

**Ferrous Only Tubular
Inductive Proximity Sensors**

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These unique Cutler-Hammer® Inductive Proximity Sensors have been specially made by Eaton’s electrical business to detect only a specific type of metal. Ferrous Only models will detect only ferrous metals such as steel, iron, nickel or cobalt.

A typical application for **Ferrous Only** sensors would be in workcell applications where cutting tools, tool pallets and fixtures must be detected for proper workpiece manipulation. The sensors detect ferrous objects while ignoring aluminum.


These sensors are available in a standard 18 mm diameter, and are epoxy filled for shock/vibration resistance and heat tolerance.

These Problem-Solving Sensors Will Sense One Type of Metal While Completely Ignoring Another Type





Product Features

- Ferrous Only sensors detect ferrous metals, such as steel or iron, while ignoring non-ferrous metals
- Selection of 2-wire and 3-wire, AC/DC and DC-only sensor models
- Wide operating temperature range: -13° to 158°F (-25° to 70°C)

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

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**.





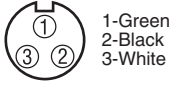
Model Selection — Ferrous Metal Sensing Only

	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type	Catalog Number
					N.O. Output
2-Wire Sensors					
18 mm Diameter 	20 – 250V AC/DC 50/60 Hz	5.0 mm	Shielded	3-pin Micro AC Connector	E57FAL18A2SA ☉
				3-pin Mini-Connector	E57FAL18A2B1 ☉
3-Wire Sensors					
18 mm Diameter 	10 – 30V DC	5.0 mm	Shielded (PNP)	4-pin Micro DC Connector	E57FAL18T111SD ☉

☐ Stocked product, typical order quantities guaranteed in stock.

☉☉ See listing of compatible connector cables below.

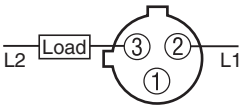
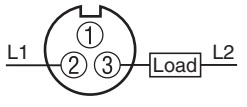
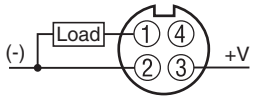
Model Selection — Compatible Connector Cables ①

	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								
Micro Style Straight Female 	AC	3-pin 3-wire	22 AWG	6.0 feet (2m)	CSAS3F3CY2202	CSAS3F3RY2202	—	 1-Green 2-Red/Black 3-Red/White
	DC	4-pin 3-wire	22 AWG	6.0 feet (2m)	CSDS4A3CY2202	CSDS4A3RY2202	—	 1-Brown 2-No Wire 3-Blue 4-Black
Standard Cables — Mini Style								
Mini Style Straight Female 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 PG.05.05.T.E.

☐ Stocked product, typical order quantities guaranteed in stock.

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

Operating Voltage	Output	Connector Models (Face View Male Shown)	
		Micro	Mini
2-Wire Sensors			
20 – 250V AC/DC 50/60 Hz	N.O.		
3-Wire Sensors			
10 – 30V DC	N.O. (PNP)	—	

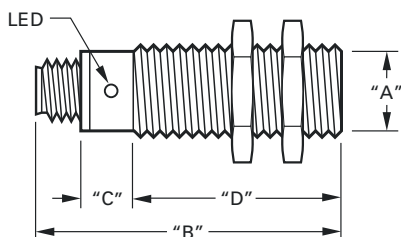
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Specifications

	2-Wire Sensors — AC/DC Models	3-Wire Sensors — DC Models
Operating Voltage	20 – 250V AC/DC	10 – 30V DC
Maximum Load Current	100 mA	100 mA
Switching Frequency	15 Hz	1000 Hz
Leakage Current	2.5 mA maximum	< 0.01 mA
Voltage Drop	10V maximum	1.5V maximum
Holding Current	5 mA minimum	—
Burden Current	—	17 mA
Protection	Transient, power on false pulse suppression	Short circuit protection
Switching Hysteresis	<15% rated sensing distance	
Repeat Accuracy	<1% sensing distance	
Time Delay Before Availability	<10 mS	
Output Indicator LED	Lights when output is ON	
Operating Temperature	-13° to 131°F (-25° to 55°C)	
Enclosure Ratings	NEMA 4, 4X, 6, 6P, 12 and 13 (IP67)	
Shock	30g sine wave, 11 mS per IEC68-2-76	
Vibration	10 to 55 Hz, 1 mm amplitude in all three planes	
Housing Material	Stainless steel	

Model Selection — Accessories

Description	Reference
Mounting Brackets	See PG.05.03.T.E
Replacement Mounting Nuts and Other Accessories	See PG.05.04.T.E
Connector Cables	See PG.05.05.T.E

Approximate Dimensions in Inches (mm)**Connector Models**

Model	Catalog Number	A	B	C	D	E
2-Wire	E57FAL18A2SA	M18 x 1	3.11 (79)	1.38 (35)	1.73 (44)	0
	E57FAL18A2B1	M18 x 1	3.90 (99)	1.34 (34)	2.56 (65)	0
3-Wire	E57FAL18T111SD	M18 x 1	3.11 (79)	1.14 (29)	1.97 (50)	0