Description

Bulletin 871ZC inductive proximity sensors are self-contained, solid state switching devices designed to sense the presence of metal objects (ferrous and nonferrous) without touching them. These special weld-field immune models are ideal for welding environments and other applications where large magnetic fields are present. They are rated for reliable operation at a 1in distance from a current line carrying 20,000 amps.❶

The electronic circuitry is potted for protection against shock, vibration, and contamination and is enclosed in a threaded, copper housing which meets NEMA 1, 2, 3, 3R, 4, 4X, 6, 6P, 12, 13 and IP67 (IEC 529) enclosure standards. The copper housing and mounting nuts and the thermoset plastic face offer a high degree of weld splatter protection.

All units are provided with short circuit, overload, transient noise, and false pulse protection and weld field immunity which exceeds 20,000A at 1 inch from the welding tip. All of these protections mean you can reduce your down time due to improper wiring, shorts, radio frequency interference, line spikes, and many other causes.

❶ This distance varies with current line amperage. See page 2–10 of the Introduction section to determine the minimum distance for your application.

These sensors are available in 12, 18 and 30mm diameters. Connection options include a mini quick-disconnect and micro quick-disconnect.

Features

- Micro and mini quick-disconnect styles
- Copper barrel
- Weld field immunity
- Short circuit, false pulse, overload, and transient noise protection
- UL listed and CSA certified (AC/DC models)
- CE marked for all applicable directives

Styles

Accessories

General Information

871ZC 2-Wire AC/DC Weld Field Immune

Teflon-Coated Plastic Face/Threaded Copper Barrel

871ZC AC/DC Mini Quick-Disconnect Style 12, 18, 30mm
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Features

- 2-wire operation
- 3-pin connection
- 40–250V AC/DC
- Normally open or normally closed output
- Weld field immunity
- Short circuit, false pulse, overload, and transient noise protection
- UL listed, CSA certified, and CE marked for all applicable directives

Specifications

	12mm	18 & 30mm
Load Current	5–250mA	5–400mA
Inrush Current (1 cycle)	≤2A	≤4A
Leakage Current	≤1.7mA at 120V AC	
Operating Voltage	40–250V AC/DC	
Voltage Drop	≤5V at 250mA, 10V at 10mA	≤5V at 400mA, 10V at 10mA
Repeatability	≤10% at constant temperature	
Hysteresis	7% typical	
False Pulse Protection	Incorporated	
Transient Noise Protection	Incorporated	
Short Circuit Protection	Incorporated, trigger at 5A typical	Incorporated, trigger at 8A typical
Overload Protection	Incorporated, trigger at 340mA typical	Incorporated, trigger at 550mA typical
Weld Field Immunity	20,000A at 1 inch	
Reverse Polarity Protection (DC output)	Incorporated	
Approvals	UL listed, CSA certified, and CE marked for all applicable directives	
Enclosure	NEMA 1, 2, 3, 3R, 4, 4X, 6, 6P, 12, 13, IP67 (IEC 529) Copper barrel	
Connections	Quick-Disconnect: 3-pin micro style 3-pin mini style	
LEDs	Orange: Output Energized Green: Power/Short Circuit (flashing)	
Operating Temperature	–25°C to +70°C (–13°F to +158°F)	
Shock	30g, 11ms	
Vibration	55Hz, 1mm amplitude, 3 planes	

Correction Factors

Target Material	Correction Factor
Steel	1.0
Stainless Steel	0.7–0.8
Brass	0.4–0.5
Aluminum	0.3–0.4
Copper	0.3–0.4

871ZC 2-Wire AC/DC Weld Field Immune

Teflon-Coated Plastic Face/Threaded Copper Barrel

Selection Guide

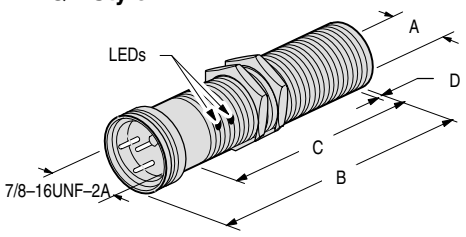
Barrel Diameter	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Catalog Number	
					Mini QD Style	Micro QD Style
12mm	2 (0.08)	Y	N.O.	30	871ZC–BW2N12–N3	871ZC–BW2N12–R3
			N.C.	20	871ZC–BW2C12–N3	871ZC–BW2C12–R3
18mm	5 (0.20)	Y	N.O.	30	871ZC–BW5N18–N3	871ZC–BW5N18–R3
			N.C.	20	871ZC–BW5C18–N3	871ZC–BW5C18–R3
30mm	10 (0.39)	Y	N.O.	30	871ZC–BW10N30–N3	871ZC–BW10N30–R3
			N.C.	20	871ZC–BW10C30–N3	871ZC–BW10C30–R3
Recommended Standard QD Cordset (–6F = 1.8m (6ft), –2 = 2m (6.5ft))					889N–F3AFC–6F	889R–F3ACA–2

QD Cordsets and Accessories

Description	Page Number
Other Cordsets Available	5–8, 5–44
Terminal Chambers	5–19
Mounting Brackets	2–188 – 2–192
Teflon End Caps	2–197
Mounting Nuts	2–199 – 2–200

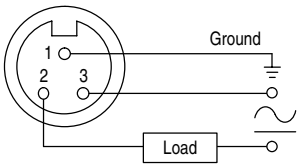
Dimensions—mm (inches)

Mini QD Style



Wiring Diagram

Normally Open or Normally Closed



Note 1: No ground pin on 12mm. Attach housing to ground.
Note 2: Load can be switched to pin 2.

Thread Size	Shielded	mm (inches)			
		A	B	C	D
M12 X 1	Y	12.0 (0.47)	83.3 (3.28)	38.2 (1.50)	0.8 (0.03)
M18 X 1	Y	18.0 (0.71)	72.5 (2.85)	53.1 (2.09)	
M30 X 1.5	Y	30.0 (1.18)	86.5 (3.41)	63.4 (2.50)	

871ZC 2-Wire AC/DC Weld Field Immune

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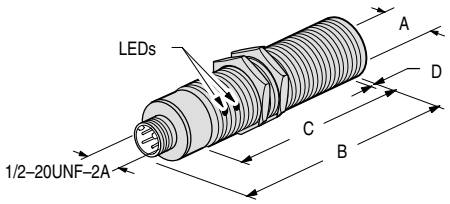
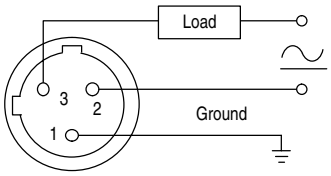
Dimensions—mm (inches)

Micro QD Style



Wiring Diagram

Normally Open or Normally Closed



Note 1: No ground pin on 12mm. Attach housing to ground.
Note 2: Load can be switched to pin 2.

Thread Size	Shielded	mm (inches)			
		A	B	C	D
M12 X 1	Y	12.0 (0.47)	85.3 (3.36)	38.9 (1.53)	0.8 (0.03)
M18 X 1	Y	18.0 (0.71)	80.3 (3.16)	57.5 (2.26)	
M30 X 1.5	Y	30.0 (1.18)	85.7 (3.37)	63.4 (2.50)	