August 2007

Threaded Body Capacitive Proximity Sensors

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Cutler-Hammer® Type E53 Capacitive Proximity Sensors from Eaton's electrical business are self-contained devices designed to detect both metallic and nonmetallic targets. They are ideally suited for liquid level control and for sensing powdered or granulated material. For best operation, they should be used in an environment having relatively constant temperature and humidity.

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

18 mm and 30 mm Diameter Capacitive Sensors Offer Reliable Detection of Liquid and Other Targets

Product Features

- Detect liquids, powders and other materials that are difficult or impossible with other sensor types
- Plastic body is corrosion resistant
- Sensitivity adjustment
- Output indicator LED

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 — E53 Threaded Body Capacitive Proximity Sensors

	Operating Voltage	Sensing Range (Sn)	Shielding	Connection Type	Catalog Number N.O. Output	Catalog Number N.C. Output
2-Wire Sensors						
18 mm Diameter	20 – 250V AC	0.31 inch (8 mm)	Shielded	2-meter Cable	E53KAL18A2	E53KBL18A2
				3-pin Micro AC Connector	E53KAL18A2SA	E53KBL18A2SA
		0.59 inch (15 mm)	Unshielded	2-meter Cable	E53KAL18A2E	E53KBL18A2E
				3-pin Micro AC Connector	E53KAL18A2EA	E53KBL18A2EA
30 mm Diameter	20 – 250V AC	0.79 inch (20 mm)	Shielded	2-meter Cable	E53KAL30A2	E53KBL30A2
				3-pin Micro AC Connector	E53KAL30A2SA	E53KBL30A2SA
		0.98 inch (25 mm)	Unshielded	2-meter Cable	E53KAL30A2E	E53KBL30A2E
				3-pin Micro AC Connector	E53KAL30A2EA	E53KBL30A2EA
3-Wire Sensors						
18 mm Diameter	10 – 30V DC	0.31 inch (8 mm)	Shielded (NPN)	2-meter Cable	E53KAL18T110	E53KBL18T110
				4-pin Micro DC Connector	E53KAL18T110SD	E53KBL18T110SD
			Shielded (PNP)	2-meter Cable	E53KAL18T111	E53KBL18T111
				4-pin Micro DC Connector	E53KAL18T111SD	E53KBL18T111SD
		0.59 inch (15 mm)	Unshielded (NPN)	2-meter Cable	E53KAL18T110E	E53KBL18T110E
				4-pin Micro DC Connector	E53KAL18T110ED	E53KBL18T110ED
			Unshielded (PNP)	2-meter Cable	E53KAL18T111E	E53KBL18T111E
				4-pin Micro DC Connector	E53KAL18T111ED	E53KBL18T111ED
30 mm Diameter	10 – 30V DC	0.79 inch (20 mm)	Shielded (NPN)	2-meter Cable	E53KAL30T110	E53KBL30T110
				4-pin Micro DC Connector	E53KAL30T110SD	E53KBL30T110SD
			Shielded (PNP)	2-meter Cable	E53KAL30T111	E53KBL30T111
				4-pin Micro DC Connector	E53KAL30T111SD	E53KBL30T111SD
		0.98 inch (30 mm)	Unshielded (NPN)	2-meter Cable	E53KAL30T110E	E53KBL30T110E
				4-pin Micro DC Connector	E53KAL30T110ED	E53KBL30T110ED
			Unshielded (PNP)	2-meter Cable	E53KAL30T111E	E53KBL30T111E
				4-pin Micro DC Connector	E53KAL30T111ED	E53KBL30T111ED

Stocked product, typical order quantities guaranteed in stock.

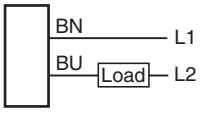
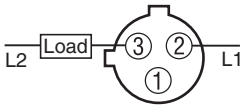
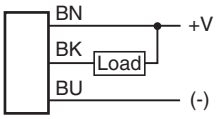
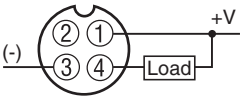
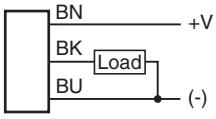
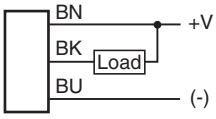
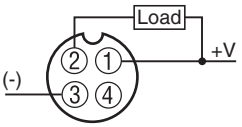
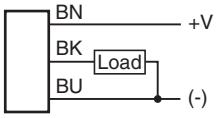
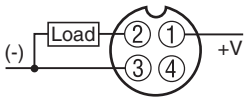
See listing of compatible connector cables below.

Model Selection — Compatible Connector Cables

	Voltage Style	Number of Pins	Gauge	Length	Catalog Number	Pin Configuration/Wire Colors (Face View Female Shown)
Standard Cables — Micro Style						
Micro Style Straight Female Current Rating @ 600V 3-pin: 13A 4-pin: 10A	AC	3-pin 3-wire	22 AWG	6 feet (2m)	CSAS3F3CY2202	1-Green 2-Red/Black 3-Red/White
	DC	4-pin 3-wire	22 AWG	6 feet (2m)	CSDS4A3CY2202	1-Brown 2-No Wire 3-Blue 4-Black
		4-pin 4-wire	22 AWG	6 feet (2m)	CSDS4A4CY2202	1-Brown 2-White 3-Blue 4-Black

Stocked product, typical order quantities guaranteed in stock.

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

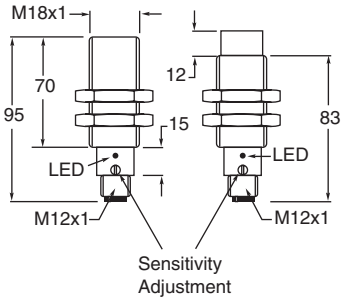
Operating Voltage	Output	Cable Models	Micro Connector Models (Face View Male Shown)
2-Wire Sensors			
20 – 250V AC	N.O. & N.C.		
3-Wire Sensors			
10 – 30V DC	N.O. (NPN)		
	N.O. (PNP)		
	N.C. (NPN)		
	N.C. (PNP)		

Specifications

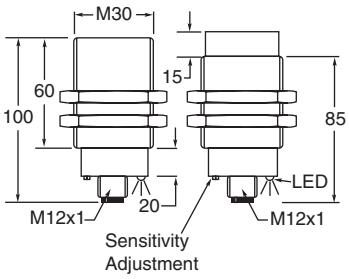
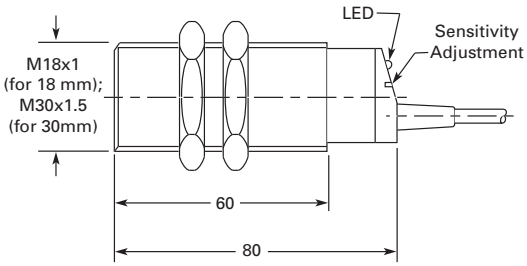
	AC Models	DC Models
AC Residual	2.5 mA maximum	
Maximum Load Current	300 mA	300 mA
Switching Rate	15 operations per second	250 operations per second
Circuit Protection	—	Short circuit and reverse polarity
Output Indicator LED	Lights when output is ON	
Ambient Temperature Range	-13° to 158°F (-25° to 70°C)	
Enclosure Ratings	NEMA 1, 2, 3, 3S, 4, 12, 13 (IEC IP65)	
Sensitivity Adjustment	Included	
Housing Material	Polyoxymethylene (POM) Plastic mounting nuts molded of Nylon 66 (PA66)	

Approximate Dimensions in mm

18 mm Diameter Threaded Body Sensor



30 mm Diameter Threaded Body Sensor



18 & 30 mm Cable