**Miniature Short Body
Inductive Proximity Sensors**

Contents

These unique Cutler-Hammer® Inductive Proximity Sensors by Eaton's electrical business are designed to be used in extremely small spaces. A wide variety of models are available with housing diameters from 8 mm all the way down to 4 mm, allowing you to choose the one that best fits your application. The sensors are 3-wire devices that operate from 10 to 30V DC. Both shielded and unshielded versions are available.

Approvals

$C\,E$

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

These Tiny Tubular Sensors Deliver Reliable Performance Where Space Is Limited
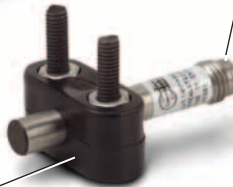

High Quality Stainless Steel Housings

4 mm

5 mm

6.5 mm

Mounting Bracket Included on 6.5 mm Models

8 mm

A Variety of Small Diameters to Fit Almost Anywhere

Choose from Cable or Nano-Connector on All Sizes

Micro-Connector Available on 6.5 mm and 8 mm Sizes

5 mm and 8 mm Models Are Threaded; 4 mm and 6.5 mm Models Are Unthreaded

Product Features

- Small 4, 5, 6.5 and 8 mm diameters for use in applications with limited space for mounting sensors
- Stainless steel housings
- All models include an LED indicator to show output status
- Short circuit and reverse polarity protection
- Rated NEMA 4, 4X, 6, 6P, 12 and 13 (IP67) for high resistance to environmental factors

Applications

- Automation equipment
- Robotics
- Machine tool
- Counting
- Sorting

Model Selection — Miniature Short Body Sensors

|	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type	Catalog Number	
					N.O. Output	N.C. Output
3-Wire Sensors						
4 mm Diameter (Unthreaded)	10 – 30V DC	0.8 mm	Shielded (NPN)	2-meter Cable	E57EAL4T110SP	—
				3-pin Nano Connector	E57EAL4T110SN ⬤	—
				4-pin Micro DC Connector	E57EAL4T110SD ⬤	—
			Shielded (PNP)	2-meter Cable	E57EAL4T111SP	—
				3-pin Nano Connector	E57EAL4T111SN ⬤	—
5 mm Diameter	10 – 30V DC	0.8 mm	Shielded (NPN)	2-meter Cable	E57EAL5T110SP	—
				3-pin Nano Connector	E57EAL5T110SN ⬤	—
			Shielded (PNP)	2-meter Cable	E57EAL5T111SP	—
				3-pin Nano Connector	E57EAL5T111SN ⬤	—
6.5 mm Diameter (Unthreaded)	10 – 30V DC	1 mm	Shielded (NPN)	2-meter Cable	E57EAL6T110SP	—
				3-pin Nano Connector	E57EAL6T110SN ⬤	—
				4-pin Micro DC Connector	E57EAL6T110SD ⬤	—
			Shielded (PNP)	2-meter Cable	E57EAL6T111SP	—
				3-pin Nano Connector	E57EAL6T111SN ⬤	—
				4-pin Micro DC Connector	E57EAL6T111SD ⬤	—
		2 mm	Unshielded (NPN)	2-meter Cable	E57EAL6T110EP	—
				3-pin Nano Connector	E57EAL6T110EN ⬤	—
			Unshielded (PNP)	2-meter Cable	E57EAL6T111EP	—
				3-pin Nano Connector	E57EAL6T111EN ⬤	—
8 mm Diameter	10 – 30V DC	1 mm	Shielded (NPN)	2-meter Cable	E57EAL8T110SP	E57EBL8T110SP
				3-pin Nano Connector	E57EAL8T110SN ⬤	E57EBL8T110SN ⬤
				4-pin Micro DC Connector	E57EAL8T110SD ⬤	E57EBL8T110SD ⬤
			Shielded (PNP)	2-meter Cable	E57EAL8T111SP	E57EBL8T111SP
				3-pin Nano Connector	E57EAL8T111SN ⬤	E57EBL8T111SN ⬤
				4-pin Micro DC Connector	E57EAL8T111SD ⬤	E57EBL8T111SD ⬤
		2 mm	Unshielded (NPN)	2-meter Cable	E57EAL8T110EP	E57EBL8T110EP
				3-pin Nano Connector	E57EAL8T110EN ⬤	E57EBL8T110EN ⬤
				4-pin Micro DC Connector	E57EAL8T110ED ⬤	E57EBL8T110ED ⬤
			Unshielded (PNP)	2-meter Cable	E57EAL8T111EP	E57EBL8T111EP
				3-pin Nano Connector	E57EAL8T111EN ⬤	E57EBL8T111EN ⬤
				4-pin Micro DC Connector	E57EAL8T111ED ⬤	E57EBL8T111ED ⬤

▨ 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	DC	4-pin 3-wire	22 AWG	6.0 feet (2m)	CSDS4A3CY2202	CSDS4A3RY2202	—	① ② ④ ③ 1-Brown 2-No Wire 3-Blue 4-Black
		4-pin 4-wire	22 AWG	6.0 feet (2m)	CSDS4A4CY2202	CSDS4A4RY2202	CSDS4A4IO2202	① ② ④ ③ 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)
					PVC Jacket	PUR Jacket	
Standard Cables — Nano Style							
Nano Style Straight Female	—	3-pin	24 AWG	6.0 feet (2m)	CSNS3A3CY2402	CSNS3A3RY2402	③ ④ ① 1-Brown 3-Blue 4-Black

[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	Cable Models	Connector Models (Face View Male Shown)	
			Micro	**Nano**
3-Wire Sensors				
10 – 30V DC	N.O. (NPN)			
	N.O. (PNP)			
	N.C. (NPN)			
	N.C. (PNP)			

Specifications

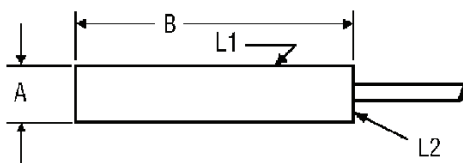|	DC Only Models
Operating Voltage	10 – 30V DC
Maximum Load Current	200 mA
Switching Frequency	2 kHz
Leakage Current	0.01 mA maximum
Voltage Drop	1.5V maximum
Burden Current	10 mA maximum
Protection	Transient, power on false pulse suppression, auto-reset short circuit
Switching Hysteresis	<15% rated sensing distance
Repeat Accuracy	<1% sensing distance
Time Delay Before Availability	<50 mS
Output Indicator LED	Lights when output is ON
Operating Temperature	-13° to 158°F (-25° to 70°C)
Enclosure Ratings	NEMA 4, 4X, 6, 6P, 12 and 13 (IP67)
Housing Material	Stainless steel
Cable	PVC high flex, oil/water resistant, 22 AWG

Model Selection — Accessories

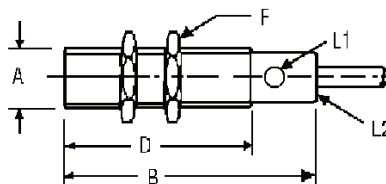| Description	Reference
Mounting Brackets	See **PG.05.03.T.E**
Replacement Mounting Nuts and Other Accessories	See **PG.05.04.T.E**
Connector Cables	See **PG.05.05.T.E**

Approximate Dimensions in Inches (mm)
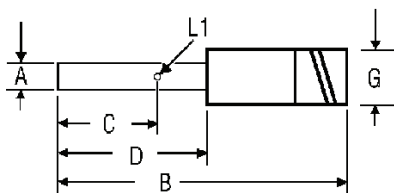
**Cable Models —
Unthreaded Barrel**

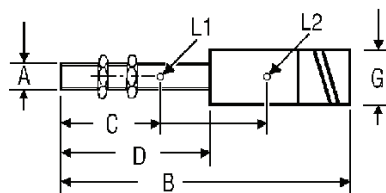

**Cable Models —
Threaded Barrel**

**Connector Models —
Unthreaded Barrel**

**Connector Models —
Threaded Barrel**

Size A	Barrel Type	Length B	C	D	Thread Size E	Nut Width F	Connector Diameter G	LED Location
Cable Models								
4 mm	Unthreaded	1.0 (25)	—	—	—	—	—	L1
5 mm	Threaded	1.0 (25)	—	0.8 (21)	M5 x 0.5	SW8	—	L1
6.5 mm	Unthreaded	1.8 (45)	—	—	—	—	—	L2
8 mm	Threaded	1.2 (30)	—	1.2 (30)	M8 x 1	SW13	—	L2
Nano-Connector Models								
4 mm	Unthreaded	1.6 (40)	0.7 (18)	0.8 (21)	—	—	0.31 (8)	L1
5 mm	Threaded	1.6 (40)	0.7 (18)	0.8 (21)	M5 x 0.5	SW8	0.31 (8)	L1
6.5 mm	Unthreaded	2.4 (60)	1.5 (39)	2.0 (50)	—	—	0.31 (8)	L1
8 mm	Threaded	1.8 (45)	1.0 (25)	1.4 (36)	M8 x 1	SW13	0.31 (8)	L1
Micro-Connector Models								
6.5 mm	Unthreaded	2.9 (70)	1.4 (36)	1.5 (39)	—	—	0.47 (12)	L1
8 mm	Threaded	2.0 (50)	1.6 (40)	1.0 (25)	M8 x 1	SW13	0.47 (12)	L2