

Installation Instructions

Bulletin 871D In-Port Cylinder Position Proximity Sensor

Selection Guide

Probe Length ① mm (in)	DC 4-pin micro QD Catalog Numbers	DC 4-pin mini QD Catalog Numbers	AC/DC 3-pin micro QD Catalog Numbers	AC/DC 3-pin mini QD Catalog Numbers
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-DW2NP730-N4	871D-BW2N730-R3	871D-BW2N730-N3
95.9 (3.775)	871D-DW2NP959-D4	871D-DW2NP959-N4	871D-BW2N959-R3	871D-BW2N959-N3
115.9 (4.560)	871D-DW2NP1159-D4	871D-DW2NP1159-N4	871D-BW2N1159-R3	871D-BW2N1159-N3
Allen-Bradley QD 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 Rockwell Automation distributor.

② Cordsets above are straight 2m (-2) or 6 foot (-6F) length. Additional cordsets and other accessories are available, see Rockwell Automation Sensor catalog.



Features

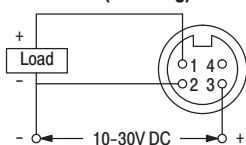
- Rugged low profile housing with stainless steel probe
- Housing 304° rotatable during installation without breaking pressure seal
- 3000psi (207bar) maximum
- 2-wire AC/DC or 3-wire DC sourcing (PNP) models
- Normally Open Output
- Short circuit, overload, false pulse, transient noise, and reverse polarity (DC models)
- UL and cUL approved and CE marked for all applicable directives

Specifications

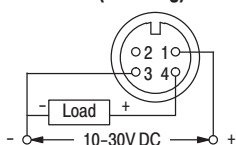
	3-Wire DC Models	2-Wire AC/DC Models
Output	Normally Open PNP	Normally Open
Max. Load Current	<200mA	5-500mA
Leakage Current	<80uA	<1.7mA @120V AC
Inrush Current (1 cycle)	—	<3A (t<20msec)
Operating Voltage	10-30V DC	20-250V AC/DC
Voltage Drop	<2.5V DC @200mA	<6V @400mA
Barrel Diameter	12mm	12mm
Nominal Sensing Distance	2mm (0.08in)	2mm (0.08in)
Shielded	Yes	Yes
Repeatability	5% typical	5% typical
Hysteresis	15% typical	15% typical
Switching Frequency	10Hz	50Hz
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	20,000A @ 25.4mm (1in)	20,000A @ 25.4mm (1in)
Maximum Operation Pressure	3000psi (207bar)	3000psi (207bar)
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)
Connections	Quick Disconnect: 4-pin DC micro style 4-pin mini style	Quick Disconnect: 3-pin AC micro style 3-pin mini style
LED	Green: Power, Orange: Output	Green: Power, Orange: Output
Operating Temperature	-25°C to 70°C (-13°F to 158°F)	-25°C to 70°C (-13°F to 158°F)
Shock	30g, 11msec	30g, 11msec
Vibration	55Hz, 1mm amplitude, 3 planes, 30 min each plane	55Hz, 1mm 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

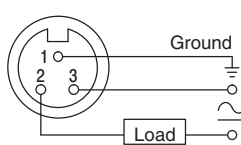
DC Mini Connector (-N4)
Normally Open
PNP (Sourcing)



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

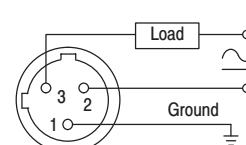


AC/DC Mini Connector (-N3)
Normally Open



Note 1: Load can be switched to pin 3.

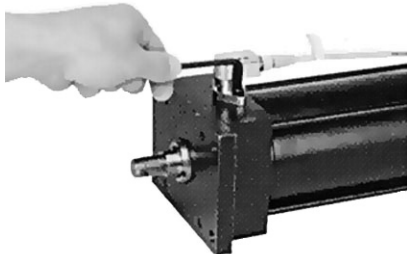
AC/DC Micro Connector (-R3)
Normally Open



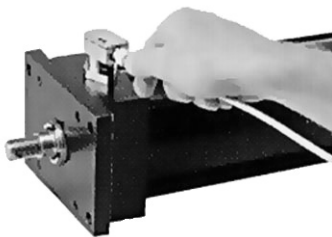
Note 1: Load can be switched to pin 2.

Installation

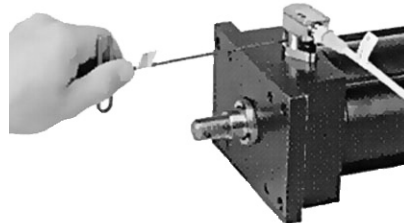
Step 1: Mount the 871D to the cylinder using the two installation bolts supplied with the sensor. Allen wrench required. ①



Step 2: Rotate the connector end of the 871D to the desired location for cable connection.



Step 3: Tighten the integral set screw located on the sensor housing to lock the 871D into position prior to start-up. Allen wrench provided.



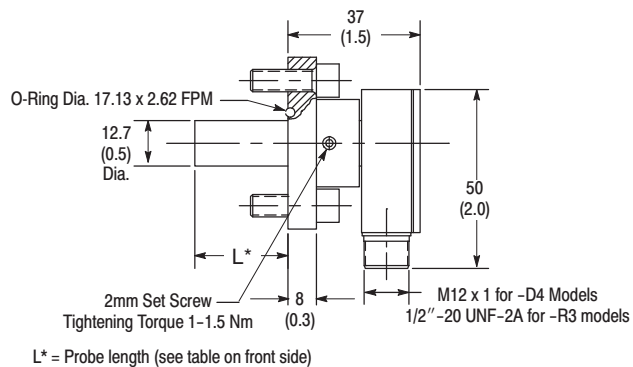
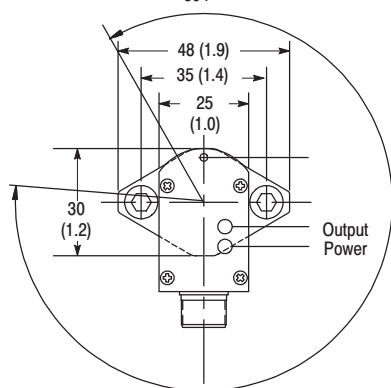
The 871D is ready to go!!

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

Dimensions—mm (in)

Micro Connector Models (–D4, –R3)

Range of rotation during installation:
304°



Mini Connector Models (–N3, –N4)

Range of rotation during installation:
304°

