Description

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

The switch body consists of a plastic face and either a 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, 6.5, 8, 12, 18 and 30mm diameters, with smooth or threaded barrels. Connection options include a 2m 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

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AC 2-Wire Plastic Barrel . . . page 2–73
DC 3-Wire Plastic Barrel . . . page 2–75
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General Information

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❶ AC full-featured and DC models only.

871C 2-Wire AC Full Featured

Plastic Face/Threaded Nickel–Plated Brass Barrel

871C AC Cable Style
18, 30mm
page 2–71

871C AC Mini
Quick-Disconnect Style
12, 18, 30mm
page 2–71

871C AC Micro
Quick-Disconnect Style
12, 18, 30mm
page 2–71

Features

- 2-wire operation
- 2-conductor or 3-pin connection
- 40–250V 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	12mm	18mm
Load Current	≤250mA	≤400mA
Minimum Load Current	5mA	
Inrush Current (1 cycle)	≤2A	≤4A
Leakage Current	≤.1.7mA at 120V AC	
Operating Voltage	40–250V AC	
Voltage Drop	≤5V at 250mA, 10V at 10mA	≤5V at 400mA 10V at 10mA
Repeatability	≤10% at constant temperature	
Hysteresis	10% typical	
False Pulse Protection	Incorporated	
Transient Noise Protection	Incorporated	
Short Circuit Protection	Incorporated	
Overload Protection	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) Nickel plated brass barrel	
Connections	Cable: 2m (6.5ft) length 2-conductor PVC Quick Disconnect: 3-pin micro style 3-pin mini style	
LED	Red: 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	0.9
Brass	0.5
Aluminum	0.45
Copper	0.4

Selection Guide

Barrel Diameter	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Catalog Number		
					Cable Style	Mini QD Style	Micro QD Style
12mm	2 (0.08)	Y	N.O.	30	—	871C–A2N12–N3	871C–A2N12–R3
			N.C.	20	—	871C–A2C12–N3	871C–A2C12–R3
18mm	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
30mm	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 = 1.8m (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
Mounting Brackets	2–188 – 2–192
End Caps	2–198
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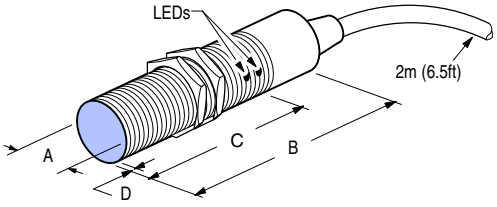
871C 2-Wire AC Full Featured

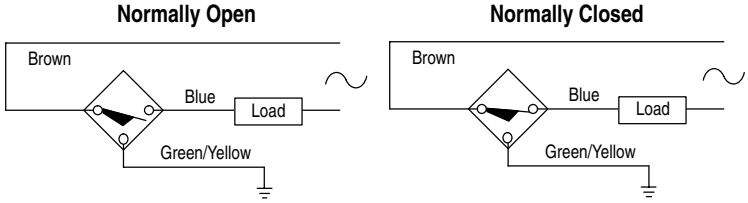
Plastic Face/Threaded Nickel–Plated Brass Barrel

Dimensions—mm (inches)

Cable Style



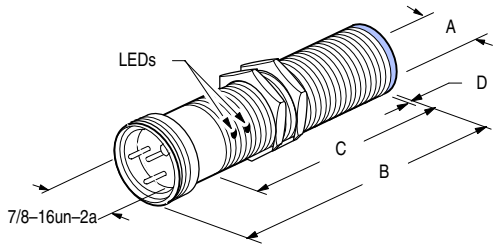
Wiring Diagram



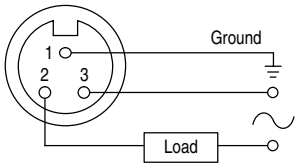
Note: Load can be switched to brown wire.

Thread Size	Shielded	mm (inches)			
		A	B	C	D
M18 X 1	Y	18.0 (0.71)	70.5 (2.78)	57.5 (2.26)	0.8 (0.03)
M30 X 1.5	Y	30.0 (1.18)	77.4 (3.05)	63.4 (2.50)	0.8 (0.03)

Mini QD Style



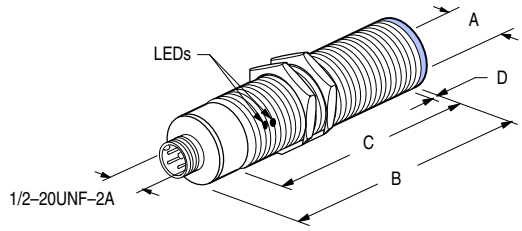
Normally Open or Normally Closed



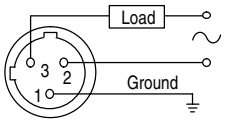
Note 1: No ground wire on 12mm. Attach housing to ground.
Note 2: Load can be switched to pin 3.

Thread Size	mm (inches)			
	A	B	C	D
M12 X 1	12.0 (0.47)	83.3 (3.28)	37.5 (1.48)	0.8 (0.03)
M18 X 1	18.0 (0.71)	72.5 (2.85)	52.4 (2.06)	
M30 X 1.5	30.0 (1.18)	86.5 (3.41)	62.6 (2.47)	

Micro QD Style



Normally Open or Normally Closed



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

Thread Size	mm (inches)			
	A	B	C	D
M12 X 1	12.0 (0.47)	85.3 (3.36)	38.11 (1.50)	0.8 (0.03)
M18 X 1	18.0 (0.71)	80.3 (3.16)	56.7 (2.23)	
M30 X 1.5	30.0 (1.18)	85.7 (3.37)	62.6 (2.47)	

871C AC Cable Style
18, 30mm
page 2–74

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	18mm	30mm
Load Current	≤180mA	≤300mA
Inrush Current (1 cycle)	≤1A	≤3A
Leakage Current	≤.1.7mA	
Operating Voltage	24–250V AC	
Voltage Drop	≤11V	
Hysteresis	≤20% typical	
Transient Noise Protection	Incorporated	
Approvals	CE marked for all applicable directives	
Enclosure	NEMA 1, 2, 3, 4, 4X, 12, 13 IP67 (IEC 529) Plastic barrel	
Connections	Cable: 2m (6.5ft) length 2-conductor PVC	
LED	Red: Output energized	
Operating Temperature	–25°C to +55°C (–13°F to +131°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

871C 2-Wire AC

Plastic Face/Threaded Plastic Barrel

Selection Guide

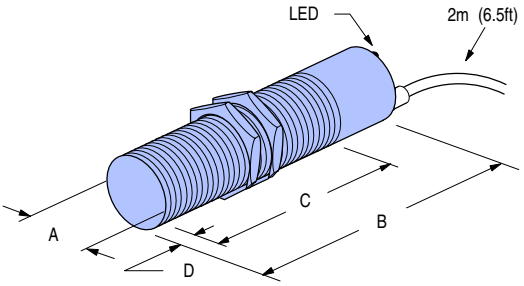
Barrel Diameter	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Catalog Number Cable Style
18mm	5 (0.20)	Y	N.O.	8	871C–C5S18
			N.C.		871C–D5S18
	8 (0.31)	N	N.O.		871C–C8R18
			N.C.		871C–D8R18
30mm	10 (0.39)	Y	N.O.		871C–C10S30
			N.C.		871C–D10S30
	15 (0.59)	N	N.O.		871C–C15R30
			N.C.		871C–D15R30

Accessories

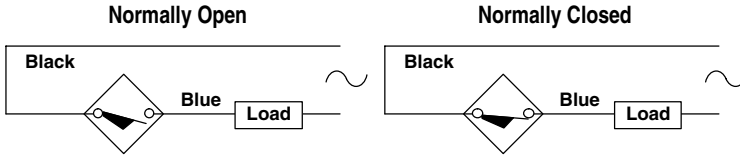
Description	Page Number
Terminal Chambers	5–19
Mounting Brackets	2–188 – 2–192
End Caps	2–198
Mounting Nuts	2–199 – 2–200

Dimensions—mm (inches)

Cable Style



Wiring Diagram



Note: Load can be switched to black wire.

Thread Size	Shielded	mm (inches) 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 3 times the rated nominal sensing distance of the sensor.

871C DC Cable Style
12, 18, 30mm
page 2–76

Features

- 3-wire operation
- 3-conductor connection
- 10–30V DC
- Normally open or normally closed output
- Transient noise, short circuit and reverse polarity protection
- CE marked for all applicable directives

Specifications

Barrel Diameter	12mm	18, 30mm
Load Current	≤150mA	≤200mA
Leakage Current	≤10µA	
Operating Voltage	10–30V DC	
Voltage Drop	≤2.2V	
Repeatability	5%	
Hysteresis	≤20% Typical	
Transient Noise Protection	Incorporated	
Reverse Polarity Protection	Incorporated	
Short Circuit Protection	Incorporated	
Approvals	CE marked for all applicable directives	
Enclosure	NEMA 1, 2, 3, 4, 4X, 12, 13 IP67 (IEC 529) Plastic barrel	
Connection	Cable: 2m (6.5ft) length 3-conductor PVC	
LED	Red: Output Energized	
Operating Temperature	–25°C to +55°C (–13°F to +131°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

871C 3-Wire DC

Plastic Face/Threaded Plastic Barrel

Selection Guide

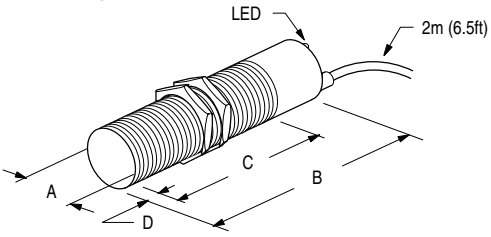
Barrel Diameter	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration		Switching Frequency (Hz)	Catalog Number Cable Style
12mm	4 (0.16)	N	N.O.	NPN	125	871C–N4R12
				PNP		871C–P4R12
18mm	5 (0.20)	Y	N.O.	NPN	100	871C–N5S18
				PNP		871C–P5S18
	8 (0.31)	N	N.O.	NPN		871C–N8R18
				PNP		871C–P8R18
30mm	10 (0.39)	Y	N.C.	NPN	100	871C–J10S30
				PNP		871C–K10S30
	15 (0.59)	N	N.O.	NPN		871C–N15R30
				PNP		871C–P15R30
			N.C.	NPN		871C–J15R30

Accessories

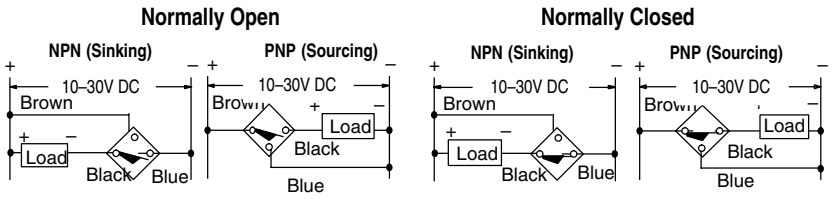
Description	Page Number
Terminal Chambers	5–19
Mounting Brackets	2–188 – 2–192
Mounting Nuts	2–199 – 2–200

Dimensions—mm (inches)

Cable Style



Wiring Diagram



Thread Size	Shielded	mm (inches) A	B	C	D
M12 X 1	N	12.0 (0.47)	60.0 (2.36)	40.0 (1.58)	2.0 (0.08)
M18 X 1	Y	18.0 (0.71)	81.0 (3.19)	61.0 (2.40)	
	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 3 times the rated nominal sensing distance of the sensor.

871C DC Cable Style
Smooth Barrel
3, 4, 6.5mm
page 2–78

871C DC Cable Style
Threaded Barrel
4, 5mm
page 2–78

871C DC Pico Quick-Disconnect
Style Smooth Barrel
4, 6.5mm
page 2–78

871C DC Pico Quick-Disconnect
Style Threaded Barrel
5mm
page 2–78

CE

Features

- 3-wire operation
- 3-conductor, 3-pin or 4-pin connection
- 10–30V DC
- Normally open or normally closed output
- False pulse, transient noise, reverse polarity and short circuit protections (most models)
- CE marked for all applicable directives (except for 3mm models)

Specifications

Barrel Diameter	3, 4mm	5, 6.5mm
Load Current	≤100mA	≤200mA
Leakage Current	≤0.1mA	
Operating Voltage	10–30V DC	
Voltage Drop	≤2.5V	
Repeatability	≤5%	
Hysteresis	15% typical	
False Pulse Protection	Incorporated	
Transient Noise Protection	No	Incorporated
Reverse Polarity Protection	Incorporated	
Short Circuit Protection	Incorporated (most models)	
Approvals	CE marked for all applicable directives (except for 3mm models)	
Enclosure	NEMA 1, 2, 3, 4, 12, 13 IP67 (cable only) IP65 (qd only) (IEC 529); Nickel-plated brass barrel	
Connections	Cable: 2m (6.5ft) length 3-conductor PVC Quick-Disconnect: 3-pin pico style	
LED	Red or Yellow: Output energized	
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

871C 3-Wire DC

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

Selection Guide

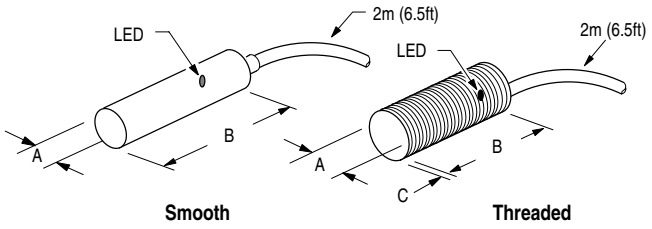
Barrel Diameter	Barrel Type	Nominal Sensing Distance mm (in)	Shielded	Output Configuration		Switching Frequency (Hz)	Catalog Number	
							Cable Style	Pico QD Style
3mm	Smooth	0.6 (0.02)	Y	N.O.	NPN	3000	871C–DM1NN3–E2	—
					PNP		871C–DM1NP3–E2	—
4mm	Smooth	0.8 (0.03)	Y	N.O.	NPN	3000	871C–DM1NN4–E2	871C–DM1NN4–P3
					PNP		871C–DM1NP4–E2	—
4mm	Threaded	0.6 (0.02)	Y	N.O.	NPN	3000	871C–D1NN4–E2	—
					PNP		871C–D1NP4–E2	—
5mm	Threaded	1 (0.04)	Y	N.O.	NPN	3000	871C–D1NN5–E2	871C–D1NN5–P3
					PNP		871C–D1NP5–E2	871C–D1NP5–P3
6.5mm	Smooth	1.5 (0.06)	Y	N.O.	NPN	1000	871C–DM1NN7–E2	871C–DM1NN7–P3
					PNP		871C–DM1NP7–E2	871C–DM1NP7–P3
Recommended Standard QD Cordset (–2 = 2m (6.5ft))								889P–F3AB–2

QD Cordsets and Accessories

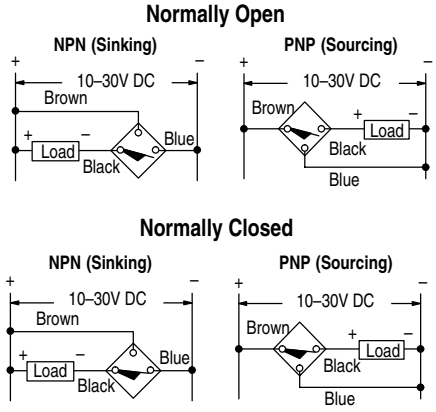
Description	Page Number
Other Cordsets Available	5–52
Terminal Chambers	5–19
Mounting Brackets	2–188 – 2–192
End Caps	2–198
Mounting Nuts	2–199 – 2–200

Dimensions—mm (inches)

Cable Style

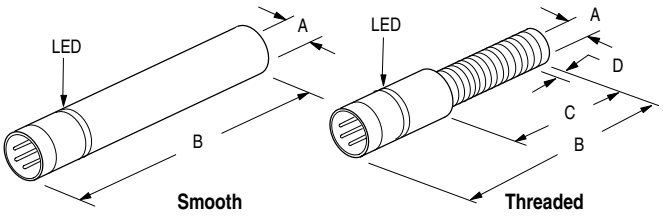


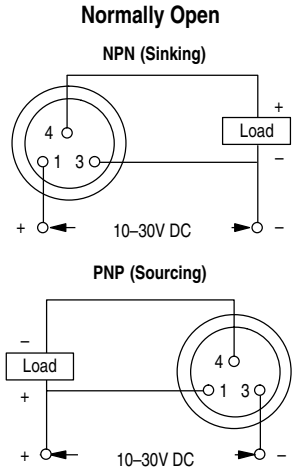
Wiring Diagram



Smooth Diameter	Thread Size	Shielded	mm (inches)		
			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)	—
—	M4 x 0.5	Y	4.0 (0.16)	22.0 (0.87)	—
—	M5 x 0.5	Y	5.0 (0.20)	25.0 (0.98)	—
6.5	—	Y	6.5 (0.26)	32.3 (1.27)	—

Pico QD Style





Smooth Diameter	Thread Size	Shielded	mm (inches)			
			A	B	C	D
4.0	—	Y	4.0 (0.16)	38.0 (1.50)	19.0 (0.74)	—
—	M5 x 0.5	Y	5.0 (0.20)	38.0 (1.50)	23.0 (0.90)	—
6.5	—	Y	6.5 (0.26)	50.4 (1.98)	—	—

871C 3-Wire DC Extended Temperature

Plastic Face/Threaded Nickel-Plated Brass Barrel

871C DC Cable Style
12, 18, 30mm
page 2–81

871C DC Micro
Quick-Disconnect Style
12, 18, 30mm
page 2–81

CE

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 (IEC 529) enclosure standards. The electronic circuitry is potted for protection against shock, vibration, and contamination.

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

Specifications

Load Current	1–200mA
Leakage Current	≤10µA
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
Approvals	CE marked for all applicable directives
Enclosure	NEMA 1, 2, 3, 4, 12, 13, IP67 (IEC 529) Nickel-plated brass barrel
Connections	Cable: 2m (6.5ft) length 3-conductor PUR Quick-Disconnect: 4-pin micro style
LED	Orange: Output Energized
Operating Temperature	–40°C to +100°C (–40°F to +212°F)
Shock	30g, 11ms
Vibration	55Hz, 1mm amplitude, 3 planes

Features

- 3-wire operation
- 3-conductor or 4-pin connection
- 10–30V DC
- Extended temperature range
- Normally open output
- Short circuit, false pulse, reverse polarity, overload and transient noise protection
- 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

Selection Guide

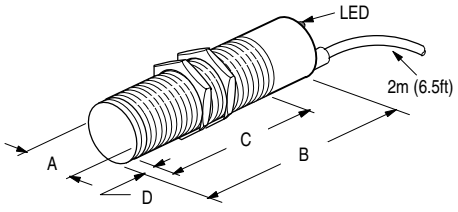
Barrel Diameter	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration		Switching Frequency (Hz)	Catalog Number	
						Cable Style	Micro QD Style
12mm	2 (0.08)	Y	N.O.	PNP	2000	871C–DT2NP12–U2	871C–DT2NP12–D4
	4 (0.16)	N			1000	871C–DT4NP12–U2	871C–DT4NP12–D4
18mm	5 (0.20)	Y	N.O.	PNP	1000	871C–DT5NP18–U2	871C–DT5NP18–D4
	8 (0.31)	N			500	871C–DT8NP18–U2	871C–DT8NP18–D4
30mm	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 = 2m (6.5ft))							889D–F4AC–2

QD Cordsets and Accessories

Description	Page Number
Other Cordsets Available	5–26
Terminal Chambers	5–19
Mounting Brackets	2–188 – 2–192
End Caps	2–198
Mounting Nuts	2–199 – 2–200

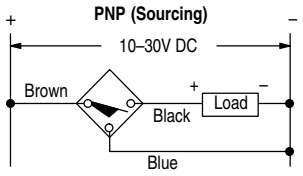
Dimensions—mm (inches)

Cable Style



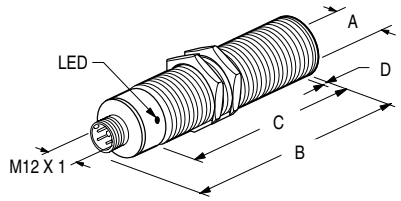
Wiring Diagram

Normally Open



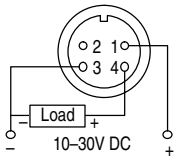
Thread Size	Shielded	mm (inches)			
		A	B	C	D
M12 X 1	Y	12.0 (0.47)	40.0 (1.57)	40.0 (1.57)	—
	N			34.0 (1.34)	6.0 (0.24)
M18 X 1	Y	18.0 (0.71)		40.0 (1.57)	—
	N			32.0 (1.26)	8.0 (0.31)
M30 X 1.5	Y	30.0 (1.18)		40.0 (1.57)	—
	N			28.0 (1.12)	12.0 (0.47)

Micro QD Style



Normally Open

PNP (Sourcing)



Thread Size	Shielded	mm (inches)			
		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)

871C 2-Wire NAMUR

Nickel-Plated Brass Barrel, Plastic Face

871C NAMUR
Cable Style
8, 12, 18, 30mm
page 2–83

871C NAMUR
Micro Quick-Disconnect Style
8, 12, 18, 30mm
page 2–83

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 30mm sizes
- Short barrel length
- Shielded and Unshielded models
- FM, CSA, and CENELEC (KEMA) approved

Specifications

Outputs	NAMUR (conforms to DIN 19 234)
Load Current Target Present	<1mA
Load Current Target Absent	>3mA
Operating Voltage	5–15V DC (8.2V DC nom., Ri = 1kohm, 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 (IEC 529)
Approvals	FM 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; T6 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 CENELEC (KEMA) approved – Groups IIA, IIB, IIC; Zones 0, 1, 2 (EEx ia IIC T6) CE marked for all applicable directives
Connections	Cable: 2m (6.5ft) length 2 conductor #22AWG PVC Quick-Disconnect: 4-pin micro style
LED	None
Operating Temperature	–25°C to 60°C (–13°F to 140°F)
Shock	30g, 11ms
Vibration	55Hz, 1mm 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}	60mA	≥	I_t
C_i	150$_n$F	≤	C_a
L_i	200µH	≤	L_a

WARNING: **These parameters must be adhered to. If not, injury may be caused to person or property.**

871C 2-Wire NAMUR, Cable Style

Nickel-Plated Brass Barrel, Plastic Face

Selection Guide

Barrel Diameter	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Catalog Numbers	
					Cable Style	Micro QD Style
8mm	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
12mm	2 (0.08)	Y		2000	871C–DH2M12–A2	871C–DH2M12–D4
	4 (0.16)	N		1000	871C–DH4M12–A2	871C–DH4M12–D4
18mm	5 (0.20)	Y		1000	871C–DH5M18–A2	871C–DH5M18–D4
	8 (0.31)	N		500	871C–DH8M18–A2	871C–DH8M18–D4
30mm	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 = 2m (6.5ft))						889D–F4AC–2 ❶

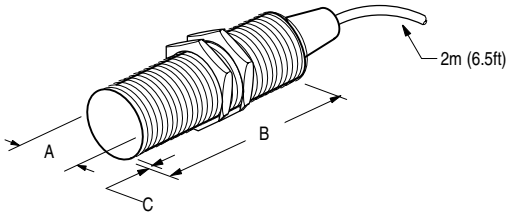
❶ Intrinsically Safe wiring labels 897H–L1 or 897H–L2 must be applied every 7.6m (25ft).

QD Cordsets and Accessories

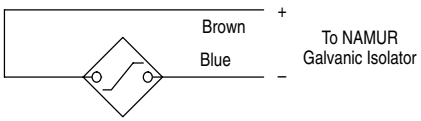
Description	Page Number
Other Cordsets Available	5–26
Terminal Chambers	5–19
NAMUR Amplifiers/Isolators	5–57
Intrinsic Safety Wiring Labels	5–58
Mounting Brackets	2–188 – 2–192
End Caps	2–198
Mounting Nuts	2–199 – 2–200

Dimensions—mm (inches)

Cable Style



Wiring Diagram



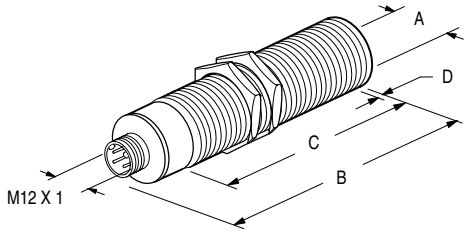
Thread Size	Shielded	mm (inches)		
		A	B	C
M8 x 1	Y	8.0 (0.31)	30.0 (1.18)	—
	N			5.0 (0.20)
M12 x 1	Y	12.0 (0.47)		—
	N			6.0 (0.24)
M18 x 1	Y	18.0 (0.71)		—
	N			8.0 (0.31)
M30 x 1.5	Y	30.0 (1.18)	40.0 (1.57)	—
	N			12.0 (0.47)

871C 2-Wire NAMUR

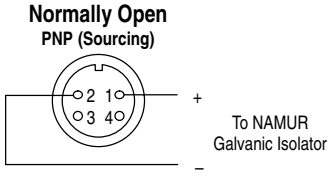
Nickel-Plated Brass Barrel, Plastic Face

Dimensions—mm (inches)

Micro QD Style



Wiring Diagram



Thread Size	Shielded	mm (inches)			
		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, 30mm

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 (IEC 529) enclosure standards. The electronic circuitry is potted for protection against shock, vibration and contamination.

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

	12mm	18mm	30mm
Analog Output	0–10V Sourcing		
Load Current	5mA		
Operating Voltage	18–30V DC		
Repeatability	≤ 1%		
Ripple	10%		
Slew Rate	1.0V/ms	0.7V/ms	0.1V/ms
Δ Output / Δ Distance	0.25mm/V	03.75mm/V	0.875mm/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 (IEC 529), Nickel-plated brass barrel, plastic face (PBT)		
Connections	Cable: 2m (6.5ft) length 3 conductor PVC		
LED	None		
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	0.2–0.3

871C Analog Output, 3-Wire DC

Plastic Face/Nickel-Plated Brass Barrel

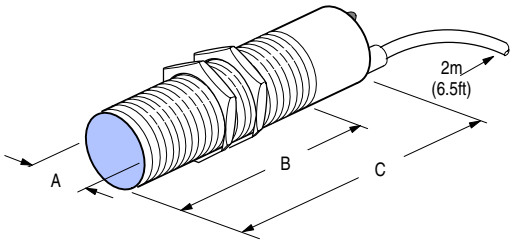
Selection Guide

Barrel Diameter	Linear Sensing Distance mm (inches)	Shielded	Output Configuration		Switching Frequency (Hz)	Catalog Number
12mm	0.5–2.5 (0.02–0.10)	Y	Analog Voltage	Sourcing	100	**871C–D3AP12–E2**
18mm	1–4 (0.04–0.16)	Y	Analog Voltage	Sourcing	100	**871C–D4AP18–E2**
30mm	7–14 (0.27–0.55)	N	Analog Voltage	Sourcing	30	**871C–D14AP30–E2**

QD Cordsets and Accessories

Description	Page Number
Terminal Chambers	5–19
Mounting Brackets	2–188 – 2–192
End Caps	2–198
Mounting Nuts	2–199 – 2–200

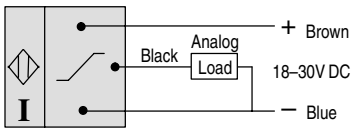
Dimensions—mm (inches)



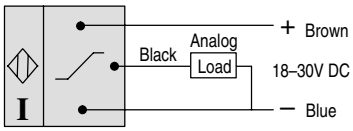
Thread Size	mm (inches)		
	A	B	C
12mm	12 (0.47)	70 (2.75)	80 (3.15)
18mm	18 (0.71)		
30mm	30 (1.18)	58 (2.28)	

Wiring Diagrams

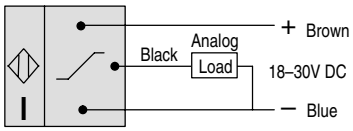
12mm



18mm

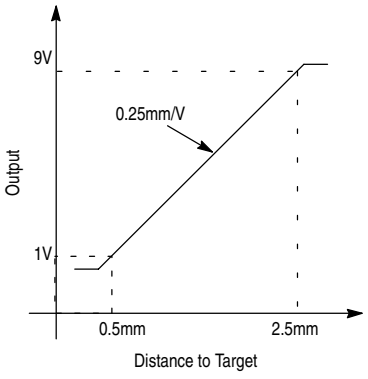


30mm

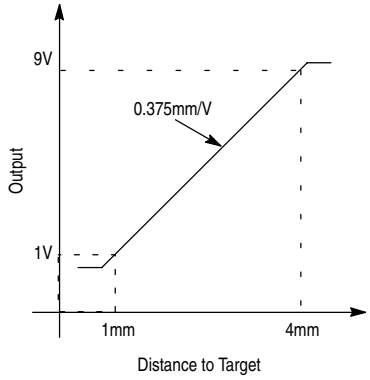


Nominal Output

12mm



18mm



30mm