

In-port Cylinder Position Proximity Sensor

Bulletin Number 871D

Features



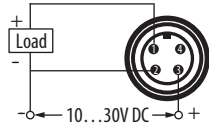
- Rugged low profile housing with stainless steel probe
- Housing 3040 rotatable during installation without the pressure seal breaking
- 3000 psi (207 bar) maximum
- 2-wire AC/DC or 3-wire DC sourcing (PNP) models
- Normally open output
- Short circuit, overload, false pulse, transient noise, and reverse polarity (DC models)
- UL and c-UL approved and CE Marked for all applicable directives

Specifications

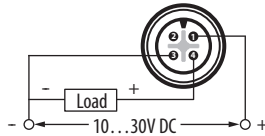
	3-wire DC Models	2-wire AC/DC Models
Output	Normally open PNP	Normally open
Load current, max	<200 mA	5...500 mA
Leakage current	<80 µA	<1.7 mA @120V AC
Inrush current (1 cycle)	—	<3 A (t<20 ms)
Operating voltage	10...30V DC	20...250V AC/DC
Voltage drop	<2.5V DC @200 mA	<6V @400 mA
Barrel diameter	12 mm (0.47 in.)	12 mm (0.47 in.)
Nominal sensing distance	2 mm (0.08 in.)	2 mm (0.08 in.)
Shielded	Yes	Yes
Repeatability	5% typical	5% typical
Hysteresis	15% typical	15% typical
Switching frequency	10 Hz	50 Hz
Reverse polarity protection	Incorporated	—
False pulse protection	Incorporated	Incorporated
Transient noise protection	Incorporated	Incorporated
Short Circuit protection	Incorporated	Incorporated
Overload protection	Incorporated	Incorporated
Weld field immunity	20,000 A @ 25.4 mm (1 in.)	20,000 A @ 25.4 mm (1 in.)
Operation pressure, max	3000 psi (207 bar)	3000 psi (207 bar)
Enclosure	NEMA 1, 2, 3, 3R, 4, 6, 12, 13, IP67 (IEC 529)	NEMA 1, 2, 3, 3R, 4, 6, 12, 13, IP67 (IEC 529)
Quick disconnect connections	<ul style="list-style-type: none"> • 4-pin DC micro style • 4-pin mini style 	<ul style="list-style-type: none"> • 3-pin AC micro style • 3-pin mini style
Status Indicators	Green: Power Orange: Output	Green: Power Orange: Output
Operating temperature	-25...+70 °C (-13...+158 °F)	-25...+70 °C (-13...+158 °F)
Shock	30 g (1.1 oz), 11 ms	30 g (1.1 oz), 11 ms
Vibration	55 Hz, 1 mm (0.04 in.) amplitude, 3 planes, 30 min each plane	55 Hz, 1 mm (0.04 in.) amplitude, 3 planes, 30 min each plane
Housing material	Machined aluminum	Nickel-plated brass
Probe material	Stainless steel, ceramic face	Stainless steel, ceramic face

Wiring Diagrams

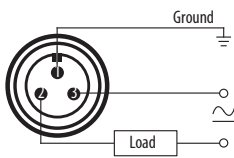
DC Mini Connector (-N4)
Normally Open
PNP (Sourcing)



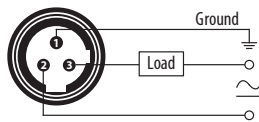
DC Micro Connector (-D4)
Normally Open
PNP (Sourcing)



AC/DC Mini Connector (-N3)
Normally Open



AC/DC Micro Connector (-R3)
Normally Open



Installation

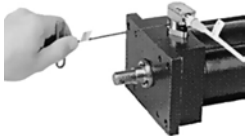
1. Mount your 871D sensor to the cylinder with the two installation bolts that are supplied with the sensor. Allen wrench is required.⁽¹⁾



2. Rotate the connector end of your 871D sensor to the desired location for cable connection.



3. Tighten the integral set screw that is on the sensor housing to lock your 871D sensor into position before start-up. Allen wrench is provided.



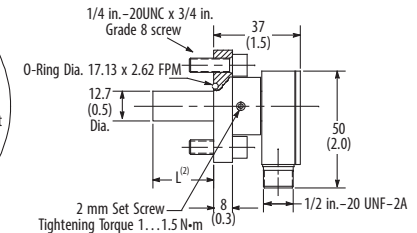
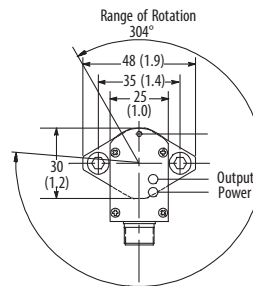
Your 871D sensor is ready for use.

- (1) Bolts that are supplied with sensor are 1/4 in.-20 UNC Grade 8 socket cap screws. Use of other bolt grades is not recommended. Use of lock washers on other fastener accessories can reduce the design safety factors of the sensor assembly. For high vibration applications (vibration mode ≥ 45 Hz, 1 mm [0.04 in.] amplitude), the use of a thread locking compound is recommended.

Approximate Dimensions

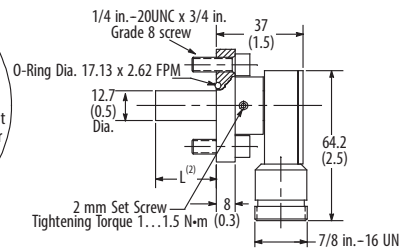
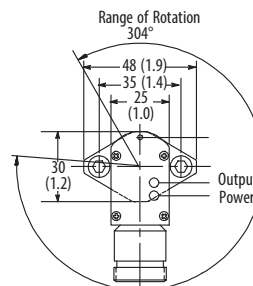
Dimensions are shown in millimeters (inches).

Micro Connector Models (-D4, -R3)



- (2) See [Product Selection](#) table for probe length (L).

Mini Connector Models (-N3, -N4)



- (2) See [Product Selection](#) table for probe length (L).

Product Selection

Probe Length ⁽¹⁾ [mm (in)]	DC 4-pin Micro QD Cat. No.	DC 4-pin Mini QD Cat. No.	AC/DC 3-pin Micro QD Cat. No.	AC/DC 3-pin Mini QD Cat. No.
26.0 (1.025)	871D-DW2NP260-D4	871D-DW2NP260-N4	871D-BW2N260-R3	871D-BW2N260-N3
31.7 (1.250)	871D-DW2NP317-D4	871D-DW2NP317-N4	871D-BW2N317-R3	871D-BW2N317-N3
52.4 (2.062)	871D-DW2NP524-D4	871D-DW2NP524-N4	871D-BW2N524-R3	871D-BW2N524-N3
73.0 (2.875)	871D-DW2NP730-D4	—	871D-BW2N730-R3	871D-BW2N730-N3
95.9 (3.775)	—	—	871D-BW2N959-R3	871D-BW2N959-N3
115.9 (4.560)	—	—	871D-BW2N1159-R3	871D-BW2N1159-N3
Quick Disconnect Cordset: ⁽²⁾	889D-F4AC-2	889N-F4AFC-6F	889R-F3AEA-2	889N-F3AFC-6F

- (1) Spacer kits are available for nonstandard probe lengths. For more information, contact your local Rockwell Automation Sales Office or Allen-Bradley Distributor.

- (2) Listed cordsets have a straight connector in 2 m (-2) or 6 ft (-6F) lengths. Additional cordsets and other accessories are available, see <http://ab.rockwellautomation.com/Connection-Devices/Cables-and-Cordsets>.

Rockwell Automation maintains current product environmental information on its website at

<http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

Allen-Bradley, Rockwell Automation, and Rockwell Software are trademarks of Rockwell Automation, Inc. Trademarks not belonging to Rockwell Automation are property of their respective companies.

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846