Bulletin 871C

Plastic Face/Plastic Barrel or Nickel-Plated Brass Barrel

Description

Bulletin 871C inductive proximity sensors are self-contained, general purpose, solid-state devices designed to sense the presence of ferrous and nonferrous metal objects without touching them.

The switch body consists of a plastic face and either a stainless steel barrel, nickel-plated brass barrel or plastic barrel. The electronic circuitry is potted for protection against shock, vibration, and contamination.

These sensors are available in 3, 4, 5, 8, 12, 18 and 30 mm diameters, with smooth or threaded barrels. Connection options include a 2 m cable, micro quick-disconnect, and pico quick-disconnect.

Features

- Cable or quick-disconnect styles
- Short circuit protection❶
- Overload protection❶
- Transient noise protection
- False pulse protection
- Reverse polarity protection
- CE Marked for all applicable directives (most models)

Styles

Accessories

General Information

❶ AC full-featured and DC models only.

871C 3-Wire DC

Plastic Face/Small Threaded or Smooth Nickel-Plated Brass Barrel

871C DC Cable Style
Smooth Barrel
3, 4 mm

871C DC Pico Style 3-Pin 6 inch Lead
Smooth Barrel
4, 5 mm

871C DC Cable Style
Threaded Barrel
4, 5 mm

871C DC Cable Style
Smooth Barrel
4 mm

871C DC Pico Quick-Disconnect
Style Threaded Barrel
5 mm

Features

- 3-wire operation
- 3-conductor, 3-pin pico or 3-pin pico on 6 inch lead
- 10…30V DC
- Normally open
- False pulse, transient noise, reverse polarity and short circuit protections
- cULus Listed and CE Marked for all applicable directives (except for 3 mm models)

Specifications

Barrel Diameter	3 mm Smooth Barrel and 4 mm Threaded Barrel	4 mm Smooth Barrel and 5 mm Threaded Barrel
Load Current	≤100 mA	≤200 mA
Leakage Current	≤0.1 mA	
Operating Voltage	10…30V DC	
Voltage Drop	≤2.5V	
Repeatability	≤5%	
Hysteresis	15% typical	
False Pulse Protection	Incorporated	
Transient Noise Protection	Incorporated	
Reverse Polarity Protection	Incorporated	
Short Circuit Protection	Incorporated	
Certifications	cULus Listed and CE Marked for all applicable directives	
Enclosure	NEMA 1, 2, 3, 4, 12, 13 IP67 (cable only) IP65 (qd only) (IEC529); Stainless steel barrel	
Connections	Cable: 2 m (6.5 ft) length 3-conductor PUR Quick-Disconnect: 3-pin pico style 3-pin pico on 6 in. lead	Cable: 2 m (6.5 ft) length 3-conductor PVC Quick-Disconnect: 3-pin pico style
LED	Red or Yellow: Output energized	
Operating Temperature [C (F)]	-25…+70° (-13…+158°)	
Shock	30 g, 11 ms	
Vibration	55 Hz, 1 mm 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

Product Selection

Barrel Dia.	Barrel Type	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency [Hz]	Cat. No.		
							Cable Style	Pico QD Style	Pico with Lead Style
3	Smooth	0.6 (0.02)	Y	N.O.	NPN	5000	871C-DM1NN3-E2	—	871C-DM1NN3-AP3
					PNP		**871C-DM1NP3-E2**	—	871C-DM1NP3-AP3
		1 (0.04)			NPN	3000	871C-MM1NN3-E2	—	871C-MM1NN3-AP3
					PNP		871C-MM1NP3-E2	—	871C-MM1NP3-AP3
4	Threaded	0.8 (0.03)			NPN	5000	871C-D1NN4-E2	—	871C-D1NN4-AP3
					PNP		**871C-D1NP4-E2**	—	871C-D1NP4-AP3
		1 (0.04)			NPN	3000	871C-M1NN4-E2	—	871C-M1NN4-AP3
					PNP		871C-M1NP4-E2	—	871C-M1NP4-AP3
	Smooth	0.8 (0.03)			NPN	5000	871C-DM1NN4-E2	871C-DM1NN4-P3	—
					PNP		**871C-DM1NP4-E2**	871C-DM1NP4-P3	871C-DM1NP4-AP3
		1.5 (0.06)			NPN	3000	871C-MM2NN4-E2	871C-MM2NN4-P3	—
					PNP		871C-MM2NP4-E2	871C-MM2NP4-P3	—
5	Threaded	1 (0.04)			NPN	5000	871C-D1NN5-E2	871C-D1NN5-P3	—
					PNP		**871C-D1NP5-E2**	**871C-D1NP5-P3**	—
		1.5 (0.06)			NPN	3000	871C-M2NN5-E2	871C-M2NN5-P3	—
					PNP		871C-M2NP5-E2	871C-M2NP5-P3	—
Recommended cordset								889P-F3AB-2	

QD Cordsets and Accessories

Description	Page Number
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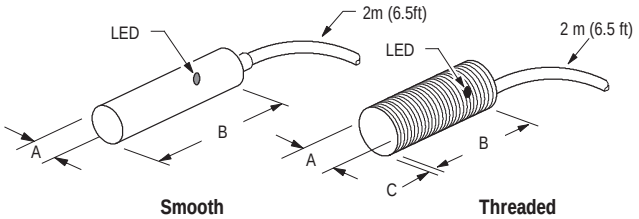
Terminal Chambers	8-2
Mounting Brackets	2-210…2-214
End Caps	2-220
Mounting Nuts	2-221…2-222

871C 3-Wire DC

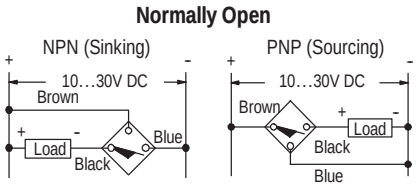
Plastic Face/Small Threaded or Smooth Nickel-Plated Brass Barrel

Approximate Dimensions [mm (in.)]

Cable Style

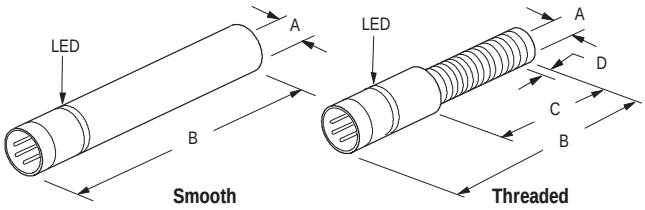


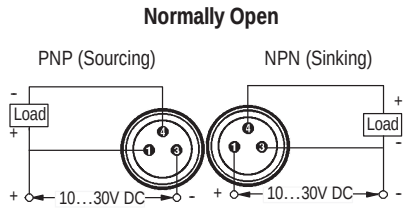
Wiring Diagram



Smooth Diameter	Thread Size	Shielded	[mm (in.)] A	B	C
3.0	—	Y	3.0 (0.12)	22.0 (0.87)	—
4.0	—	Y	4.0 (0.16)	25.0 (0.98)	—
4.0	M4 x 0.5	Y	4.0 (0.16)	22.0 (0.87)	—
5.0	M5 x 0.5	Y	5.0 (0.20)	25.0 (0.98)	—

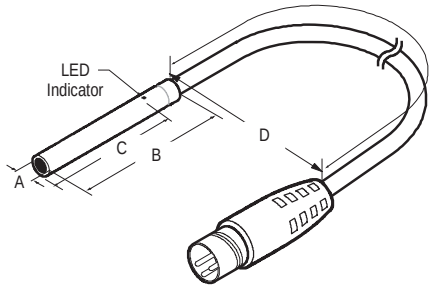
Pico QD Style

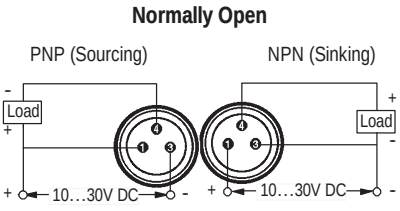




Smooth Diameter	Thread Size	Shielded	[mm (in.)] A	B	C	D
4.0	—	Y	4.0 (0.16)	38.0 (1.50)	19.0 (0.74)	—
5.0	M5 x 0.5	Y	5.0 (0.20)	38.0 (1.50)	23.0 (0.90)	—

Pico with Lead Style





Barrel Diameter	Shielded	[mm (in.)] A	B	C	D
3.0	Y	3.0 (0.12)	22.0 (0.87)	—	150.0 (5.9)
4.0	Y	4.0 (0.16)	22.0 (0.87)	19.0 (0.74)	150.0 (5.9)

871C 3-Wire DC Extended Temperature

Plastic Face/Threaded Nickel-Plated Brass Barrel

871C DC Cable Style
12, 18, 30 mm

871C DC Micro
Quick-Disconnect Style
12, 18, 30 mm

Description

Bulletin 871C inductive proximity sensors are self-contained, solid state devices designed for most industrial applications where it is required to sense the presence of metal objects without touching them. These special extended temperature models are ideal for industrial environments where temperatures can reach as high as 212_F (100_C) or as low as –40_F (–40_C). They are available for current source (PNP) operation with a normally open output.

Each switch has a plastic face and a nickel-plated brass housing which meet NEMA 1, 2, 3, 4, 12, 13 and IP67 (IEC529) enclosure standards. The electronic circuitry is potted for protection against shock, vibration, and contamination.

These sensors are available in 12, 18, and 30 mm diameters. Connection options include: 2 m (6.5 ft) PUR cable or micro quick-disconnect (4 pin, 1 keyway).

Specifications

Load Current	1…200 mA
Leakage Current	≤10 mA
Operating Voltage	10…30V DC
Voltage Drop	≤2.4V
Repeatability	≤10%
Hysteresis	≤15% typical
False Pulse Protection	Incorporated
Transient Noise Protection	Incorporated
Reverse Polarity Protection	Incorporated
Short Circuit Protection	Incorporated
Overload Protection	Incorporated
Certifications	CE Marked for all applicable directives
Enclosure	NEMA 1, 2, 3, 4, 12, 13, IP67 (IEC529) Nickel-plated brass barrel
Connections	Cable: 2 m (6.5 ft) length 3-conductor PUR Quick-Disconnect: 4-pin micro style
LED	Orange: Output Energized
Operating Temperature [C (F)]	–40…+100° (–40…+212°)
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm amplitude, 3 planes

Features

- S 3-wire operation
- S 3-conductor or 4-pin connection
- S 10…30V DC
- S Extended temperature range
- S Normally open output
- S Short circuit, false pulse, reverse polarity, overload and transient noise protection
- S CE Marked for all applicable directives

Correction Factors

Target Material	Correction Factor
Steel	1.0
Stainless Steel	0.9
Brass	0.5
Aluminum	0.45
Copper	0.4

871C 3-Wire DC Extended Temperature

Plastic Face/Threaded Nickel-Plated Brass Barrel

Product Selection

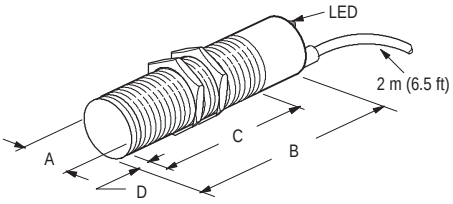
Barrel Diameter	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency [Hz]	Cat. No.	
						Cable Style	Micro QD Style
12 mm	2 (0.08)	Y	N.O.	PNP	2000	871C-DT2NP12-U2	871C-DT2NP12-D4
	4 (0.16)	N			1000	871C-DT4NP12-U2	871C-DT4NP12-D4
18 mm	5 (0.20)	Y	N.O.	PNP	1000	871C-DT5NP18-U2	871C-DT5NP18-D4
	8 (0.31)	N			500	871C-DT8NP18-U2	871C-DT8NP18-D4
30 mm	10 (0.39)	Y	N.O.	PNP	500	871C-DT10NP30-U2	871C-DT10NP30-D4
	15 (0.59)	N			300	871C-DT15NP30-U2	871C-DT15NP30-D4
Recommended standard QD cordset (-2 = 2 m (6.5 ft))							889D-F4AC-2

QD Cordsets and Accessories

Description	Page Number	Description	Page Number
Other Cordsets Available	8-2	End Caps	2-220
Terminal Chambers	8-2	Mounting Nuts	2-221…2-222
Mounting Brackets	2-210…2-214	—	—

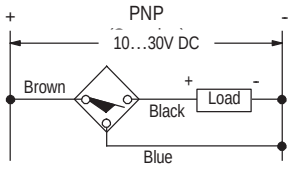
Approximate Dimensions [mm (in.)]

Cable Style



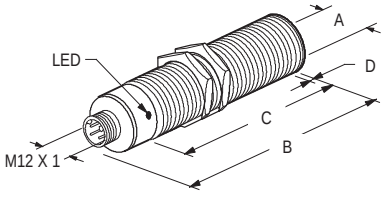
Wiring Diagram

Normally Open



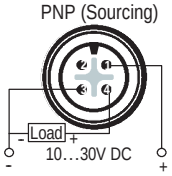
Thread Size	Shielded	[mm (in.)]			
		A	B	C	D
M12 X 1	Y	12.0 (0.47)	40.0 (1.57)	40.0 (1.57)	—
	N			34.0 (1.34)	6.0 (0.24)
M18 X 1	Y	18.0 (0.71)		40.0 (1.57)	—
	N			32.0 (1.26)	8.0 (0.31)
M30 X 1.5	Y	30.0 (1.18)		40.0 (1.57)	—
	N			28.0 (1.12)	12.0 (0.47)

Micro QD Style



Normally Open

PNP (Sourcing)



Thread Size	Shielded	[mm (in.)]			
		A	B	C	D
M12 X 1	Y	12.0 (0.47)	60.0 (2.36)	40.0 (1.57)	—
	N			34.0 (1.34)	6.0 (0.24)
M18 X 1	Y	18.0 (0.71)		40.0 (1.57)	—
	N			32.0 (1.26)	8.0 (0.31)
M30 X 1.5	Y	30.0 (1.18)		40.0 (1.57)	—
	N			28.0 (1.10)	12.0 (0.47)

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Preferred availability cat. nos. are printed in **bold**.

871C 2-Wire AC Full Featured

Plastic Face/Threaded Nickel-Plated Brass Barrel

871C AC Cable Style
18, 30 mm

871C AC Mini
Quick-Disconnect Style
12, 18, 30 mm

871C AC Micro
Quick-Disconnect Style
12, 18, 30 mm

Features

- 2-wire operation
- 2-conductor or 3-pin connection
- 20…250V AC
- Normally open or normally closed output
- Short circuit, false pulse, overload, and transient noise protection
- UL Listed, CSA Certified, and CE Marked for all applicable directives

Specifications

Barrel Diameter	12 mm	18 and 30 mm
Load Current	5…200 mA	5…250 mA
Minimum Load Current	5 mA	
Inrush Current (1 cycle)	≤2 A	≤4 A
Leakage Current	≤1.9 mA @ 120V AC	
Operating Voltage	20…250V AC	
Voltage Drop	≤10V @ 5…200 mA,	≤10V @ 5…250 mA
Repeatability	≤10% at constant temperature	
Hysteresis	10% typical	
False Pulse Protection	Incorporated	
Transient Noise Protection	Incorporated	
Short Circuit Protection	Incorporated	
Overload Protection	Incorporated, trigger at 250 mA typical	Incorporated, trigger at 320 mA typical
Certifications	UL Listed, CSA Certified and CE Marked for all applicable directives	
Enclosure	NEMA 1, 2, 3, 3R, 4, 4X, 6, 6P, 12, 13 IP67 (IEC529) Nickel plated brass barrel	
Connections	Cable: 2 m (6.5 ft) length 2-conductor PVC Quick Disconnect: 3-pin micro style 3-pin mini style	
LED	Red: Output energized/Short Circuit (Flashing) Green: Power	
Operating Temperature [C (F)]	-25…+70° (-13…+158°)	
Shock	30 g, 11 ms	
Vibration	55 Hz, 1 mm amplitude, 3 planes	

Correction Factors

Target Material	Correction Factor
Steel	1.0
Stainless Steel	0.9
Brass	0.5
Aluminum	0.45
Copper	0.4

871C 2-Wire AC Full Featured

Plastic Face/Threaded Nickel-Plated Brass Barrel

Product Selection

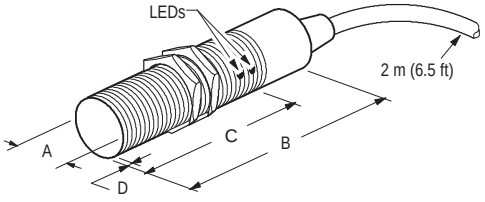
Barrel Diameter	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration	Switching Frequency [Hz]	Cat. No.		
					Cable Style	Mini QD Style	Micro QD Style
12 mm	2 (0.08)	Y	N.O.	30	871C-A2N12-A2	871C-A2N12-N3	871C-A2N12-R3
			N.C.	20	871C-A2C12-A2	871C-A2C12-N3	871C-A2C12-R3
18 mm	5 (0.20)	Y	N.O.	30	871C-A5N18-A2	**871C-A5N18-N3**	871C-A5N18-R3
			N.C.	20	871C-A5C18-A2	871C-A5C18-N3	871C-A5C18-R3
30 mm	10 (0.39)	Y	N.O.	30	871C-A10N30-A2	871C-A10N30-N3	871C-A10N30-R3
			N.C.	20	871C-A10C30-A2	871C-A10C30-N3	871C-A10C30-R3
Recommended standard QD cordset (-6F = 1.8 m (6 ft), -2 = 2 m (6.5 ft))						889N-F3AFC-6F	889R-F3ECA-2

QD Cordsets and Accessories

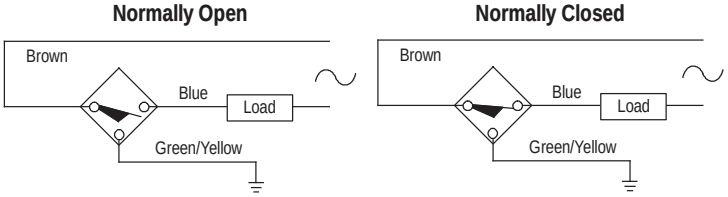
Description	Page Number
Other Cordsets Available	8-2
Mounting Brackets	2-210…2-214
End Caps	2-220
Mounting Nuts	2-221…2-222

Approximate Dimensions [mm (in.)]

Cable Style



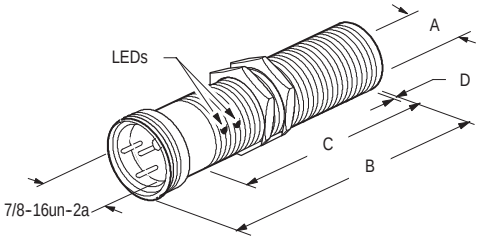
Wiring Diagram

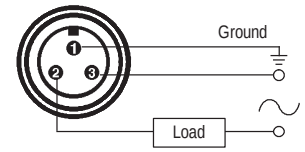


Note: Load can be switched to brown wire.

Thread Size	Shielded	[mm (in.)] A	B	C	D
M12 X 1	Y	12.0 (0.47)	78.99 (3.11)	47.24 (1.86)	0.8 (0.03)
M18 X 1	Y	18.0 (0.71)	74.68 (2.94)	61.6 (2.43)	
M30 X 1.5	Y	30.0 (1.18)	77.52 (3.05)	64.31 (2.53)	

Mini QD Style

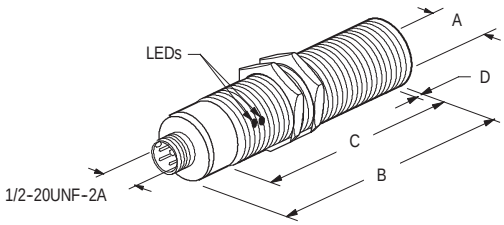


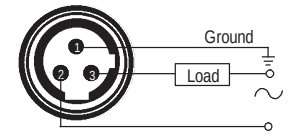


Note 1: No ground wire on 12 mm. Attach housing to ground.
Note 2: Load can be switched to pin 3.

Thread Size	[mm (in.)] A	B	C	D
M12 X 1	12.0 (0.47)	93.45 (3.68)	46.08 (1.81)	—
M18 X 1	18.0 (0.71)	75.82 (2.99)	53.92 (2.12)	
M30 X 1.5	30.0 (1.18)	86.66 (3.41)	64.31 (2.53)	

Micro QD Style





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

Thread Size	[mm (in.)] A	B	C	D
M12 X 1	12.0 (0.47)	90.42 (3.56)	46.99 (1.85)	—
M18 X 1	18.0 (0.71)	83.54 (3.29)	61.6 (2.43)	
M30 X 1.5	30.0 (1.18)	86.00 (3.39)	64.31 (2.53)	

871C 2-Wire AC

Plastic Face/Threaded Plastic Barrel

871C AC Cable Style
18, 30 mm

Features

- 2-wire operation
- 2-conductor connection
- 24…250V AC
- Normally open or normally closed output
- Transient noise protection
- CE Marked for all applicable directives

Specifications

Barrel Diameter	18 mm	30 mm
Load Current	≤180 mA	≤300 mA
Inrush Current (1 cycle)	≤1 A	≤3 A
Leakage Current	≤.1.7 mA	
Operating Voltage	24…250V AC	
Voltage Drop	≤11V	
Hysteresis	≤20% typical	
Transient Noise Protection	Incorporated	
Certifications	CE Marked for all applicable directives	
Enclosure	NEMA 1, 2, 3, 4, 4X, 12, 13 IP67 (IEC529) Plastic barrel	
Connections	Cable:	2 m (6.5 ft) length 2-conductor PVC
LED	Red: Output energized	
Operating Temperature [C (F)]	-25…+55° (-13…+131°)	
Shock	30 g, 11 ms	
Vibration	55 Hz, 1 mm 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

Product Selection

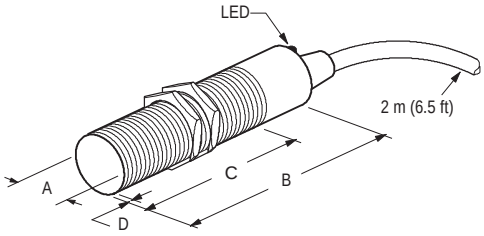
Barrel Diameter	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration	Switching Frequency [Hz]	Cat. No. Cable Style
18 mm	5 (0.20)	Y	N.O.	8	871C-C5S18
			N.C.		871C-D5S18
	8 (0.31)	N	N.O.		**871C-C8R18**
			N.C.		871C-D8R18
30 mm	10 (0.39)	Y	N.O.		871C-C10S30
			N.C.		871C-D10S30
	15 (0.59)	N	N.O.		**871C-C15R30**
			N.C.		871C-D15R30

Accessories

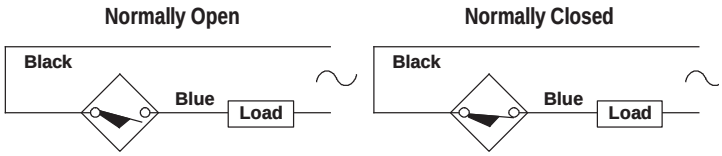
Description	Page Number
Terminal Chambers	8-2
Mounting Brackets	2-210…2-214
End Caps	2-220
Mounting Nuts	2-221…2-222

Approximate Dimensions [mm (in.)]

Cable Style



Wiring Diagram



Note: Load can be switched to black wire.

Thread Size	Shielded	[mm (in.)] A	B	C	D
M18 X 1	Y	18.0 (0.71)	81.0 (3.19)	61.0 (2.40)	2.0 (0.08)
	N ❶				
M30 X 1.5	Y	30.0 (1.18)	81.0 (3.19)		
	N ❶				

❶ Unshielded proximity sensors require a metal-free zone around the sensing face. Any metal immediately opposite the sensing face should be no closer than three times the rated nominal sensing distance of the sensor.

871C 2-Wire NAMUR

Nickel-Plated Brass Barrel, Plastic Face

871C NAMUR
Cable Style
8, 12, 18, 30 mm

871C NAMUR
Micro Quick-Disconnect Style
8, 12, 18, 30 mm

Description

For Allen-Bradley NAMUR style sensors, the sensor input and output conforms to NAMUR specifications (DIN 19 234) allowing these sensors to be used with any approved NAMUR style amplifier/ isolator. Allen-Bradley's NAMUR style sensors are Intrinsically Safe when used with an approved Intrinsically Safe NAMUR style isolator.

The 871C NAMUR style family of sensors can be used in Class I, II, III; Division 1 and 2; Groups A, B, C, D, E, F, and G as well as Zones 0, 1, 2; Groups IIA, IIB, IIC when used with Allen-Bradley's NAMUR style isolators/amplifiers. Installation must be in accordance with the National Electrical Code, ANSI/ISA RP12.6, or per other regulations by authority having jurisdiction over the installation site as appropriate.

Features

- 2-Wire NAMUR operation
- 8, 12, 18, and 30 mm sizes
- Short barrel length
- Shielded and unshielded models
- FM, CSA, and CE Marked for all applicable directives

Specifications

Outputs	NAMUR (conforms to DIN 19 234)
Load Current Target Present	<1 mA
Load Current Target Absent	>3 mA
Operating Voltage	5…15V DC (8.2V DC nom., Ri = 1 kohm, DIN 19 234)
Ripple Voltage	<5%
Repeatability	<10%
Hysteresis	10% typical
Reverse Polarity Protection	Incorporated
False Pulse Protection	Realized in amplifier
Transient Noise Protection	Realized in amplifier
Short Circuit Protection	Realized in amplifier
Overload Protection	Realized in amplifier
Enclosure	NEMA 4, IP67 (IEC529)
Certifications	FM Approved - Class I, II, III; Divisions 1, 2; Groups A, B, C, D, E, F, G CSA Approved - Class I, II, III; Divisions 1, 2; Groups A, B, C, D, E, F, G - Class I; Zone 0, 1, 2; Groups IIC, IIB, IIA CE Marked for all applicable directives
Connections	Cable: 2 m (6.5 ft) length 2 conductor #22 AWG PVC Quick-Disconnect: 4-pin micro style
LED	None
Operating Temperature [C (F)]	-25…60° (-13…140°)
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm amplitude, 3 planes
Housing Material	Nickel-plated brass barrel, plastic face

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	0.2…0.3

Entity Parameters

Sensor			Barrier
V_{max}	16V	≥	V_t
I_{max}	60 mA	≥	I_t
C_i	150 $_n$F	≤	C_a
L_i	200 μH	≤	L_a

ATTENTION

Operating parameters must be adhered to.

871C 2-Wire NAMUR, Cable Style

Nickel-Plated Brass Barrel, Plastic Face

Product Selection

Barrel Diameter	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration	Switching Frequency [Hz]	Cat. No.	
					Cable Style	Micro QD Style
8 mm	1 (0.03)	Y	NAMUR DIN 19 234	2000	871C-DH1M8-A2	871C-DH1M8-D4
	2 (0.06)	N		1000	871C-DH2M8-A2	871C-DH2M8-D4
12 mm	2 (0.08)	Y		2000	871C-DH2M12-A2	871C-DH2M12-D4
	4 (0.16)	N		1000	871C-DH4M12-A2	871C-DH4M12-D4
18 mm	5 (0.20)	Y		1000	871C-DH5M18-A2	871C-DH5M18-D4
	8 (0.31)	N		500	871C-DH8M18-A2	871C-DH8M18-D4
30 mm	10 (0.39)	Y		500	871C-DH10M30-A2	871C-DH10M30-D4
	15 (0.59)	N		300	871C-DH15M30-A2	871C-DH15M30-D4
Recommended standard QD cordset (-2 = 2 m (6.5 ft))						889D-F4AC-2 ❶

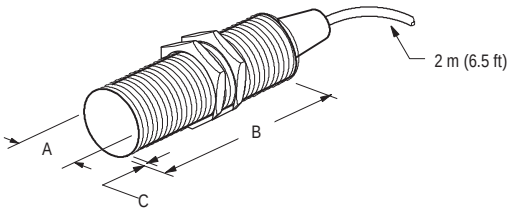
❶ Intrinsically Safe wiring labels 897H–L1 or 897H–L2 must be applied every 7.6 m (25 ft).

QD Cordsets and Accessories

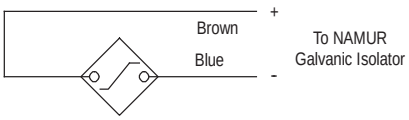
Description	Page Number
Other Cordsets Available	8-2
Terminal Chambers	8-2
Galvanic Isolators	12-5
Intrinsic Safety Wiring Labels	12-8
Mounting Brackets	2-210…2-214
End Caps	2-220
Mounting Nuts	2-221…2-222

Approximate Dimensions [mm (in.)]

Cable Style



Wiring Diagram



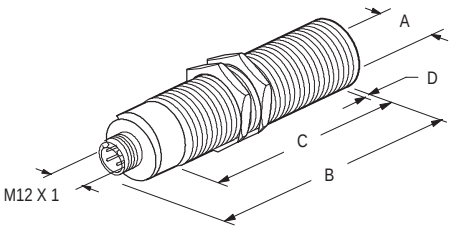
Thread Size	Shielded	[mm (in.)]		
		A	B	C
M8 x 1	Y	8.0 (0.31)	30.0 (1.18)	—
	N			5.0 (0.20)
M12 x 1	Y	12.0 (0.47)		—
	N			6.0 (0.24)
M18 x 1	Y	18.0 (0.71)		—
	N			8.0 (0.31)
M30 x 1.5	Y	30.0 (1.18)	40.0 (1.57)	—
	N			12.0 (0.47)

871C 2-Wire NAMUR

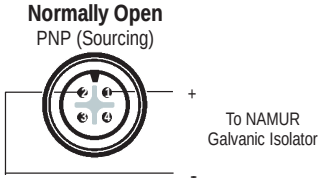
Nickel-Plated Brass Barrel, Plastic Face

Approximate Dimensions [mm (in.)]

Micro QD Style



Wiring Diagram



Thread Size	Shielded	[mm (in.)]			
		A	B	C	D
M8 x 1	Y	8.0 (0.31)	50.0 (1.97)	28.0 (1.10)	—
	N			23.0 (0.91)	5.0 (0.20)
M12 x 1	Y	12.0 (0.47)		30.0 (1.18)	—
	N			24.0 (0.94)	6.0 (0.24)
M18 x 1	Y	18.0 (0.71)		30.0 (1.18)	—
	N			22.0 (0.87)	8.0 (0.31)
M30 x 1.5	Y	30.0 (1.18)	60.0 (2.36)	40.0 (1.57)	—
	N			28.0 (1.10)	12.0 (0.47)

871C Analog Output, 3-Wire DC

Plastic Face/Nickel-Plated Brass Barrel

871C Cable Style
12, 18, 30 mm

Description

Bulletin 871C inductive proximity sensors are self-contained, solid-state devices designed to sense the presence of metal objects without touching them. This special version provides a 0…10V sourcing analog output proportional to the sensing distance.

This device is enclosed by a plastic face and a nickel-plated brass housing which meets NEMA 1, 2, 3, 4, 12, 13 and IP67 (IEC529) enclosure standards. The electronic circuitry is potted for protection against shock, vibration and contamination.

This sensor is available in 12, 18 and 30 mm diameters with a 2 m (6.5 ft.) PVC cable connection.

Features

- 3-wire operation
- 18…30V DC
- Short circuit, overload, reverse polarity, and transient noise protection
- 0…10V sourcing analog output
- CE Marked for all applicable directives

Specifications

	12 mm	18 mm	30 mm
Analog Output	0…10V Sourcing		
Load Current	5 mA		
Operating Voltage	18…30V DC		
Repeatability	≤ 1%		
Ripple	10%		
Slew Rate	1.0V/ms	0.7V/ms	0.1V/ms
Δ Output / Δ Distance	0.25 mm/V	0.375 mm/V	0.875 mm/V
Linearity Tolerance	6.25%		
Temperature Tolerance	± 0.3V		
Transient Noise Protection	Incorporated		
Reverse Polarity Protection	Incorporated		
Short Circuit Protection	Incorporated		
Overload Protection	Incorporated		
Enclosure	NEMA 1, 2, 3, 4, 12, 13; IP67 (IEC529), Nickel-plated brass barrel, plastic face (PBT)		
Certifications	CE Marked for all applicable directives		
Connections	Cable: 2 m (6.5 ft) length 3 conductor PVC		
LED	None		
Operating Temperature [C (F)]	-25…+70_ (-13…+158_)		
Shock	30 g, 11 ms		
Vibration	55 Hz, 1 mm 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	0.2…0.3

871C Analog Output, 3-Wire DC

Plastic Face/Nickel-Plated Brass Barrel

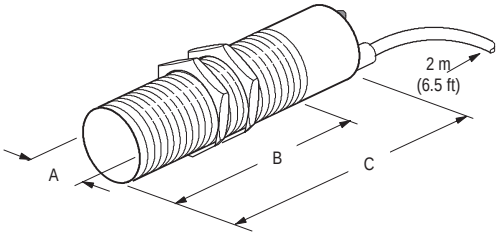
Product Selection

Barrel Diameter	Linear Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency [Hz]	Cat. No.
12 mm	0.5…2.5 (0.02…0.10)	Y	Analog Voltage	Sourcing	100	871C-D3AP12-E2
18 mm	1…4 (0.04…0.16)	Y	Analog Voltage	Sourcing	100	871C-D4AP18-E2
30 mm	7…14 (0.27…0.55)	N	Analog Voltage	Sourcing	30	871C-D14AP30-E2

QD Cordsets and Accessories

Description	Page Number
Terminal Chambers	8-2
Mounting Brackets	2-210…2-214
End Caps	2-220
Mounting Nuts	2-221…2-222

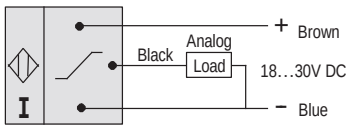
Approximate Dimensions [mm (in.)]



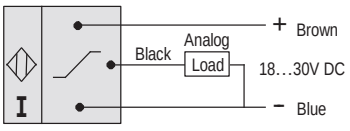
Thread Size	[mm (in.)]		
	A	B	C
12 mm	12 (0.47)	70 (2.75)	80 (3.15)
18 mm	18 (0.71)		
30 mm	30 (1.18)		

Wiring Diagrams

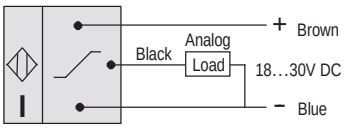
12 mm



18 mm

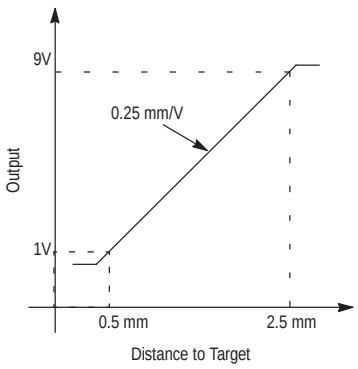


30 mm

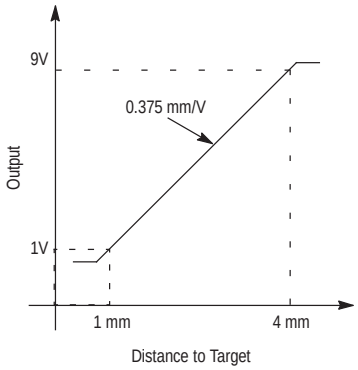


Nominal Output

12 mm



18 mm



30 mm