

872C WorldProx Long Range Sensing 3-wire DC



DC M12 Micro Quick-disconnect Style
6.5 mm, 8 mm, 12 mm, 18 mm, and 30 mm



DC Pico Quick-disconnect Style
6.5 mm and 8 mm

Specifications

Attribute	6.5, 8, 12, 18, and 30 mm Diameters
Load Current	≤200 mA
Leakage Current	≤0.1 mA
Operating Voltage	10...30V DC
Voltage Drop	≤2V
Repeatability	≤5%
Hysteresis	10% typical
Protection Type	Reverse polarity, transient noise, short circuit, overload, and false pulse
Certifications	c-UL-us Listed and CE Marked for all applicable directives
Enclosure Type Rating	NEMA 1, 2, 3, 4, 6P, 12, 13, IP67 (IEC 529) Chrome-plated brass barrel, plastic face (PBT)
Housing Material	Threaded chrome-plated brass barrel and plastic face
Connections	Quick disconnect: 4-pin M12 micro style and 3-pin pico style
Status Indicator	Amber: output energized, 360° visibility
Operating Temperature	-25...+70 °C (-13...+158 °F)
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm amplitude, 3 planes

Correction Factors

Target Material	Correction Factor
Steel	1.0
Stainless Steel	0.6...0.8
Brass	0.3...0.6
Aluminum	0.3...0.5
Copper	0.2...0.5

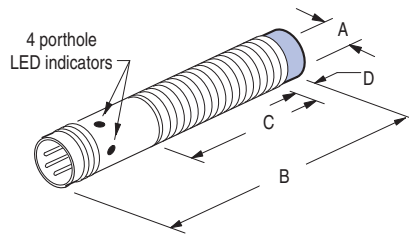
IMPORTANT Special mounting and installation considerations may be necessary due to the long-range sensing capabilities of these products. The [Inductive Proximity Sensors Basics](#) and [Applications](#) sections of the catalog should be used as a guideline. See pages [9](#) and [11](#).

Product Selection

Barrel Diameter [mm (in.)]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency [Hz]	Cat. No.	
						M12 Micro QD Style	Pico QD Style
6.5 (0.26)	3 (0.12)	Yes	N.O.	NPN	1000	872C-M3NN7-D4	872C-M3NN7-P3
				PNP		872C-M3NP7-D4	872C-M3NP7-P3
8 (0.31)	6 (0.23)	No	N.O.	NPN	500	872C-N6NN8-D4	872C-N6NN8-P3
				PNP		872C-N6NP8-D4	872C-N6NP8-P3
12 (0.47)	6 (0.23)	Yes	N.O.	NPN	800	872C-M6NN12-D4	—
				PNP		872C-M6NP12-D4	—
	10 (0.39)	No	N.O.	NPN	400	872C-N10NN12-D4	—
				PNP		872C-N10NP12-D4	—
18 (0.71)	12 (0.47)	Yes	N.O.	NPN	500	872C-M12NN18-D4	—
				PNP		872C-M12NP18-D4	—
	20 (0.79)	No	N.O.	NPN	200	872C-N20NN18-D4	—
				PNP		872C-N20NP18-D4	—
30 (1.18)	22 (0.86)	Yes	N.O.	NPN	200	872C-M22NN30-D4	—
				PNP		872C-M22NP30-D4	—
	40 (1.57)	No	N.O.	NPN	100	872C-N40NN30-D4	—
				PNP		872C-N40NP30-D4	—
Recommended standard QD cordset (-6F = 1.8 m [6 ft], -2 = 2 m [6.5 ft])						889D-F4AC-2	889P-F3AB-2

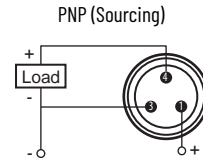
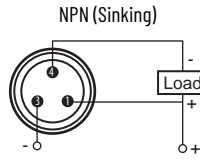
Approximate Dimensions

Pico QD Style



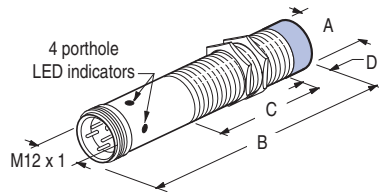
Wiring Diagrams

Normally Open or Normally Closed

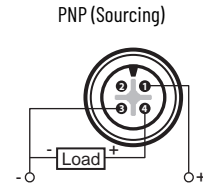
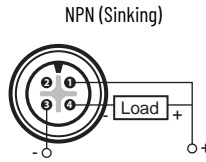


Thread Size	Smooth Diameter [mm (in.)]	Shielded	Dimensions are shown in mm (in.).			
			A	B (max)	C (min)	D (max)
—	6.5 (0.26)	Yes	6.5 (0.26)	60 (2.36)	—	—
M8 X 1	—	No	8 (0.31)	60 (2.36)	41.5 (1.63)	4 (0.15)

M12 Micro QD Style



Normally Open



Thread Size	Smooth Diameter [mm (in.)]	Shielded	Dimensions are shown in mm (in.).			
			A	B (max)	C (min)	D (max)
—	6.5 (0.26)	Yes	6.5 (0.26)	66 (2.59)	—	—
M8 x 1	—	No	8 (0.31)	66 (2.59)	40 (1.57)	4 (0.15)
M12 x 1	—	Yes	12 (0.47)	60 (2.36)	40 (1.57)	—
		No			35.3 (1.38)	5.7 (0.22)
M18 x 1	—	Yes	18 (0.71)	63.5 (2.5)	42 (1.65)	—
		No			32 (1.25)	10 (0.39)
M30 X 1.5	—	Yes	30 (1.18)	73.5 (2.89)	52 (2.04)	—
		No			42 (1.65)	10 (0.39)

872C WorldProx 3- and 4-wire DC – Standard and Extended Sensing

Specifications

Attribute	8 mm	12 mm	18 mm	30 mm
Load Current	≤100 mA	≤200 mA		
Leakage Current	≤5 µA	≤10 µA		
Operating Voltage	5...30V DC	10...30V DC		
Voltage Drop	≤1.5V	≤1.8V		
Switching Frequency	≤2500 Hz	≤1300 Hz ⁽¹⁾	≤1500 Hz ⁽¹⁾	≤1000 Hz ⁽¹⁾
No-load Supply Current	≤10 mA			
Repeatability	≤5%			
Hysteresis	≤10% typical			
Protection Type	False pulse on power, transient noise, reverse polarity, short circuit, and overload			
Certifications	c-UL-us Listed and CE Marked for all applicable directives			
Enclosure Type Rating	IP67			
Housing Material	Nickel-plated brass barrel nuts with integral locking feature, plastic face (LCP)		Nickel-plated brass barrel nuts with integral locking feature, plastic face (PBT)	
Connections	<ul style="list-style-type: none"> Cable (PVC/PUR): 2 m (6.5 ft), 5 m (16.4 ft), 10 m (32.8 ft) length, 3.5 mm (0.138 in.) dia. (PVC); 3.3 mm dia. (PUR); 3 x 0.14 mm² PVC or PP Cable (Pigtail): 0.2 m (0.7 ft), 0.5 m (1.6 ft), 1 m (3.3 ft) length Connector: 3-pin M12 or 3-pin M8 		<ul style="list-style-type: none"> Cable (PVC/PUR): 2 m (6.5 ft), 5 m (16.4 ft), 10 m (32.8 ft) length, 4.3 mm (0.17 in.) diameter; 3x 0.34 mm² (0.01 in.²) or 4 x 0.34 mm² PVC or PUR Cable (Pigtail): 0.2 m (0.7 ft), 0.5 m (1.6 ft), 1 m (3.3 ft) length, Integral connector (M12) 3- or 4-pin micro QD Quick-disconnect: 3- or 4-pin micro QD (M12) or [3-pin pico QD (M8) for 12 mm only] 	
Status Indicator	Amber: output energized		Amber: output energized	
Operating Temperature	-25...+70 °C (-13...+158 °F)			
Shock	30 g (1.06 oz), 11 ms half-sine			
Vibration	55 Hz, 1 mm amplitude, 3 planes			



DC Micro Quick-disconnect Style
8 mm, 12 mm, 18 mm, and 30 mm



DC Pico Quick-disconnect Style
6.5 mm, 8 mm, and 12 mm



DC Cable Style
6.5 mm, 8 mm, 12 mm, 18 mm, and 30 mm



Pigtail Cable with Integral Micro QD Connector
8 mm, 12 mm, 18 mm, and 30 mm

Nominal Sensing Distance

Size	Description	Standard Sensing Range [mm (in.)]	Extended Sensing Range
6.5 mm	Shielded	2 (0.08)	–
	Unshielded	3 (0.12)	–
8 mm	Shielded	2 (0.08)	3 (0.12)
	Unshielded	3 (0.12)	4 (0.16)
12 mm	Shielded	3 (0.12)	4 (0.16)
	Unshielded	4 (0.16)	8 (0.31)
18 mm	Shielded	5 (0.20)	8 (0.31)
	Unshielded	8 (0.31)	12 (0.47)
30 mm	Shielded	10 (0.39)	15 (0.59)
	Unshielded	15 (0.59)	20 (0.79)

Correction Factors

Target Material	6.5 mm	8 mm	12 mm	18 mm	30 mm
Steel	1.0	1.0	1.0	1.0	1.0
Stainless Steel	0.7...0.8	0.7...0.8	0.7...0.8	0.7...0.8	0.7...0.8
Brass	0.45...0.55	0.45...0.55	0.45...0.55	0.45...0.55	
Aluminum	0.3...0.4	0.45...0.55	0.45...0.55	0.4...0.5	0.45...0.55
Copper	0.2...0.3	0.35...0.45	0.35...0.45	0.3...0.45	0.35...0.45

(1) Select 3-wire models have switching frequency less than previously specified:
 12 mm diameter shielded, extended range, N.O., PNP, micro QD ≤800 Hz
 12 mm diameter unshielded, extended range, N.O., PNP, micro QD ≤1000 Hz
 18 mm diameter shielded, extended range, N.O., PNP, micro QD, and cable ≤500 Hz
 30 mm diameter shielded, extended range, N.O., PNP, micro QD <100 Hz at SD = 7.5 mm (0.3 in.), 200 Hz at SD = 10 mm (0.39 in.)

Product Selection – Standard Range

Table 4 - Standard Barrel

Barrel Diameter [mm (in.)]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Config.		Switching Frequency [Hz]	Cat. No.			
						Cable Style	Micro QD Style	Pico QD Style	Pigtail Style
8 (0.31)	2 (0.08)	Yes	NO	PNP	2500	872C-D2NP8-E2 ⁽¹⁾	872C-D2NP8-D4	872C-D2NP8-P3	872C-D2NP8-FD05
	2 (0.08)	Yes	NO	NPN		872C-D2NN8-E2 ⁽¹⁾	872C-D2NN8-D4	872C-D2NN8-P3	–
	2 (0.08)	Yes	NC	PNP		872C-D2CP8-E2 ⁽¹⁾	872C-D2CP8-D4	872C-D2CP8-P3	–
	3 (0.12)	No	NO	PNP		872C-D3NP8-E2	872C-D3NP8-D4	872C-D3NP8-P3	–
	3 (0.12)	No	NO	NPN		–	872C-D3NN8-D4	872C-D3NN8-P3	–
	3 (0.12)	No	NC	PNP		–	872C-D3CP8-D4	872C-D3CP8-P3	–
12 (0.47)	3 (0.12)	Yes	NO	PNP	1300	872C-D3NP12-E2 ⁽¹⁾	872C-D3NP12-D4	–	–
	3 (0.12)	Yes	NC	PNP		–	872C-D3CP12-D4	–	–
	4 (0.16)	No	NO	PNP		872C-D4NP12-E2	872C-D4NP12-D4	–	–
	4 (0.16)	No	NO	NPN		–	872C-D4NN12-D4	–	–
	4 (0.16)	No	NC	PNP		–	872C-D4CP12-D4	–	–
18 (0.71)	5 (0.20)	Yes	NO	PNP	1500	872C-D5NP18-E2	872C-D5NP18-D4	–	–
	5 (0.20)	Yes	NO	NPN		872C-D5NN18-E2	–	–	–
	8 (0.31)	No	NO	PNP		872C-D8NP18-E2	872C-D8NP18-D4	–	–
30 (1.18)	10 (0.39)	Yes	NO	PNP	1000	–	872C-D10NP30-D4	–	–
	15 (0.59)	No	NO	PNP		–	872C-D15NP30-D4	–	–

(1) The 2 at the end of the cat. no. indicates a 2 m (6.6 ft) cable. Change to a 5 for a 5 m (16.4 ft) cable.

Table 5 - Short Barrel

Barrel Diameter [mm (in.)]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency [Hz]	Cat. No.		
						Cable Style	Micro QD Style	Pico QD Style
8 (0.31)	2 (0.08)	Yes	NO	PNP	2500	872C-DH2NP8-E2	872C-DH2NP8-D4	872C-DH2NP8-P3
12 (0.47)	3 (0.12)	Yes	NO	PNP	1300	872C-DH3NP12-E5	872C-DH3NP12-D4	–
	3 (0.12)	Yes	NC	PNP		–	872C-DH3CP12-D4	–
	4 (0.16)	No	NO	PNP		–	872C-DH4NP12-D4	–
	4 (0.16)	No	NO	NPN		–	872C-DH4NN12-D4	–
18 (0.71)	5 (0.20)	Yes	NO	PNP	1500	–	872C-DH5NP18-D4	–
	8 (0.31)	No	NO	PNP		–	872C-DH8NP18-D4	–
30 (1.18)	15 (0.59)	No	NO	PNP	1000	–	872C-DH15NP30-D4	–