

# 871C 2-wire NAMUR Intrinsically Safe, Cable Style Tubular Sensors



871C NAMUR Cable Style  
8 mm, 12 mm, 18 mm, and 30 mm Dia.



871C NAMUR Micro Quick-disconnect Style  
8 mm, 12 mm, 18 mm, and 30 mm Dia.

## Specifications

<b>Attribute</b>	<b>8 mm, 12 mm, 18 mm, and 30 mm Diameter</b>
Output Type	NAMUR (conforms to DIN 19 234)
Load Current, Nom.	<1 mA (target present), >3 mA (target absent)
Operating Voltage	5...15V DC (8.2V DC nom., Ri = 1 kohm, DIN 19 234)
Ripple	5%
Repeatability	<10%
Hysteresis	10% typical
Protection Type (Realized in Amplifier)	Reverse polarity, false pulse, transient noise, short circuit, and overload
Certifications	FM Approved: <ul style="list-style-type: none"> <li>• Class I, II, III; Divisions 1, 2; Groups A, B, C, D, E, F, G</li> <li>• Class I; Zone 0, 1, 2; Groups IIC, IIB, IIA; T6; CSA Certified</li> <li>• Class I, II, III; Divisions 1, 2; Groups A, B, C, D, E, F, G</li> <li>• Class I; Zone 0, 1, 2; Groups IIC, IIB, IIA; CE Marked for all applicable directives</li> </ul>
Enclosure Type Rating	NEMA 4, IP67 (IEC529)
Housing Material	Nickel-plated brass barrel, plastic face
Connection Type	<ul style="list-style-type: none"> <li>• Cable: 2 m (6.5 ft) length, 2-conductor #22 AWG PVC</li> <li>• Quick-disconnect: 4-pin micro style</li> </ul>
Status Indicator	None
Operating Temperature	-25...+60 °C (-13...+140 °F)
Shock	30 g (1.06 oz), 11 ms
Vibration	55 Hz, 1 mm amplitude, 3 plane

## Entity Parameters

Sensor			Barrier	
$V_{max}$	16V	$\geq$	$V_t$	
$I_{max}$	80 mA	$\geq$	$I_t$	
$C_1$	150 nF	$\leq$	$C_a$	
$L_1$	200 $\mu$ H	$\leq$	$L_a$	

## Correction Factors

Target Material	Correction Factors
Steel	1.0
Stainless Steel	0.7...0.8
Brass	0.4...0.5
Aluminum	0.3...0.4
Copper	0.2...0.3



**ATTENTION:**  
Operating parameters must be adhered to.

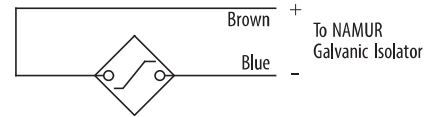
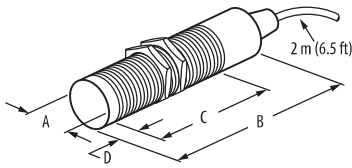
## Product Selection

Barrel Diameter [mm (in.)]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration	Switching Frequency [Hz]	Cat. No.		
					Cable Style	Micro QD Style	
8 (0.31)	1 (0.03)	Yes	NAMUR (conforms to DIN 19 234)	2000	871C-DH1M8-A2	871C-DH1M8-D4	
	2 (0.08)	No		1000	871C-DH2M8-A2	871C-DH2M8-D4	
12 (0.47)	2 (0.08)	Yes		2000	871C-DH2M12-A2	871C-DH2M12-D4	
	4 (0.16)	No		1000	871C-DH4M12-A2	871C-DH4M12-D4	
18 (0.71)	5 (0.20)	Yes		1000	871C-DH5M18-A2	871C-DH5M18-D4	
	8 (0.31)	No		500	871C-DH8M18-A2	871C-DH8M18-D4	
30 (1.18)	10 (0.39)	Yes		500	871C-DH10M30-A2	871C-DH10M30-D4	
	15 (0.59)	No		300	871C-DH15M30-A2	871C-DH15M30-D4	
Recommended cordset: 2 m (6.5 ft) 4-pin DC micro (straight)						889D-F4AC-2	

**IMPORTANT** The sensor output conforms to NAMUR specification (DIN 19 234) when used with Cat. Nos. 937TH-DISAR-DC2, 937TS-DISAR-KD2, 937TS-DISAR-KF2, or 937TH-DISAT-DC Intrinsically Safe Output Switch Amplifier. 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.

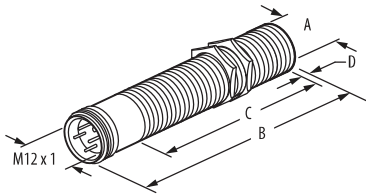
## Approximate Dimensions

### Cable Style

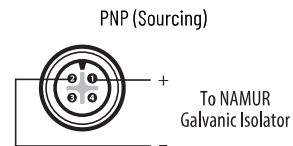


Thread Size	Shielded	Dimensions are shown in mm (in.).		
		A	B	C
M8 X1	Yes	8.0 (0.31)	30.0 (1.18)	—
	No			5.0 (0.20)
M12 X1	Yes	12.0 (0.47)		—
	No			6.0 (0.24)
M18 X1	Yes	18.0 (0.71)	—	
	No		8.0 (0.31)	
M30 X1.5	Yes	30.0 (1.18)	40.0 (1.57)	—
	No		12.0 (0.47)	

### Micro QD Style



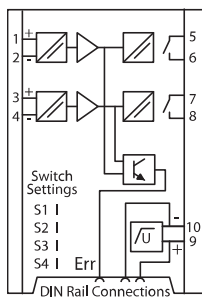
### Normally Open



Thread Size	Shielded	Dimensions are shown in mm (in.).			
		A	B	C	D
M8 X1	Yes	8.0 (0.31)	50.0 (1.97)	28.0 (1.10)	—
	No			23.0 (0.91)	5.0 (0.20)
M12 X1	Yes	12 (0.47)		30.0 (1.18)	—
	No			24.0 (0.94)	6.0 (0.24)
M18 X1	Yes	18.0 (0.71)	30.0 (1.18)	—	
	No		22.0 (0.87)	8.0 (0.31)	
M30 X1.5	Yes	30.0 (1.36)	60.0 (2.36)	40.0 (1.57)	—
	No		28.0 (1.10)	12.0 (0.47)	

## Block Diagram

Relay Output  
937TH-DISAR-DC2  
Dual Channel



Transistor Output  
937TH-DISAT-DC2  
Dual Channel

