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SENSORS

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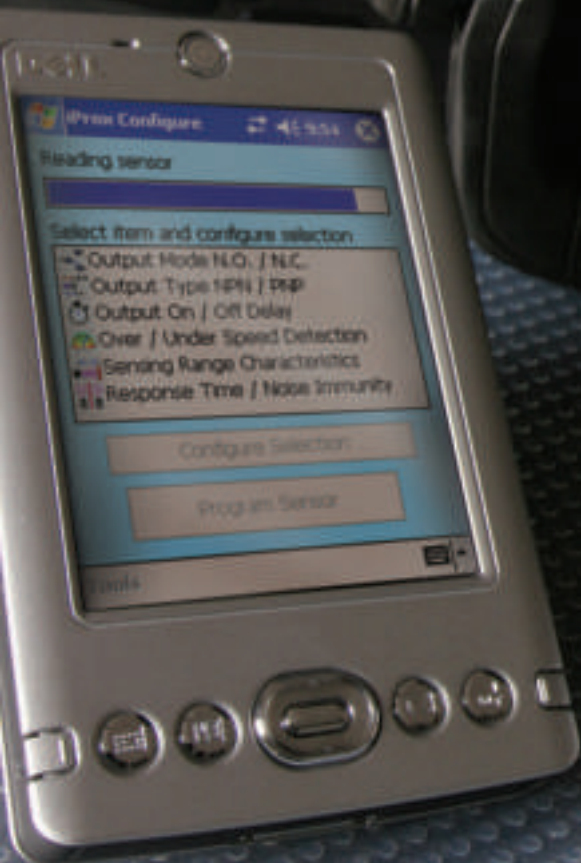
Cutler-Hammer

iProx Sensing Solutions

iProx Analog
iProx Standard
iProx Clone
iProx Accessories

iProx™
The world's
most versatile
proximity
sensor.

**Solve
the unsolvable with
iProx sensors and
programming tools.**





iProx. It's a fully field-programmable inductive sensor.

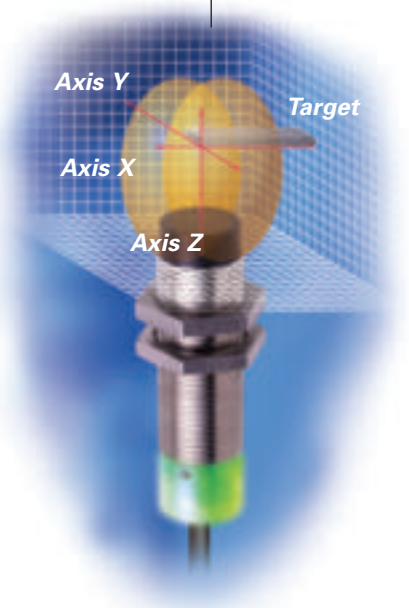


iProx features auto-configure, which gives it the ability to automatically detect whether it is wired for NPN or PNP. The iProx can even be programmed normally open or normally closed.

Transform your PDA or PC into a portable programming device with iProx Programming Software. Customize the sensor while it is mounted in its final operating environment, further reducing downtime.



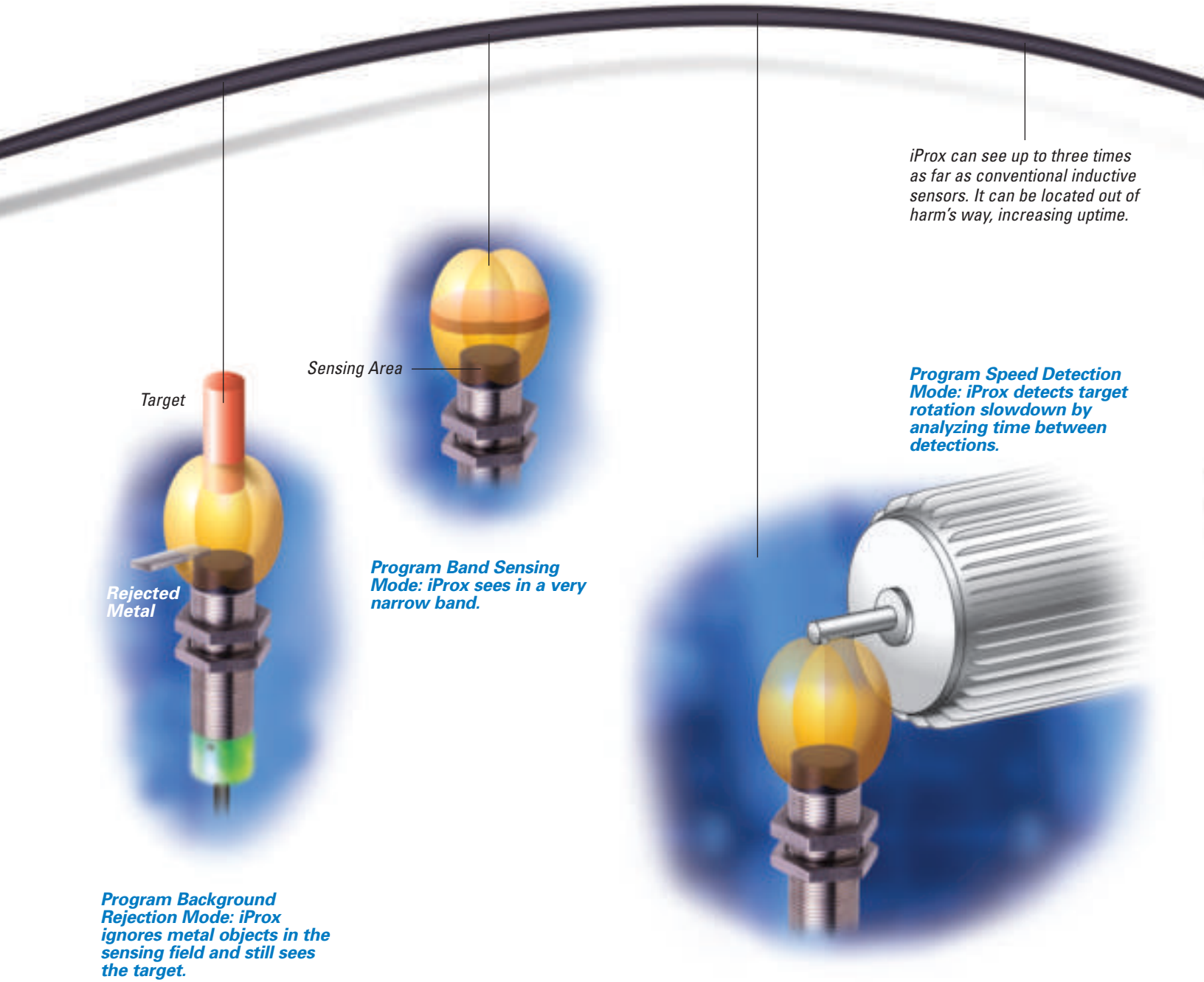
Batch program up to four sensors at a time with the iProx Tray Programmer. Reduce inventory and lead times by cloning iProx sensors from a database of over 4,800 competitive products.



Program Position Mode:
Enables iProx to detect mode changes in lateral movement.

The iProx Clone adapts to your environment. Set the sensing distance, operating modes, teach it to ignore background metals, sense in a narrow band, and more. The iProx can be pre-configured at the factory to help you save even more time.

Yes. The iProx can do that. In a nutshell, the iProx is the most versatile inductive proximity sensor available today. Using the iProx Programming Software, you can literally replace thousands of sensors with just a few clicks of the mouse. When you need unmatched flexibility, adaptability and sensing performance, look no further than the iProx family of sensor products.



iProx can see up to three times as far as conventional inductive sensors. It can be located out of harm's way, increasing uptime.

Program Speed Detection Mode: iProx detects target rotation slowdown by analyzing time between detections.

Program Band Sensing Mode: iProx sees in a very narrow band.

Program Background Rejection Mode: iProx ignores metal objects in the sensing field and still sees the target.

- Style Options:**
- 12mm, 18mm, & 30mm diameter
 - AC or DC
 - Shielded or unshielded
 - 2 meter cable, body-mounted quick disconnect, or pigtail quick disconnect

If you can operate a mouse, you're qualified to program iProx.

The iProx can be programmed in minutes using the iProx Programming Software package for Windows and Windows Mobile devices. Just connect a single sensor to your computer or PDA using the Remote Programmer, or batch program up to four sensors at a time using the Tray Programmer. Configure a single sensor, clone the attributes of one sensor to another, or teach a sensor while in the application – the choice is yours.

Program iProx sensors without removing from them the installation.

The Remote Programmer transmits instructions to an embedded microprocessor using Cutler-Hammer's exclusive SmartSense™ technology.

Vibration-absorbing potting compound

High visibility LEDs let you see sensor status from any angle (Green: power, Red: output status)

Resists extreme temperatures and high-pressure washdown

Fewer products. Less inventory. More money in your pocket.

Lean. It's today's manufacturing battle cry, and the iProx can help you get there. With this sensor, you have solutions for thousands of those once unsolvable applications. This means less inventory and less time researching and procuring the right inductive sensor for the job. You save time and money and your equipment runs longer – just what today's manufacturing environment demands.

Feature	Standard	Cloning	Analog
Extended Sensing Range	●	●	●
Programmable Output Type (PNP, NPN, Auto Configure)	●	●	●
Programmable Output Mode (Normally Open, Normally Closed)	●	●	●
Programmable Sensing Range and Band Sensing	○	●	●
Programmable Response Time and Noise Immunity (Very Low, Low, Medium, High)	●	●	●
Programmable Output On / Off Delay		●	●
Programmable Over / Under Speed Detection		●	●
Dual Outputs		◆	◆

- Can be programmed using the Tray Programmer or Remote Programmer
- Requires use of Remote Programmer. Sensor must be in application.
- ◆ Dual output requires a different part number. PNP/NPN must be identified and cannot be programmed.

	Product	Catalog Number	Description
	iProx Analog Sensor	E59-A...	Programmable analog sensor with advanced features such as scalable 0-20mA and 0-10vDC
	iProx Clone Sensor	E59-M...	Programmable sensor with advanced features such as cloning, output delay and speed detection
	iProx Standard Sensor	E59-F...	Limited programmability and competitively priced for non-programmable applications
	iProx Remote Programming Device Kit	E59RPD	All-in-one programming kit including PDA, iProx Programming Software and all necessary cables
	iProx Programming Software	E59SW1	Step-by-step programming software for Windows and Windows Mobile devices
	Remote Programmer	E59RP1	Cable required for computer-to-sensor communications
	Tray Programmer	E59TP1	Batch programming device which connects directly to your PC or PDA

Installation Instructions — iProx™ Sensor

CATALOG NUMBER COMPONENTS

E59-F18A108D01-D1

a b c d e f g

"a"	Product Family	E59-F	Programmable iProx Sensor
"b"	Barrel Diameter	12	12mm
		18	18mm
		30	30mm
"c"	Body/Cap	A	Stainless Steel/Shielded
		C	Stainless Steel/Unshielded
"d"	Indicator LED	1	Standard Green & Red
"e"	Maximum Range	*	Sensing Range in mm
"f"	Connection	A01	3-pin Micro AC Connector
		A01P	3-pin Micro AC Pigtail
		A01PB	3-pin Mini AC Pigtail
		C02	2-meter Cable
		D01	4-pin Micro DC Connector
		D01P	4-pin Micro DC Pigtail
"g"	Output & Voltage	A1	AC, N.O. Default Setting
		A2	AC, N.C. Default Setting
		D1	DC, Auto Sink/Source, N.O. Default Setting
		D2	DC, Auto Sink/Source, N.C. Default Setting

* Maximum sensing range in millimeters, i.e. 05 = 5 mm; 29 = 29 mm.



WARNING

IN ORDER TO AVOID ELECTRIC SHOCK OR OTHER POSSIBLE INJURY:

- DO NOT USE THIS FIELD PROGRAMMABLE PRODUCT WITHOUT TESTING THE SENSOR CONFIGURATION PRIOR TO USE. FAILURE TO DO SO COULD RESULT IN A HUMAN INJURY OR MAJOR EQUIPMENT DAMAGE. REFER TO THE IPROX INSTALLATION AND USAGE GUIDE (P50228) FOR PROGRAMMING INSTRUCTIONS.
- DO NOT USE THIS PRODUCT FOR HUMAN SAFETY APPLICATIONS. IT WAS NOT DESIGNED, TESTED OR RECOMMENDED FOR THIS USE.
- DO NOT USE THIS PRODUCT IN HAZARDOUS LOCATIONS (E.G. EXPLOSIVE ATMOSPHERES). IT WAS NOT DESIGNED, TESTED OR RECOMMENDED FOR THIS USE.
- ENSURE THE PRODUCT IS PROPERLY CONNECTED TO THE CORRECT POWER SUPPLY FOR THE APPLICATION. REFER TO THE SPECIFICATIONS AND WIRING DIAGRAMS IN THIS MANUAL.

INTRODUCTION

The iProx™ sensor is a field programmable, inductive proximity sensor with Cutler-Hammer's exclusive microprocessor-controlled SmartSense™ technology. SmartSense allows the iProx to perform with its default settings right out of the box. There is no need to program the sensor. However when needed, the iProx sensor output may be reconfigured from normally open to normally closed (or vice versa) by affixing the Remote Programmer on the face of the sensor. SmartSense can also solve your most difficult sensing applications. Fully programmable models will adapt to your application. Using the Remote Programmer, the iProx sensor can be taught application parameters to perform the following sensing modes: Band Sensing, Position Sensing, Background Rejection, and Adjustable Sensing Range/Hysteresis. Review the iProx Software Installation and Usage Guide (P50228) for detailed explanations and programming instructions.

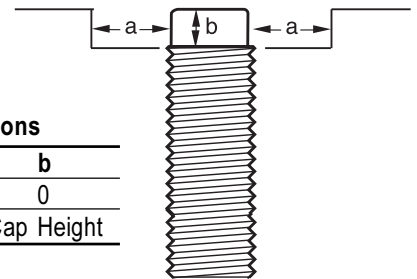
Warning: The iProx is a field programmable sensor with several configurable parameters. As such do not use the iProx without testing the configuration prior to use. Failure to do so could result in an unsafe condition. Refer to the iProx Installation and Usage Guide (P50228) for programming instructions.

MOUNTING

Mounting the iProx sensor is different for shielded and unshielded sensors. In the case of the shielded iProx sensor, it can be mounted with the sensor completely surrounded by metal.

In the case of an unshielded iProx sensor, a metal free zone must be provided when mounting the sensors, as shown below. Unshielded sensors can be used in a mounting arrangement completely surrounded by metal, however the sensors must be programmed in Background Rejection Mode to reject the side metal. In these cases, the sensing range will be reduced.

The size of the metal free zone is dependent on both the size of the sensor and the type of sensing range (Sn).



Metal Free Zone Dimensions

Shielding	a	b
Shielded	0	0
Unshielded	1.5 x Sn	Cap Height

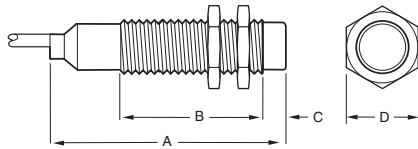
SPECIFICATIONS

	2-Wire Sensors	3-Wire Sensors
Input Voltage	20-132 VAC	6-48 VDC
Load Current	5-500mA, 5-250 mA >50°C; 12mm 5-300mA, 200mA >50°C	≤500 mA @ 6-30 VDC; ≤300 mA @ 32-48 VDC
Leakage Current	1.7 mA maximum, 1.4 mA nominal	≤150 μA
Voltage Drop	<10 VAC	≤2.5 VDC
Burden Current	- - -	≤15 mA
Protection	Overcurrent ⁴	Auto Reset
Switching Hysteresis	<15% rated sensing distance	
Repeat Accuracy	Shielded Models: <1% sensing distance; Unshielded Models: <3% sensing distance	
Surge Capacity	3A / 30ms	- - -
Temperature Range	-13° to +158° F (-25° to +70° C)	
Material of Construction	303 stainless steel; End bells: Polycarbonate; Face caps: Ryton®; Cable: AWM style 20387 (PVC)	
Vibration and Shock	Vibration: 10 to 55 Hz, 1mm 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) ¹	
Response Time²	2-Wire Sensors	3-Wire Shielded Sensors 3-Wire Unshielded Sensors
		12 mm 18 mm 30 mm 12 mm 18 mm 30 mm
Factory Default Mode (20 V/m)	Shipped in "Side by Side Mode" by default	580 Hz 390 Hz 240 Hz 300 Hz 150 Hz 90 Hz
Side by Side Mode³	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 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.
² iProx sensors may be programmed to perform in Side by Side or High Noise Immunity applications using Cutler-Hammer's iProx Remote Programmer (E59RP1) & Programming Software (E59SW1).
³ Use the Side by Side response time parameter when mounting iProx sensors closer than 7x its maximum sensing range. Refer to the Software Installation & Usage Guide (P50228) for specific mounting details.
 Ryton® is a registered trademark of Phillips Chemical (Division of Phillips Petroleum)
⁴ Overcurrent protection for conductor size 20 AWG is 5 A; 22 AWG is 3 A; 24 AWG is 2A.

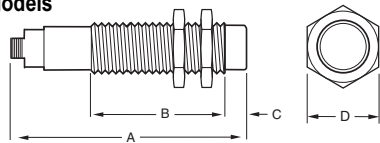
APPROXIMATE DIMENSIONS

Cable Models



Size	Shielding	A	B	C	D
12mm	Shielded	2.46 (62.4)	1.98 (50.3)	0.02 (.50)	0.67 (17)
	Unshielded	2.46 (62.4)	1.64 (41.6)	0.36 (9)	0.67 (17)
18mm	Shielded	2.54 (64.5)	2.00 (50.9)	0.02 (.50)	0.94 (24)
	Unshielded	2.54 (64.5)	1.47 (37.4)	0.55 (14)	0.94 (24)
30mm	Shielded	2.74 (69.6)	2.13 (54.1)	0.03 (.75)	1.41 (36)
	Unshielded	2.74 (69.6)	1.41 (35.8)	0.75 (19)	1.41 (36)

Micro Connector Models

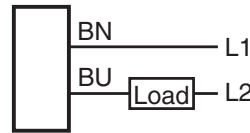


Size	Shielding	A	B	C	D
12mm	Shielded	2.71 (68.7)	1.98 (50.3)	0.02 (.50)	0.67 (17)
	Unshielded	2.71 (68.7)	1.64 (41.6)	0.36 (9)	0.67 (17)
18mm	Shielded	2.73 (69.3)	2.00 (50.9)	0.02 (.50)	0.94 (24)
	Unshielded	2.73 (69.3)	1.47 (37.4)	0.55 (14)	0.94 (24)
30mm	Shielded	2.92 (74.1)	2.13 (54.1)	0.03 (.75)	1.41 (36)
	Unshielded	2.92 (74.1)	1.41 (35.8)	0.75 (19)	1.41 (36)

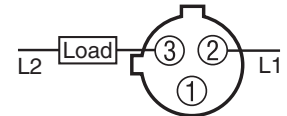
Note: Metal nuts are provided for equipment grounding means.

WIRING DIAGRAMS (Normally Open and Normally Closed)

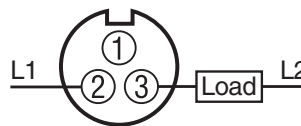
AC Cable



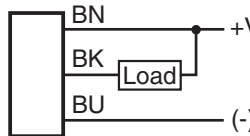
AC Micro



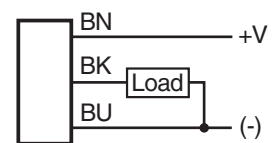
AC Mini



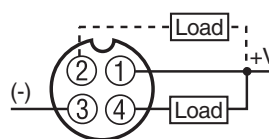
DC Cable (NPN)



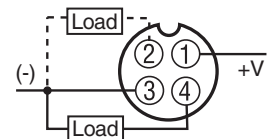
DC Cable (PNP)



DC Micro (NPN)



DC Micro (PNP)



Note: Pin numbers 2 and 4 are internally jumpered together. Either pin may be used.