



Description

Bulletin 871U inductive proximity sensors are self-contained, solid state devices designed to sense the presence of metal objects without touching them. These special isolated-output models are rated for 1000V minimum from output to output (dual output models only) and up to 2500V minimum from input to output.

The electronic circuitry is potted for protection against shock, vibration and contamination. The switch is enclosed by a plastic face and a threaded nickel-plated brass barrel which meet NEMA 3, 4, 6P, 12, 13 and IP67 (IEC529) standards.

These sensors are available in 12 and 18mm diameters. Connection options include a 3m (10ft) PVC cable and mini quick-disconnect.

Features

- 4-wire or 6-wire operation
- 4-conductor, 6-conductor, 5-pin or 6-pin connection
- 11–52V DC and 15–132V AC
- Normally open or complementary (N.O. and N.C.) isolated outputs
- False pulse and transient noise protection
- Reverse polarity protection on DC output
- TTL compatible
- UL listed, CSA certified, and CE marked for all applicable directives

Styles

AC/DC 4- or 6-Wire page 2–106

Accessories

Quick-Disconnect Cables . . . page 5–1

General Information

Torque Chart page 2–203

Metric/English Conversion Chart page 11–1

AB PLCs

871U 4-Wire or 6-Wire AC/DC Isolated Output

Plastic Face/Threaded Nickel-Plated Brass Barrel



871U AC/DC Cable Style
12, 18mm
page 2-107



871U AC/DC Mini
Quick-Disconnect Style
12, 18mm
page 2-107



Features

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- 4-conductor, 6-conductor, 5-pin or 6-pin connection
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Specifications

Load Current	≤50mA at 50°C (122°F) ≤30mA at 70°C (158°F)
Inrush Current (1 cycle)	≤200mA
Supply Current	≤25mA
Leakage Current	≤200µA for 4 wire ≤600µA for 6 wire
Operating Voltage	11–52V DC or 15–132V AC
Output Supply Voltage	5–150V DC or 15–132V AC
Voltage Drop	0.52V at 10mA, 2.6V at 50mA
Isolation Voltage	Input to output: 2500V min. Output to output: 1000V min. (dual output only)
Repeatability	≤10%
Hysteresis	10% typical
False Pulse Protection	Incorporated
Reverse Polarity Protection (DC output)	Incorporated
Transient Noise Protection	Incorporated
Agency Approvals	UL listed, CSA certified, and CE marked for all applicable directives
Enclosure	NEMA 3, 4, 6P, 12, 13, IP67 (IEC 529) Nickel-plated brass barrel
Connections	Cable: 3m (10ft) length Single Output—4-conductor PVC Dual Output—6-conductor PVC Quick-Disconnect: Single Output—5-pin mini style Dual Output—6-pin mini style
LED	Red: Output Energized
Operating Temperature	–25°C to +70°C (–13°F to +158°F)

Correction Factors

Target Material	Unshielded	Shielded
Steel	1.0	1.0
Stainless Steel	0.50–0.90	0.35–0.65
Brass	0.50	0.30
Aluminum	0.45	0.25
Copper	0.40	0.30

Inductive Proximity Sensors
871U 4-Wire or 6-Wire AC/DC Isolated Output
Plastic Face/Threaded Nickel-Plated Brass Barrel

Selection Guide

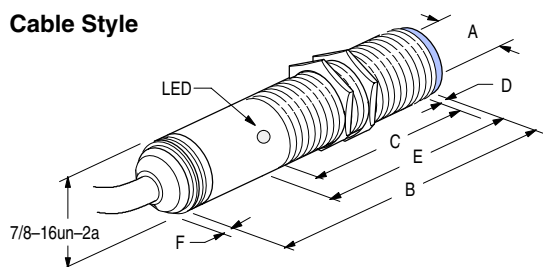
Barrel Dia.	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Wiring Diagram	Catalog Number		
						Cable Style	Mini QD 5-pin Style	Mini QD 6-pin Style
12mm	4 (0.16)	N	N.O.	180	A	871U-V4B12	871U-V4K12	—
18mm	5 (0.20)	Y		125		871U-V5A18	871U-V5J18	—
	8 (0.31)	N		100		871U-V8B18	871U-V8K18	—
	5 (0.20)	Y	100	B	871U-X5A18	—	871U-X5J18	
	8 (0.31)	N			871U-X8B18	—	871U-X8K18	
Recommended Standard QD Cordset (-6F = 1.8m (6ft), -12F = 3.6m (12ft))						889N-F5AFC-6F	889N-F6AFC-12F	

QD Cordsets and Accessories

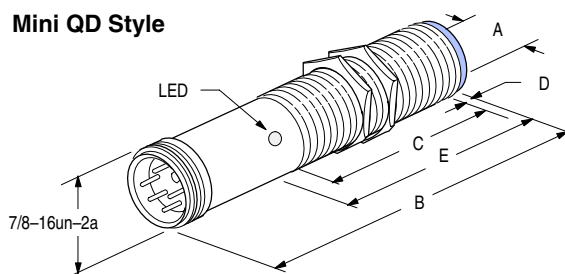
Description	Page Number
Other Cordsets Available	5-8
Terminal Chambers	5-19
Mounting Brackets	2-188 – 2-192
End Caps	2-198
Mounting Nuts	2-199 – 2-200

Dimensions—mm (inches)

Cable Style



Mini QD Style



Cable Style								Mini QD Style						
Thread Size	Shielded	mm (inches)						Thread Size	Shielded	mm (inches)				
		A	B	C	D	E	F			A	B	C	D	E
M12 X 1	Y	12.0	94.9	50.8 (2.00)	0.8 (0.03)	64.3 (2.53)	3.6 (0.14)	M12 X 1	Y	12.0	101.5	50.8 (2.00)	0.8 (0.03)	64.3 (2.53)
	N	(0.47)	(3.74)	43.4 (1.71)	8.1 (0.32)				N	(0.47)	(4.00)	43.4 (1.71)	8.1 (0.32)	
M18 X 1	Y	18.0	93.0	48.0 (1.89)	0.8 (0.03)	54.6 (2.15)	3.6 (0.14)	M18 X 1	Y	18.0	96.9	50.2 (1.98)	0.8 (0.03)	54.6 (2.15)
	N	(0.71)	(3.66)	36.5 (1.44)	12.2 (0.48)				N	(0.71)	(3.81)	38.7 (1.52)	12.2 (0.48)	

AB PLCs

871U 4-Wire or 6-Wire AC/DC Isolated Output

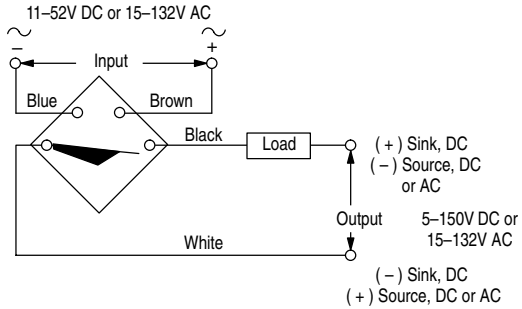
Plastic Face/Threaded Nickel-Plated Brass Barrel

Wiring Diagrams

Cable Style

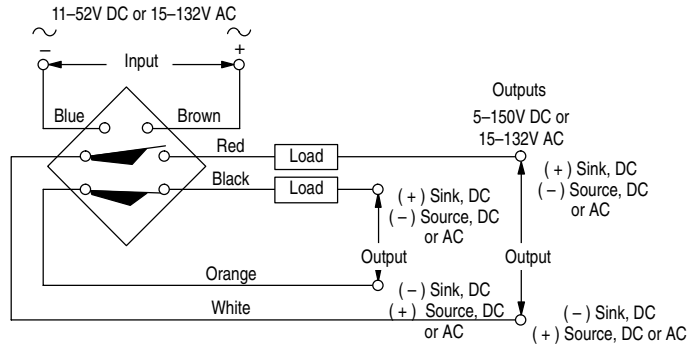
Normally Open

A Input or Output can be AC or DC powered and of different amplitudes. Housing must be grounded mechanically.



Normally Open and Normally Closed

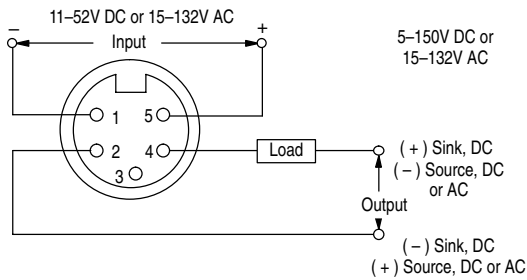
B Input or Outputs can be AC or DC powered and of different amplitudes. Housing must be grounded mechanically.



Mini QD Style

Normally Open

A Input or Output can be AC or DC powered and of different amplitudes. Housing must be grounded mechanically.



Normally Open and Normally Closed

B Input or Outputs can be AC or DC powered and of different amplitudes. Housing must be grounded mechanically.

