

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.



Unless otherwise noted, the products contained in this document are not designed or intended for use in human safety applications.

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	E58CAL18T110E2			
					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	E58CBL18T110D2	E58CAL18T110D2
			100 mA	—	—	PNP	E58CBL18T111D2	E58CAL18T111D2

① Range is based on 3-inch retroreflector.

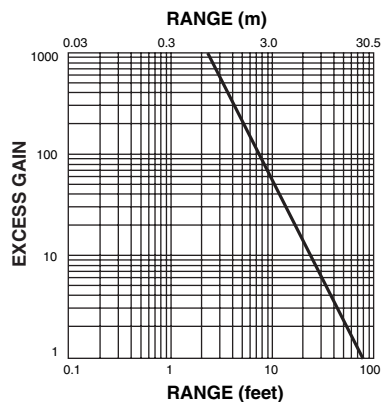
② For replacement parts, order one complete pair including (1) emitter and (1) receiver otherwise the system will not function properly.

③ Sensor will detect a 90% reflectance white card at this range.

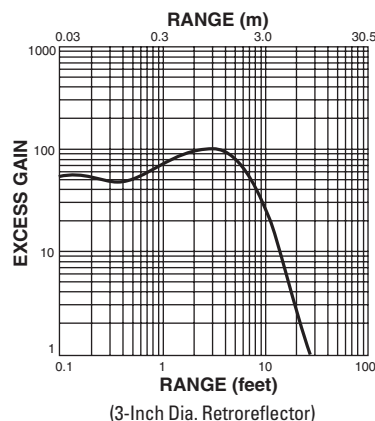
■ Stocked product, typical order quantities guaranteed in stock.

Excess Gain

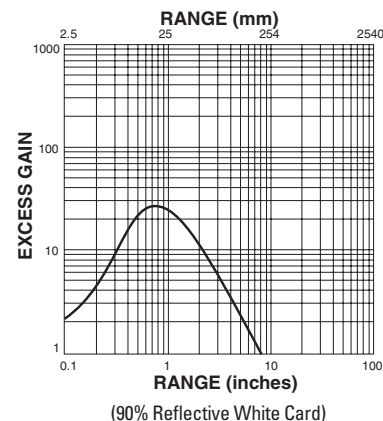
Thru-Beam





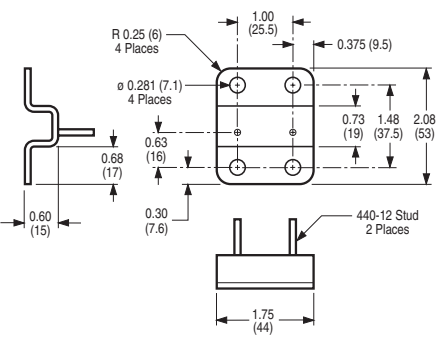

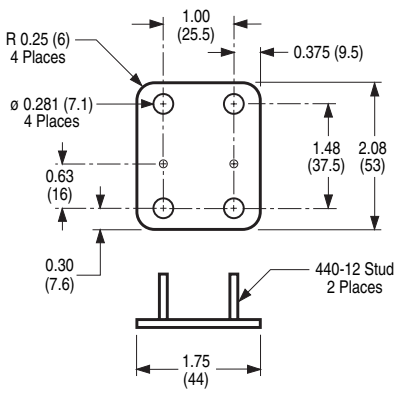

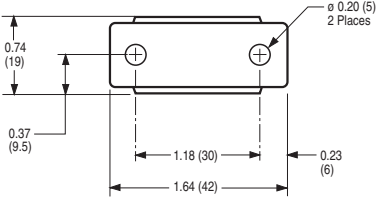
Reflex



Diffuse Reflective




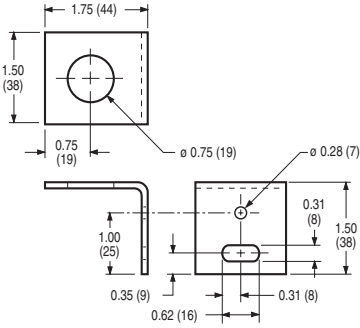

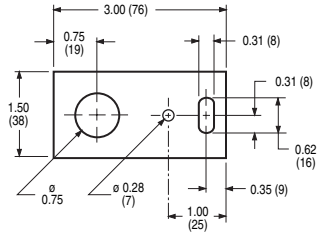
Model Selection — Accessories

	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.

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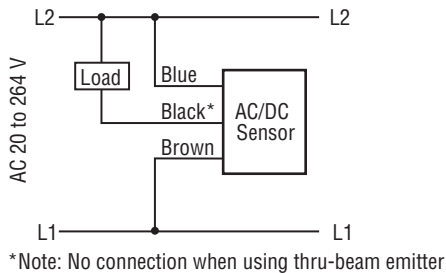
Model Selection — Accessories (Continued)

	Description	Catalog Number	Approximate Dimensions in Inches (mm)
 <p>L-Shaped Bracket</p>	<p>Two per package. Allows a minimum adjustment range. Sensor mounts with two jam nuts and washers (included with sensor). Aluminum with a Chromate finish</p>	<p>6161A-6501</p>	
 <p>Flat Bracket</p>	<p>Allows a minimum adjustment range. Sensor mounts with two jam nuts and washers (included with sensor). Aluminum with a Chromate finish</p>	<p>6161AS5295</p>	
Accessories	Replacement mounting nuts and other accessories	See PG.05.04.T.E	
Connector Cables	A variety of cables, connector blocks and accessories	See PG.05.05.T.E	
Mounting Brackets	Additional mounting brackets for tubular sensors	See PG.05.03.T.E	
Reflectors	A variety of retroreflectors and reflective tape	See PG.05E.17.T.E	

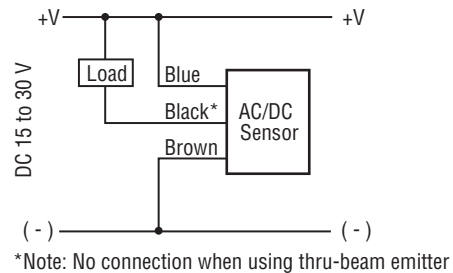
■ Stocked product, typical order quantities guaranteed in stock.

Wiring Diagrams

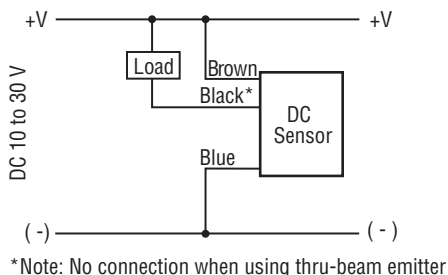
AC/DC Models (AC Connection)



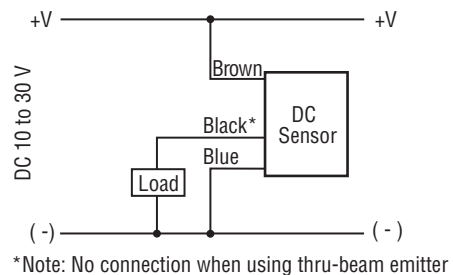
AC/DC Models (DC Connection)



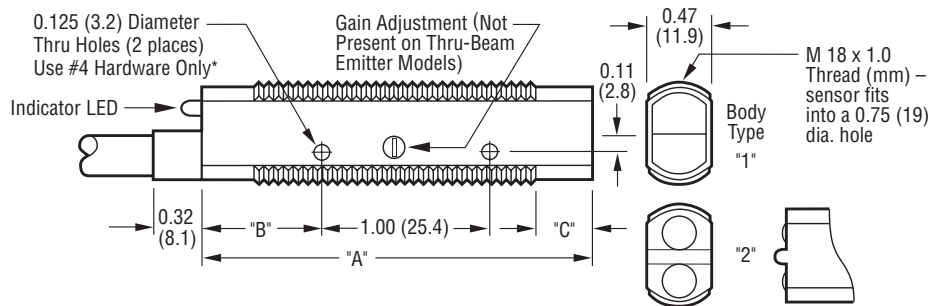
DC Models (NPN Output)



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.