iProx Inductive Proximity Sensors

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The Cutler-Hammer® iProx represents the highest performance, most versatile tubular inductive sensor offered by Eaton's electrical business. By utilizing an embedded microprocessor and exclusive SmartSense™ technology, iProx can sense up to three times farther than typical sensors of its class, while providing an unheard-of level of customization.

Both shielded and unshielded versions of iProx feature extended sensing ranges. This allows the sensor to be mounted farther from the target, thereby reducing the potential for target impacts and increasing the sensing reliability of your application.

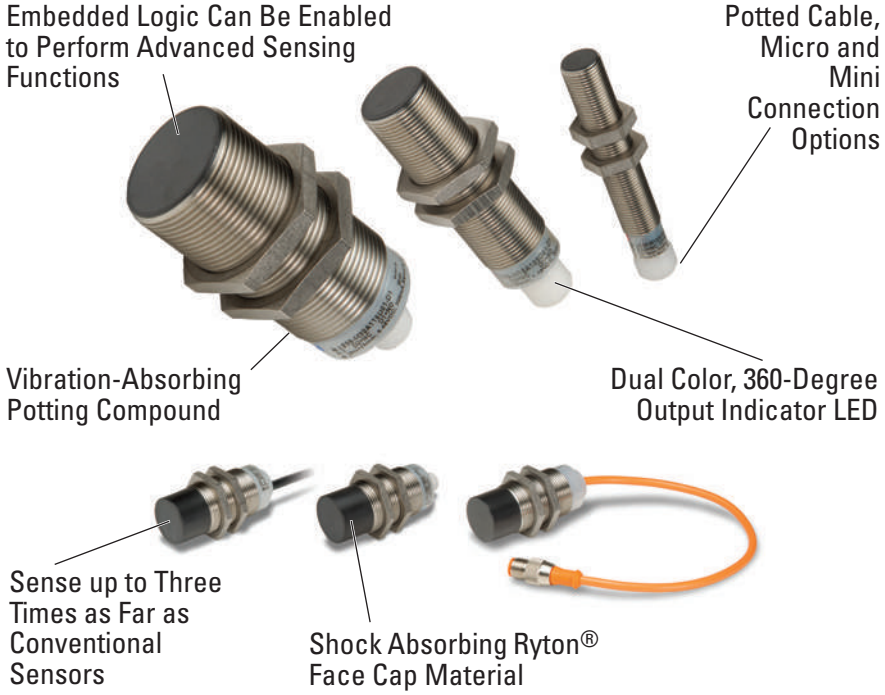
The iProx also includes a wide range of advanced features that can be enabled via optional programming tools. Using the ProxView Windows-based software package, an entirely custom sensor can be programmed to perfectly fit an application. Sensor characteristics, such as sensing range, can be customized down to the nearest tenth of a millimeter. Outputs can be changed from N.O. to N.C. Even noise immunity and response time can be adjusted if necessary. The iProx even features built-in timing delays and speed detection logic — no PLC programming is necessary.

With extended sensing range, quality construction and the ability to adapt to its environment, iProx is the ideal choice for even the most demanding inductive sensing applications.

Approvals

- C-UL Listed

Our Highest Performance, Most Versatile Inductive Sensor Yet



Note: Custom iProx models can also be ordered directly from the factory with pre-set ranges, outputs and connectors. Consult the Cutler-Hammer Application Engineers at 1-800-426-9184 for more information.

Product Features

- Available in AC 2-Wire, DC 3-Wire and unique DC 4-Wire with complementary (N.O./N.C.) or dual N.O. outputs
- Reliably detect metal targets at up to three times the range of conventional shielded or unshielded tubular inductive sensors
- Quality construction using a stainless steel barrel, 360-degree dual-color LED indicator, Ryton® impact-resistant face cap and vibration-absorbing potting compound
- Auto-configure technology automatically detects a sinking (NPN) or sourcing (PNP) connection and switches the sensor accordingly, without any user intervention
- Exclusive SmartSense™ embedded microprocessor technology allows for customizable range, band sensing, nuisance metal rejection, timing delays and over/under speed detection
- Optional computer programming cable and Windows-based ProxView configuration software makes it easy to customize sensors
- Withstands high electrical noise (up to 20 V/m)
- Resistant to extreme temperatures (-40°C)

Typical Applications

- Automotive
- Machine Tool
- Material Handling
- Metalworking

Model Selection — iProx (Continued)

	Operating Voltage	Sensing Range	Shielding	Connection Type ②	Catalog Number	
					N.O. Output ①	N.C. Output ①
3-Wire Sensors						
12 mm Diameter  Standard Range / Extended Range	6 – 48V DC	4 mm	Shielded	4-pin Micro DC Connector	**E59-M12A105D01-D1** ⊛	**E59-M12A105D01-D2** ⊛
				4-pin Micro DC Pigtail ③	**E59-M12A105D01P-D1** ⊛	**E59-M12A105D01P-D2** ⊛
				2-meter Cable	**E59-M12A105C02-D1**	**E59-M12A105C02-D2**
		10 mm	Unshielded	4-pin Micro DC Connector	**E59-M12C110D01-D1** ⊛	**E59-M12C110D01-D2** ⊛
				4-pin Micro DC Pigtail ③	**E59-M12C110D01P-D1** ⊛	**E59-M12C110D01P-D2** ⊛
				2-meter Cable	**E59-M12C110C02-D1**	**E59-M12C110C02-D2**
18 mm Diameter  Standard Range / Extended Range		8 mm	Shielded	4-pin Micro DC Connector	**E59-M18A108D01-D1** ⊛	**E59-M18A108D01-D2** ⊛
				4-pin Micro DC Pigtail ③	**E59-M18A108D01P-D1** ⊛	**E59-M18A108D01P-D2** ⊛
				2-meter Cable	**E59-M18A108C02-D1**	**E59-M18A108C02-D2**
		18 mm	Unshielded	4-pin Micro DC Connector	**E59-M18C116D01-D1** ⊛	**E59-M18C116D01-D2** ⊛
				4-pin Micro DC Pigtail ③	**E59-M18C116D01P-D1** ⊛	**E59-M18C116D01P-D2** ⊛
				2-meter Cable	**E59-M18C116C02-D1**	**E59-M18C116C02-D2**
30 mm Diameter  Standard Range / Extended Range		15 mm	Shielded	4-pin Micro DC Connector	**E59-M30A115D01-D1** ⊛	**E59-M30A115D01-D2** ⊛
				4-pin Micro DC Pigtail ③	**E59-M30A115D01P-D1** ⊛	**E59-M30A115D01P-D2** ⊛
				2-meter Cable	**E59-M30A115C02-D1**	**E59-M30A115C02-D2**
		29 mm	Unshielded	4-pin Micro DC Connector	**E59-M30C129D01-D1** ⊛	**E59-M30C129D01-D2** ⊛
				4-pin Micro DC Pigtail ③	**E59-M30C129D01P-D1** ⊛	**E59-M30C129D01P-D2** ⊛
				2-meter Cable	**E59-M30C129C02-D1**	**E59-M30C129C02-D2**

① Sensors are ordered with pre-set outputs from the factory, but can be later programmed either N.O. or N.C. using the ProxView software.
② For sensors with custom cable lengths or PUR jackets, contact Application Engineering at 1-800-426-9184.
③ Standard pigtail cable length is 12 inches.
▭ Fast turn product with typical one business day lead-time to shipment.
⊛ See listing of compatible connector cables below.

Model Selection — Compatible Connector Cables ④

	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 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						
Mini Style Straight Female  Current Rating @ 600V 3-pin: 13A	—	3-pin	16 AWG	6 feet (2m)	**CSMS3F3CY1602**	 1-Green 2-Black 3-White

④ For a full selection of connector cables, see **Section 10**.
▭ Stocked product, typical order quantities guaranteed in stock.

Specifications — iProx

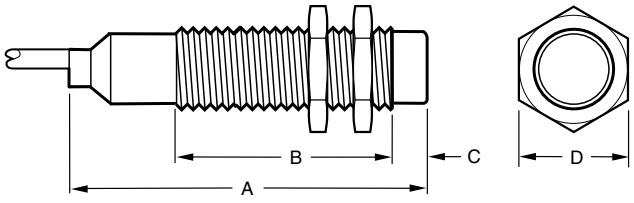
Description	2-Wire Sensors	3-Wire Sensors
Input Voltage	20 – 132V AC	6 – 48V DC
Load Current	12 mm: 5 – 300mA, 200mA > 50°C	≤500 mA @ 6 – 30V DC; ≤300 mA @ 32 – 48V DC
Leakage Current	≤1.7 mA @ 0°C, 2.0 mA @ -40°C	≤150 µA
Voltage Drop	<5V AC	≤2.5V DC
Burden Current	—	≤15 mA
Protection	None	Auto Reset
Switching Hysteresis	< 15% Rated Sensing Distance	
Repeat Accuracy	Shielded models: < 1% Sensing Distance; Unshielded models: < 3% Sensing Distance	
Surge Capacity	3A/30 ms	—
Temperature Range	-40° to 158°F (-40° to 70°C)	
Material of Construction	303 Stainless steel; End bells: Polycarbonate; Face caps: Ryton®; Cable: AWM Style 20387 (PVC) ③	
Vibration and Shock	Vibration: 10 to 55 Hz, 1 mm Amplitude, IEC 60068-2-6; Shock: 30g, 11 mS per IEC 68-2-27	
Indicator LED	360° viewable LED	
Enclosure Ratings	NEMA 4, 4X, 6, 6P, 12 and 13 (IP67) ④	

Response Time ①	2-Wire Sensors	3-Wire Sensors					
	All 2-Wire Models	Shielded			Unshielded		
		12 mm	18 mm	30 mm	12 mm	18 mm	30 mm
Factory Default Mode	Shipped in "Side by Side Mode" by default (20 V/m)	580 Hz (10 V/m)	390 Hz (10 V/m)	240 Hz (10 V/m)	300 Hz (10 V/m)	150 Hz (10 V/m)	145 Hz (10 V/m)
Side by Side ②	30 Hz (10 V/m)	50 Hz (20 V/m)					
High Noise Immunity Mode	10 Hz (>20 V/m)	10 Hz (>20 V/m)					

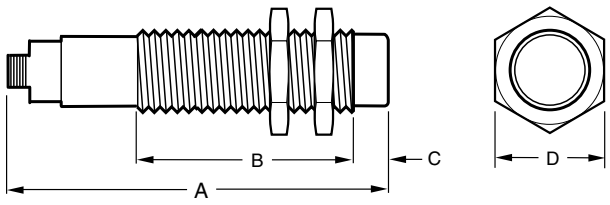
① iProx sensors may be programmed to perform in Side by Side or High Noise immunity applications using the iProx Programming Cable (E59RP1) & ProxView software (E59SW1).
② Use the Side by Side response time parameter when using the iProx Tray Programmer (E59TP1), iProx Programming Cable (E59RP1) and ProxView software (E59SW1).
③ Ryton® is a registered trademark of Phillips Chemical (division of Phillips Petroleum).
④ Our 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 our applications department at 1-800-426-9184.

Approximate Dimensions — iProx in Inches (mm)

Cable Models



Micro-Connector Models



Cable Models

Size	Shielding	A	B	C	D
12 mm	Shielded	2.46 (62.4)	1.98 (50.3)	0.02 (0.5)	0.67 (17)
	Unshielded	2.46 (62.4)	1.64 (41.6)	0.36 (9)	0.67 (17)
18 mm	Shielded	2.54 (64.5)	2.00 (50.9)	0.02 (0.5)	0.94 (24)
	Unshielded	2.54 (64.5)	1.47 (37.4)	0.55 (14)	0.94 (24)
30 mm	Shielded	2.74 (69.6)	2.13 (54.1)	0.03 (0.75)	1.41 (36)
	Unshielded	2.74 (69.6)	1.41 (35.8)	0.75 (19)	1.41 (36)

Micro-Connector Models

Size	Shielding	A	B	C	D
12 mm	Shielded	2.71 (68.7)	1.98 (50.3)	0.02 (0.5)	0.67 (17)
	Unshielded	2.71 (68.7)	1.64 (41.6)	0.36 (9)	0.67 (17)
18 mm	Shielded	2.73 (69.3)	2.00 (50.9)	0.02 (0.5)	0.94 (24)
	Unshielded	2.73 (69.3)	1.47 (37.4)	0.55 (14)	0.94 (24)
30 mm	Shielded	2.92 (74.1)	2.13 (54.1)	0.03 (0.75)	1.41 (36)
	Unshielded	2.92 (74.1)	1.41 (35.8)	0.75 (19)	1.41 (36)