■ Stocked product, typical order quantities guaranteed in stock.

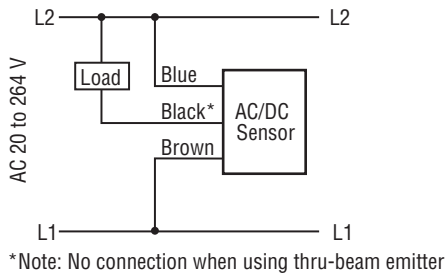
Model Selection — Accessories (Continued)

	Description	Catalog Number	Approximate Dimensions in Inches (mm)
	Two per package. Allows a minimum adjustment range. Sensor mounts with two jam nuts and washers (included with sensor). Aluminum with a Chromate finish	6161A-6501	
	Allows a minimum adjustment range. Sensor mounts with two jam nuts and washers (included with sensor). Aluminum with a Chromate finish	6161AS5295	
Accessories	Replacement mounting nuts and other accessories	See Section 8	
Connector Cables	A variety of cables, connector blocks and accessories	See Section 10	
Mounting Brackets	Additional mounting brackets for tubular sensors	See Section 8	
Reflectors	A variety of retroreflectors and reflective tape	See Section 8	

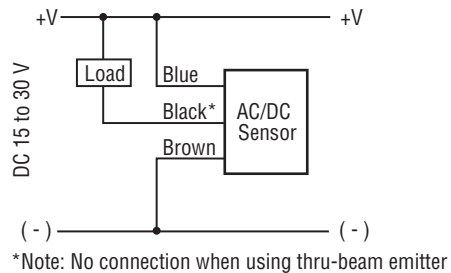
Stocked product, typical order quantities guaranteed in stock.

Wiring Diagrams

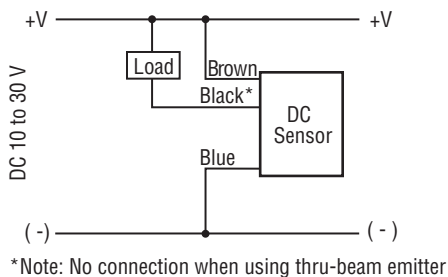
AC/DC Models (AC Connection)



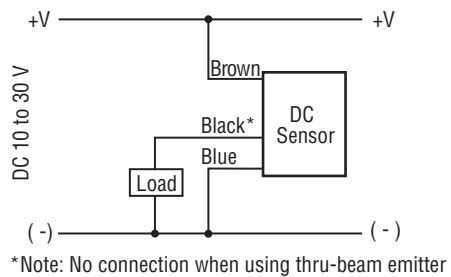
AC/DC Models (DC Connection)



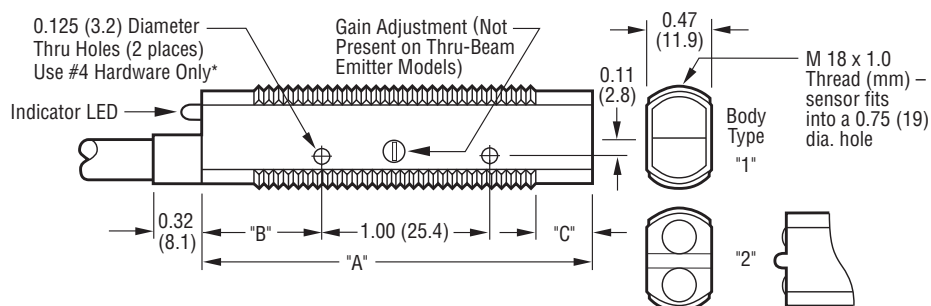
DC Models (NPN Output)



DC Models (PNP Output)



Approximate Dimensions in Inches (mm)



Style	Dimensions in Inches (mm)			Gain Adjustments	Body Type
	A	B	C		
Thru-Beam	2.75 (70)	0.65 (17)	1.10 (28)	Yes ①	1
Diffuse	2.20 (56)	0.65 (17)	0.25 (6)	Yes	2
Reflex	2.60 (66)	0.60 (15)	0.29 (7)	Yes	1

① Gain adjustment on thru-beam receiver models only.

Specifications

	AC/DC Models (AC Operation)	AC/DC Models (DC Operation)	DC-Only Models
Input Voltage	20 to 264V AC, 50/60 Hz	15 to 30V DC (15 to 24V DC above 131°F/55°C)	10 to 30V DC, (10 to 24V DC above 131°F/55°C)
Power Dissipation	1.5W maximum	1.5W maximum	1W maximum
Output Type	VMOS (bi-directional)	NPN (sink)	NPN and PNP (dual outputs)
Current Switching	300 mA maximum	300 mA maximum	PNP: 100 mA maximum; NPN: 250 mA maximum (NPN: 120 mA maximum above 131°F/55°C)
Voltage Switching	375V peak maximum	375V peak maximum	30V DC maximum
Off-State Leakage	250 μ A typical; 500 μ A maximum	250 μ A typical; 500 μ A maximum	10 μ A maximum
Surge Current	2A maximum	2A maximum	1A maximum
On-State Voltage Drop	—	1.8V at 10 mA; 3.5V at 300 mA	NPN: 400 mV at 10 mA, 1.5V at 250 mA; PNP: 2.4V at 100 mA
Response Time	10 mS		1 mS; 3.5 mS (thru-beam)
Short Circuit Protection	Sensor will turn off immediately when short or overload is detected (indicator LED flashes). Sensor will reset when short is removed.		
Temperature Range	Thru-Beam Emitter: -4° to +158°F (-20° to +70°C); All others: -40° to +158°F (-40° to +70°C)		
Light/Dark Operation	Specified by Catalog Number		
Enclosure Material	Lens: polycarbonate; Cable jacket: PVC; Body: structural polyurethane foam (do not expose to concentrated acids, alcohols or ketones)		
Cable/Connector	Cable versions: 6-foot cable; Connector versions: male mini and micro connectors (refer to wiring diagrams for number of pins per model) on nominal 8" pigtailed		
Vibration and Shock	Vibration: 30g over 10 Hz to 2 kHz; Shock: 100g for 3 mS 1/2 sine wave pulse		
Indicator LED	Lights steady when output is ON; flashes when short circuit protection is in latch condition (except 2-wire models)		
Sunlight Immunity	Perfect Prox: 5,000 foot-candles; All others: 10,000 foot-candles		
Enclosure Ratings	NEMA 1, 2, 3, 4, 4X, 6, 12 and 13 ① NEMA CP Models Available — Contact Factory		
Approvals	UL and C-UL Recognized (all models), CE Compliant (except 2-wire DC models)		

① NOTE: These 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 Eaton's Cutler-Hammer Sensor Applications Department at 1-800-426-9184.

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The Cutler-Hammer® E58 Harsh Duty Series by Eaton's electrical business was designed to withstand your harshest physical, chemical and optical environments.

Extensive research dictated the choice of materials used in this sensor. Stainless steel, PVDF and tempered glass components are mechanically assembled using Viton® seals to ensure complete sealing and resistance to industry chemicals. All adhesives and potting subject to failure from chemical attack have been eliminated from the design. The result is a sensor highly resistant to chemical attack and moisture intrusion, that can withstand heavy shock and vibration in almost any application.

E58 Harsh Duty sensors feature unparalleled optical performance. They are ideal for automotive applications where exposure to lubricants, cutting fluids, coolants and glycols is common. For food processing applications, a smooth body version simplifies high-pressure chemical washdowns, and withstands the use of sanitizers, surfactants, and cleaning agents including diluted bases and acids.

Ratings and Approvals

- UL Listed
- C-UL Listed



For the most current information on this product, visit our web site: www.EatonElectrical.com

The World's Most Rugged and Best Sealed Photoelectric Sensors

30 mm Models Offer Industry-Leading Performance

360° Output Indicator Is the Brightest Available

Tempered Glass Lens Cover Protects Against Abrasion

All Models with Visible Red Beams

Reliable Viton Mechanical Seals Ensure Complete Sealing and Resistance to Industry Chemicals

Food Processing Versions Feature Non-glass Lens Covers, 316 Stainless Steel and Optional Smooth Body

18 mm Models for Compact Mounting

Connector Versions Available for All Models

Product Features

- Sensors are available in 18 mm and 30 mm diameters
- Highly refined optics for long sensing ranges and to see through high levels of contamination — unmatched optical performance
- Perfect Prox® technology provides exceptional background rejection and extremely high excess gain
- Resistant to the wide range of chemicals used in the automotive, food processing and forest products industries
- Suitable for high temperature, high pressure washdown (1200 psi)
- Mechanical Viton seals hold up to extreme temperature variations
- Visible sensing beam on all models lets you see where the beam is aimed for quick setup and alignment
- Output status indicator is the brightest available and is visible from any angle and in any lighting condition
- The industry's only background rejection sensors with a 2-wire circuit design
- Models available with both AC and DC operation in a single unit
- 4-wire DC sensors offer dual NPN and PNP outputs

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273),
in Canada call 1-800-268-3578.
For Application Assistance in the U.S. and Canada
call 1-800-426-9184.

E58 Harsh Duty Series Physical Attributes

Rugged physical construction

The E58 Harsh Duty Series was designed from the ground up to be the most rugged sensor family available. The strong metal housing, mechanical seals and surface mount electronics withstand heavy shock and vibration. The tempered glass lens cover provides protection in abrasive environments, and the sturdy cable is physically clamped to the sensor body.

Exceptional environmental protection and chemical resistance

The E58 Harsh Duty Series was designed to be used in the Automotive, Food Processing and Forest Products industries. It is also well suited for applications in related industries such as Pulp and Paper, Car Wash and Steel. These industries are all physically demanding on equipment and that's why we designed and tested these sensors to extreme levels of shock and vibration.

Many sensor failures, however, are actually due to chemical attack so we had to make them stand up to constant chemical exposure — day in and day out. To ensure resistance to the widest possible range of chemicals, we conducted extensive studies of the chemical agents commonly used in these industries. We then selected only those materials that could withstand exposure to these chemicals without failure in the design of the E58 Harsh Duty Series. In addition, we eliminated adhesives in favor of more reliable Viton compression seals. Some of the more common chemicals against which this sensor has been tested are listed in the resistance chart.

This resistance chart reflects testing of the 303 stainless steel body used on the standard E58 Harsh Duty Series sensors. Additional chemical resistance for food industry applications is available using sensors with the optional 316 stainless steel body and hard-coated polycarbonate (or acrylic on reflex models) lens cover.

The E58 Harsh Duty Series was designed to resist the chemicals shown in this table under normal use and conditions. Extremes of environmental factors such as temperature, pressure, concentration, duration of exposure, ultraviolet sunlight and chemical interactions combined with the presence of these chemicals could result in premature material failure. For these cases, testing the sensor in the specific application is recommended.

E58 Harsh Duty Series Chemical Resistance Chart

Chemical Category	Commonly Found In:
Oils, Cutting Fluids, Aqueous Coolants	Automotive, Forest Industry
Vegetable and Mineral Oil	Automotive, Forest Industry
Surfactants	Automotive, Food Processing
Dilute Acids	Food Processing
Dilute Bases	Food Processing
Sanitizers	Food Processing

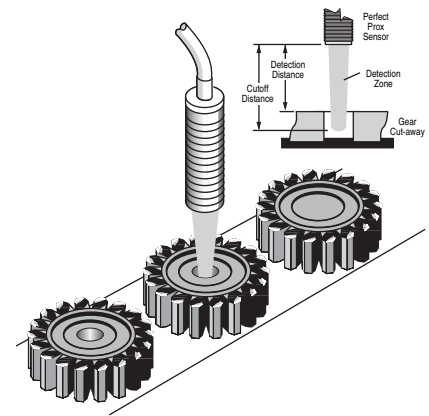
Sensing Modes

Perfect Prox®

This is a unique type of diffuse reflective sensor that combines extremely high sensing power (called "excess gain") with a sharp optical cutoff to ignore backgrounds. This allows the sensor to reliably detect targets regardless of variations in color, reflectance, contrast or surface shape, while ignoring objects just slightly outside the target range. With Perfect Prox®, the E58 Harsh Duty Series can act just like an inductive prox sensor — but with up to 20 times the range for mounting away from a moving target so you can avoid damage and downtime. 18 mm and 30 mm sizes, 2-, 3- and 4-wire circuits, and cable, micro and mini connector terminations mean quick and easy replacement of damaged proximity sensors. A visible sensing beam lets you quickly confirm the sensor is aligned correctly in the application.

The 18 mm Perfect Prox® has a sensing range of 2 or 4 inches (50 or 100 mm), and the 30 mm version has a range of 6 or 11 inches (150 or 280 mm).

This simplified application example shows the power of the Perfect Prox®.



If the hole is present in the gear, the sensor will shine through the hole and ignore the belt — no detection event will occur.

If the hole in the gear is missing, the sensor will detect the surface of the gear and reject the part.




Thru-Beam

This sensing mode is available in the 30 mm models. Rated sensing range is 800 feet, among the longest ranges available on the market. This provides extremely high excess gain when the source and detector are positioned at closer, optimum ranges to see through high levels of contamination. A visible red sensing beam and wide field-of-view mean quick and easy installation and alignment.

Polarized Reflex

Another sensing mode available in the 30 mm models is polarized reflex. In this mode, the sensing beam is reflected from a retroreflector back to the sensor. The maximum range of 34 feet is also among the longest available on the sensor market. The polarizing filter built into the sensor ensures only light reflected off a corner cube retroreflector is recognized by the sensor. This allows reliable detection of shiny targets that could reflect light back to the sensor and be missed by a non-polarized version. As in all models, a visible sensing beam is featured for easy installation and alignment.

Model Selection — Thru-Beam and Reflex Sensors

	Operating Voltage	Sensing Range	Optimum Range	Field of View	Thru-Beam Component	Connection Type	Catalog Number		
							Light Operate	Dark Operate	
3-Wire and 4-Wire Sensors									
 <p>30 mm Diameter Thru-Beam</p> <p>Source</p> <p>Detector</p> <p>For a complete system, order One Source and One Detector</p>	20 – 132V AC 50/60 Hz or 15 – 30V DC	800 feet (250m)	0.1 to 300 feet (0.03 – 90m)	33 inches (830 mm) diameter at 25 feet (7.6m)	Source	2-meter Cable	E58-30TS250-GA		
						4-pin Micro AC Connector	E58-30TS250-GAP ⊕		
	10 – 30V DC	800 feet (250m)	0.1 to 300 feet (0.03 – 90m)	33 inches (830 mm) diameter at 25 feet (7.6m)	Source	2-meter Cable	E58-30TS250-HA		
						4-pin Micro DC Connector	E58-30TS250-HAP ⊕		
	—	—	—	—	—	Detector	2-meter Cable	E58-30TD250-GL	E58-30TD250-GD
							4-pin Micro AC Connector	E58-30TD250-GLP ⊕	E58-30TD250-GDP ⊕
 <p>30 mm Diameter Reflex</p> <p>Sensor</p> <p>Retroreflector (Not Included)</p> <p>For a complete system, order Sensor and Retroreflector (See Section 8)</p>	20 – 132V AC 50/60 Hz or 15 – 30V DC	59 feet (18m)	1 to 40 feet (0.03 – 12m)	6 inches (150 mm) diameter at 20 feet (6m)	—	2-meter Cable	E58-30RS18-GL	E58-30RS18-GD	
						4-pin Micro AC Connector	E58-30RS18-GLP ⊕	E58-30RS18-GDP ⊕	
	10 – 30V DC	59 feet (18m)	1 to 40 feet (0.03 – 12m)	6 inches (150 mm) diameter at 20 feet (6m)	—	Detector	2-meter Cable	E58-30RS18-HL	E58-30RS18-HD
							4-pin Micro DC Connector	E58-30RS18-HLP ⊕	E58-30RS18-HDP ⊕
 <p>30 mm Diameter Polarized Reflex</p> <p>Sensor</p> <p>Retroreflector (Not Included)</p> <p>For a complete system, order Sensor and Retroreflector (See Section 8)</p>	20 – 132V AC 50/60 Hz or 15 – 30V DC	34 feet (10m)	1 to 20 feet (0.03 – 6m)	6 inches (150 mm) diameter at 20 feet (6m)	—	2-meter Cable	E58-30RP10-GL	E58-30RP10-GD	
						4-pin Micro AC Connector	E58-30RP10-GLP ⊕	E58-30RP10-GDP ⊕	
	10 – 30V DC	34 feet (10m)	1 to 20 feet (0.03 – 6m)	6 inches (150 mm) diameter at 20 feet (6m)	—	Detector	2-meter Cable	E58-30RP10-HL	E58-30RP10-HD
							4-pin Micro DC Connector	E58-30RP10-HLP ⊕	E58-30RP10-HDP ⊕

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

⊕ See listing of compatible connector cables on Page 5-61.

Sensor Options for Thru-Beam and Reflex

(Built-to-order, contact Eaton's Cutler Hammer Sensor Applications Department at 1-800-426-9184 for delivery lead times)

Thru-Beam Apertured Versions

Reduces effective sensing beam to 0.2 x 0.9 inches (5 x 23 mm) for accurate edge detection or sensing smaller objects. Factory installed behind lens cover for protection and sealing. Sensing range is reduced to 230 feet (70m). To order, substitute "070" in place of "250" in source or detector Catalog Number (Example: E58-30TS070-GA).

Food Processing Versions with Threaded Housings

Upgrade to a 316 Stainless Steel threaded body from 303, and change the lens cover to hard-coated polycarbonate (cast acrylic for reflex models) from glass. To order, add the Suffix "-FC" to the end of the Catalog Number (Example: E58-30RP10-GL-FC).

Food Processing Versions with Smooth (Non-threaded) Housings

Upgrade to a 316 Stainless Steel smooth (non-threaded) body from 303, and change the lens cover to hard-coated polycarbonate (cast acrylic for reflex models) from glass. To order, add the Suffix "-FSC" to the end of the Catalog Number (Example: E58-30RP10-GL-FSC).

Excess Gain

Thru Beam

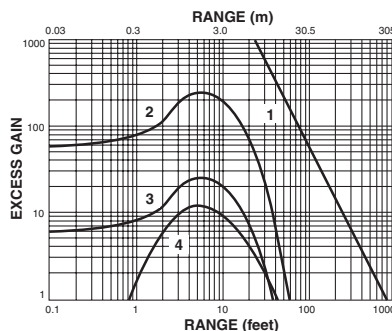
- 1. Thru-Beam

Reflex





- 2. Performance to 3-inch Retroreflector

Polarized Reflex

- 3. Performance to 3-inch Retroreflector
- 4. Performance to Corner-Cube Retroreflective tape



Model Selection — Perfect Prox® Background Rejection Sensors

	Operating Voltage	Nominal Range ①	Optimum Range	Cutoff Range ②	Field of View	Connection Type	Catalog Number			
							Light Operate	Dark Operate		
2-Wire Sensors										
	90 – 132V AC 50/60 Hz or 18 – 50V DC	2 inches (50 mm)	0.4 to 1.8 inches (10 to 45 mm)	2.25 inches (57 mm) and beyond	0.25 inch (6 mm) diameter at 2 inches (50 mm)	2-meter Cable	E58-18DP50-EL	E58-18DP50-ED		
						3-pin Micro AC Connector	E58-18DP50-ELP ☼	E58-18DP50-EDP ☼		
						3-pin Mini Connector	E58-18DP50-ELPB ☼	E58-18DP50-EDPB ☼		
			18 – 50V DC	4 inches (100 mm)	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.38 inch (10 mm) diameter at 4 inches (100 mm)	2-meter Cable	E58-18DP100-EL	E58-18DP100-ED
								3-pin Micro AC Connector	E58-18DP100-ELP ☼	E58-18DP100-EDP ☼
								3-pin Mini Connector	E58-18DP100-ELPB ☼	E58-18DP100-EDPB ☼
	90 – 132V AC 50/60 Hz or 18 – 50V DC	6 inches (150 mm)	1 to 6 inches (26 to 150 mm)	6.5 inches (165 mm) and beyond	0.75 inch (19 mm) diameter at 6 inches (150 mm)	2-meter Cable	E58-30DP150-EL	E58-30DP150-ED		
						3-pin Micro AC Connector	E58-30DP150-ELP ☼	E58-30DP150-EDP ☼		
						3-pin Mini Connector	E58-30DP150-ELPB ☼	E58-30DP150-EDPB ☼		
			18 – 50V DC	11 inches (280 mm)	1 to 9 inches (26 to 228 mm)	12.5 inches (318 mm)	1.0 inch (26 mm) diameter at 11 inches (280 mm)	2-meter Cable	E58-30DPS280-EL	E58-30DPS280-ED
								3-pin Micro AC Connector	E58-30DPS280-ELP ☼	E58-30DPS280-EDP ☼
								3-pin Mini Connector	E58-30DPS280-ELPB ☼	E58-30DPS280-EDPB ☼
		6 inches (150 mm)	1 to 6 inches (26 to 150 mm)	6.5 inches (165 mm) and beyond	0.75 inch (19 mm) diameter at 6 inches (150 mm)	4-pin Micro DC Connector	E58-30DP150-DLP ☼	E58-30DP150-DDP ☼		
		4 inches (100 mm)	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	0.38 inch (10 mm) diameter at 4 inches (100 mm)	4-pin Micro DC Connector	E58-18DP100-DLP ☼	E58-18DP100-DDP ☼		
3-Wire and 4-Wire Sensors										
	10 – 30V DC	2 inches (50 mm)	0.4 to 1.8 inches (10 to 45 mm)	2.25 inches (57 mm) and beyond	0.25 inch (6 mm) diameter at 2 inches (50 mm)	2-meter Cable	E58-18DP50-HL	E58-18DP50-HD		
						4-pin Micro DC Connector	E58-18DP50-HLP ☼	E58-18DP50-HDP ☼		
			4 inches (100 mm)	0.5 to 3 inches (13 to 76 mm)	5 inches (127 mm) and beyond	5 inches (127 mm) and beyond	0.38 inch (10 mm) diameter at 4 inches (100 mm)	2-meter Cable	E58-18DP100-HL	E58-18DP100-HD
								4-pin Micro DC Connector	E58-18DP100-HLP ☼	E58-18DP100-HDP ☼
	20 – 132V AC 50/60 Hz or 15 – 30V DC	6 inches (150 mm)	1 to 6 inches (26 to 150 mm)	6.5 inches (165 mm) and beyond	0.75 inch (19 mm) diameter at 6 inches (150 mm)	2-meter Cable	E58-30DP150-GL	E58-30DP150-GD		
						4-pin Micro AC Connector	E58-30DP150-GLP ☼	E58-30DP150-GDP ☼		
						2-meter Cable	E58-30DPS280-GL ☼	E58-30DPS280-GD ☼		
			10 – 30V DC	6 inches (150 mm)	1 to 6 inches (26 to 150 mm)	6.5 inches (165 mm) and beyond	0.75 inch (19 mm) diameter at 6 inches (150 mm)	2-meter Cable	E58-30DP150-HL	E58-30DP150-HD
								4-pin Micro DC Connector	E58-30DP150-HLP ☼	E58-30DP150-HDP ☼
								2-meter Cable	E58-30DPS280-HL	E58-30DPS280-HD
		11 inches (280 mm)	1 to 9 inches (26 to 228 mm)	12.5 inches (318 mm)	1.0 inch (26 mm) diameter at 11 inches (280 mm)	4-pin Micro DC Connector	E58-30DPS280-HLP ☼	E58-30DPS280-HDP ☼		

① Sensor will detect a 90% reflectance card at this range.

② Sensor will ignore a 90% reflectance card at this range.

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

☼☼ See listing of compatible connector cables on **Page 5-61**.

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Sensor Options for Perfect Prox® — 30 mm Diameter Models Only

(Built-to-order, contact Eaton's Cutler-Hammer Sensor Applications Department at 1-800-426-9184 for delivery lead times)

Food Processing Versions with Threaded Housings

Upgrade to a 316 Stainless Steel threaded body from 303, and change the lens cover to hard-coated polycarbonate from glass. To order, add the Suffix "-FC" to the end of the Catalog Number (Example: E58-30DP150-EL-FC).

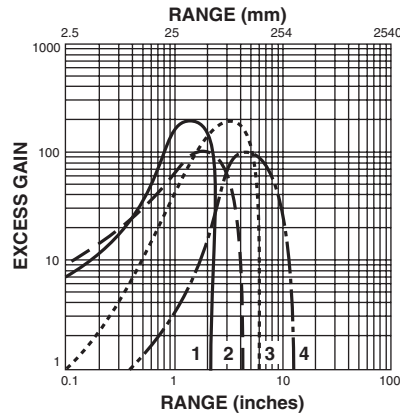
Food Processing Versions with Smooth (Non-threaded) Housings

Upgrade to a 316 Stainless Steel smooth (non-threaded) body from 303, and change the lens cover to hard-coated polycarbonate from glass. To order, add the Suffix "-FSC" to the end of the Catalog Number (Example: E58-30DP150-EL-FSC).







Excess Gain

Perfect Prox

- 1. 18 mm Diameter, 2 Inch (50 mm) range models
- 2. 18 mm Diameter, 4 Inch (100 mm) range models
- 3. 30 mm Diameter, 6 Inch (150 mm) range models
- 4. 30 mm Diameter, 11 Inch (280 mm) range models



Model Selection — Compatible Connector Cables ①

	Voltage Style	Number of Pins	Gauge	Length	Catalog Number			Pin Configuration/Wire Colors (Face View Female Shown)
					PVC Jacket	PUR Jacket	IRR PUR Jacket	
Standard Cables — Micro Style								
	AC	3-pin 3-wire	22 AWG	6.0 feet (2m)	CSAS3F3CY2202	CSAS3F3RY2202	—	 1-Green 2-Red/Black 3-Red/White
		4-pin 4-wire	22 AWG	6.0 feet (2m)	CSAS4F4CY2202	CSAS4F4RY2202	CSAS4F4IO2202	 1-Red/Black 2-Red/White 3-Red 4-Green
	DC	4-pin 4-wire	22 AWG	6.0 feet (2m)	CSDS4A4CY2202	CSDS4A4RY2202	CSDS4A4IO2202	 1-Brown 2-White 3-Blue 4-Black
	Voltage Style	Number of Pins	Gauge	Length	Catalog Number		Pin Configuration/Wire Colors (Face View Female Shown)	
Standard Cables — Mini Style								
 Current Rating @ 600V 3-pin: 13A	—	3-pin	16 AWG	6 feet (2m)	CSMS3F3CY1602		 1-Green 2-Black 3-White	

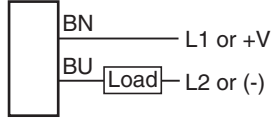
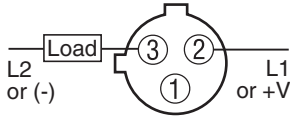
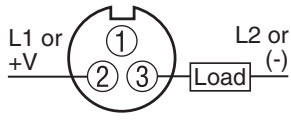
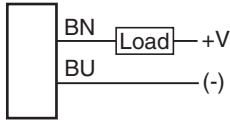
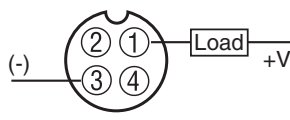
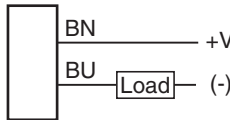
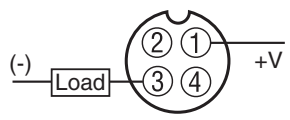
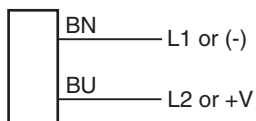
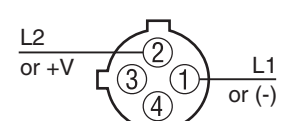
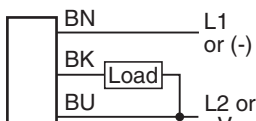
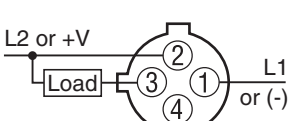
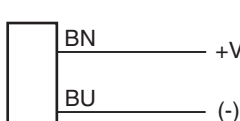
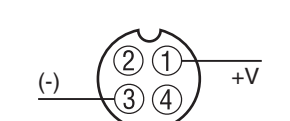
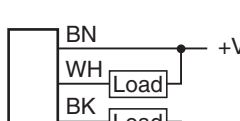
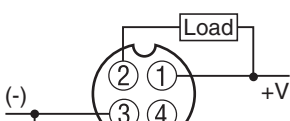
① For a full selection of connector cables, see Section 10.

■ Stocked product, typical order quantities guaranteed in stock.

Model Selection — Accessories

Description	Reference
Retroreflectors and retroreflective tape	See Section 8
Mounting brackets	See Section 8
Mounting nuts and other accessories	See Section 8
Connector cables	See Section 10

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

Operating Voltage	Mode/Output	Cable Models	Connector Models	
			Micro	Mini
2-Wire Sensors				
90 – 132V AC 50/60 Hz or 18 – 50V DC	All			
18 – 50V DC	All (NPN)			—
	All (PNP)			—
3-Wire and 4-Wire Sensors				
20 – 132V AC 50/60 Hz or 15 – 30V DC	Thru-Beam Source			—
	All Others			—
10 – 30V DC	Thru-Beam Source			—
	All Others (NPN & PNP)			—

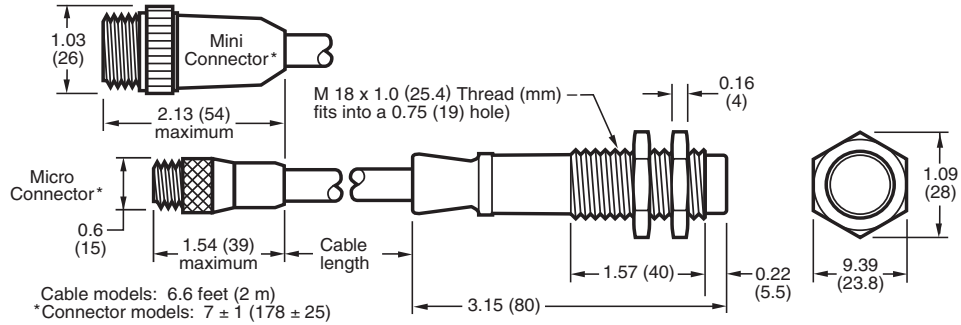
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Specifications

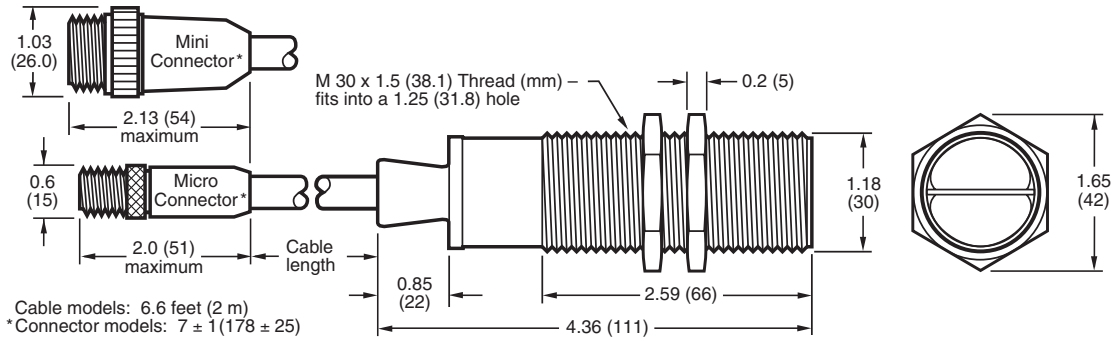
	4-Wire Sensors			2-Wire Sensors	
	AC/DC MODELS (AC Operation)	AC/DC MODELS (DC Operation)	DC-ONLY MODELS	AC/DC MODELS (AC Operation)	DC-ONLY and AC/DC MODELS (DC Operation)
Input Voltage	20 – 132V AC, 50/60 Hz	15 – 30V DC	10 – 30V DC	90 – 132V AC, 50/60 Hz	18 – 50V DC
Power Dissipation	3W maximum	3W maximum	2W maximum	3W maximum	3W maximum
Output Type	VMOS (bi-directional)	NPN (sink)	4-Wire: NPN and PNP (dual outputs)	18 mm models: DMOS/Bipolar; 30 mm models: DMOS	
Current Switching	300 mA maximum	300 mA maximum	PNP: 100 mA maximum NPN: 18 mm models: 250 mA maximum; 30 mm models: 100 mA maximum	18 mm models: 100 mA; 30 mm models: 300 mA	
Voltage Switching	186V peak maximum	186V peak maximum	30V DC maximum	186V peak maximum	50V DC maximum
Off-State Leakage	250 μ A typical; 500 μ A Max.	250 μ A typical; 500 μ A Max.	10 μ A maximum	1.7 mA maximum	18 mm: 1.7 mA maximum 30 mm: 1.5 mA maximum
Surge Current	2A maximum	2A maximum	1A maximum	1A AC	1A DC
On-State Voltage Drop	—	1.8V at 10 mA 4.0V at 300 mA	NPN: 1.2V at 10 mA; 18 mm models: 2.0V at 100 mA; 30 mm models: 2.0V at 250 mA; PNP: 2.8V at 100 mA	10V AC rms	18 mm models: 10V DC 30 mm models: 8V DC
Response Time	10 mS	2 mS	18 mm models: 1 mS; 30 mm models: 1.6 mS	35 mS	35 mS
Short Circuit Protection	Sensor will turn off immediately when a short or overload is detected (indicator LED will flash). Turn power OFF and back ON to reset. Sensor will reset when short is removed.			Auto reset	Auto reset
Operating and Storage Temperature Range	-40° to 131°F (-40° to 55°C)			18 mm models: -40° to 158°F (-40° to 70°C) 30 mm models: -10° to 131°F (-25° to 55°C)	
Enclosure Material	Cable Jacket: PVC (poly vinyl chloride) Indicator Ring: PVDF (high-density fluorinated polymer) Seals: Viton (registered trademark of Dupont) Lens Cover: Thru-Beam and Perfect Prox® models: Tempered Glass (or hard-coated polycarbonate for models ending in FC or FSC) Polarized Reflex models: Glass (or cast acrylic for models ending in FC or FSC) Body: 303 Stainless Steel (or 316 Stainless Steel for models ending in FC or FSC)				
Cable Versions	2 meter cable length				
Connector Versions	Male mini and micro connectors on 7" pigtail (refer to model selection for number of pins per model)				
Vibration and Shock	Vibration: 30g over 20 Hz to 2 kHz; Shock: 100g for 3 mS 1/2 sinewave pulse				
Indicator LED	Thru-Beam Source: Lights when power is ON; All other models: Lights steady when output is ON, flashes when short circuit protection is in latch condition (except 2-wire models)				
Sunlight Immunity	Perfect Prox®: 5,000 foot-candles Others: 10,000 foot-candles				
Enclosure Ratings	NEMA 1, 2, 3, 3R, 3S, 4, 4X, 6, 6P, 12, 12K and 13; This product is suitable for high temperature, high pressure washdown (1200 psi).				
Chemical Resistance	This product was designed to withstand chemicals commonly used in the automotive, machine tool, food processing and forest industries. Consult Eaton's Cutler-Hammer Sensor Applications Department at 1-800-426-9184 for information on resistance to specific chemicals				

Approximate Dimensions in Inches (mm) Except Where Noted

18 mm Diameter
(Threaded Model Shown)



30 mm Diameter
(Threaded Model Shown)



Adjustable Protective Bracket



Heavy-duty bracket protects the sensor from damage. Works with all Prism Series sensors. Ideal for material handling applications with the Prism right-angle reflex sensor. Provides locking vertical and horizontal adjustments for independent adjustment in each axis. Sensor mounts on #4 studs. 10 ga. painted steel

E58KS5200

