



### Description

Bulletin 871R Ring and 871S Slot sensors are self-contained, general purposed, solid-state devices designed to sense the presence of ferrous and nonferrous metal objects that pass through their sensing field.

Ring sensors are available in 12, 20, 50 and 100mm ring diameter sizes with minimum ball sizes ranging from 2.5mm to 8.0mm.

Slot sensors are available in 30mm slot gap. When mounting two slot sensors side by side, it is necessary to use different models with different operating frequencies.

### Features

- Cable or micro QD style
- Short circuit protection
- Reverse polarity protection
- CE marked for all applicable directives.

### Styles

- 871R DC 3-Wire Ring . . . . page 2–180
- 871S DC 3-Wire Slot . . . . . page 2–183

### QD Cordsets and Accessories

- Quick-Disconnect Cables . . . page 5–1

### General Information

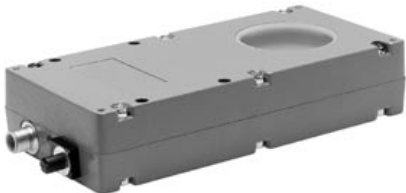
- Torque Chart . . . . . page 2–203
- Metric/English
- Conversion Chart . . . . . page 11–1

## 871R 3-Wire DC

### Ring Style



871R DC Cable Style  
12, 20mm  
page 2-181



871R DC Micro  
Quick-Disconnect Style  
50, 100mm  
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871R DC Micro  
Quick-Disconnect Style  
100mm  
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### Specifications

<b>Load Current</b>	≤200mA
<b>Leakage Current</b>	≤10μA
<b>Operating Voltage</b>	10–30V DC
<b>Voltage Drop</b>	≤2.4V
<b>Repeatability</b>	≤2%
<b>Hysteresis</b>	10% typical
<b>Reverse Polarity Protection</b>	Incorporated
<b>Transient Noise Protection</b>	Incorporated
<b>Short Circuit Protection</b>	Incorporated
<b>Overload Protection</b>	Incorporated
<b>False Pulse Protection</b>	Incorporated
<b>Approvals</b>	CE marked for all applicable directives
<b>Enclosure</b>	NEMA 4 IP67 (IEC529)
<b>Connections</b>	Cable: 2m (6.5ft) length 3-conductor #26AWG PVC Quick-Disconnect: 4-pin micro style
<b>LED</b>	Red: Output energized
<b>Operating Temperature</b>	–25°C to +70°C (–13°F to +158°F)
<b>Shock and Vibration</b>	5g, 10–55Hz

### Features

- 3-wire operation
- 3-conductor, 4-pin micro QD style
- 10–30V DC
- Reverse polarity, short circuit, overload, false pulse, and transient noise protection
- CE marked for all applicable directives

Selection Guide

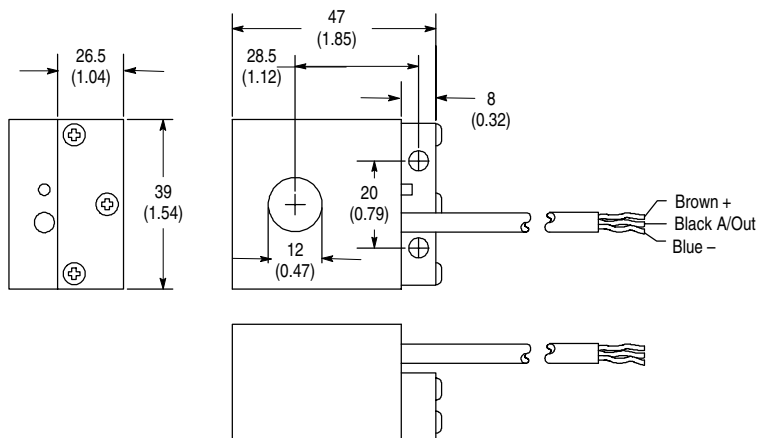
Ring Diameter	Minimum Ball Size mm (inches)	Output Configuration		Switching Frequency (Hz)	Catalog Number	
					Cable Style	Micro QD Style
12mm	2.5 (0.10)	N.O.	PNP	800	871R-D12NP39-E2	—
20mm	6 (0.24)			1000	871R-D20NP73-E2	—
50mm	3 (0.12)	N.O. and N.C.	PNP	500	—	871R-D50NP90-D4
100mm	8 (0.31)		NPN			871R-D50NN90-D4
			PNP			871R-D100NP120-D4
			NPN			871R-D100NN120-D4
Recommended Standard QD Cordset (-6F = 1.8m (6ft), -2 = 2m (6.5ft))						889D-F4AC-2

QD Cordsets and Accessories

Description	Page Number
Other Cordsets Available	5-26
Terminal Chambers	5-19

Dimensions—mm (inches)

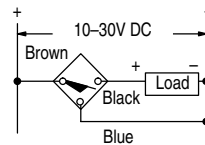
Cable Style (871R-D12NP39-E2)



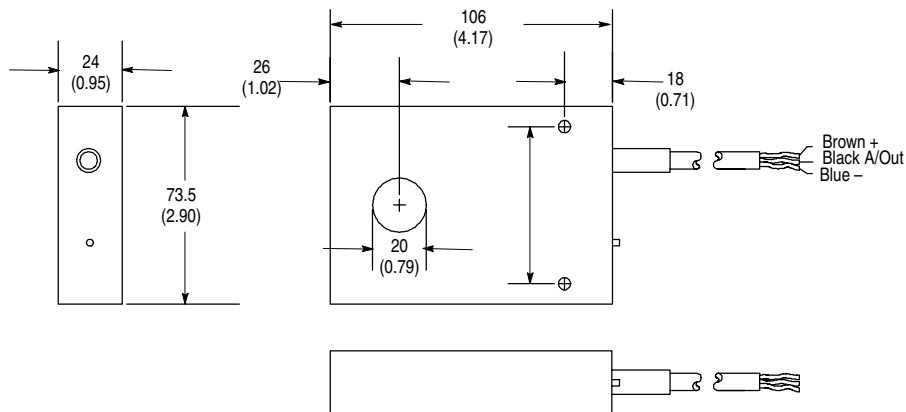
Wiring Diagrams

Normally Open

PNP (Sourcing)

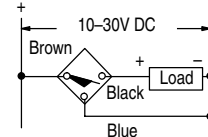


Cable Style (871R-D20NP73-E2)



Normally Open

PNP (Sourcing)

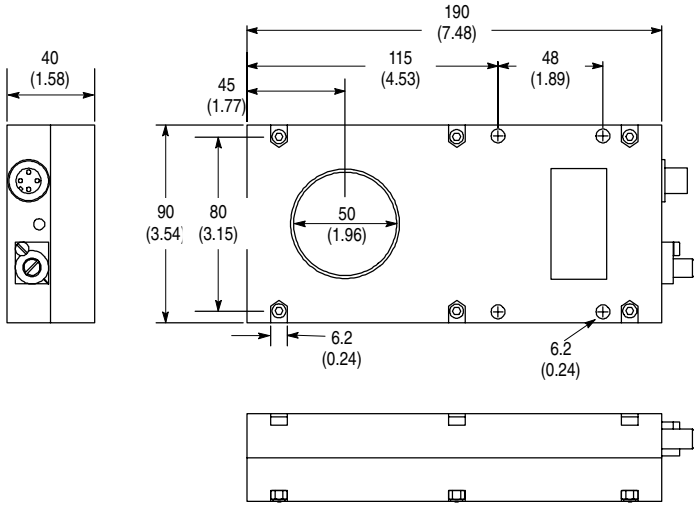


# 871R 3-Wire DC

## Ring Style

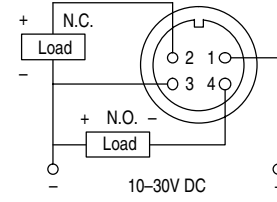
### Dimensions—mm (inches)

Micro Quick-Disconnect Style (871R-D50NP90-D4 & 871R-D50NN90-D4)

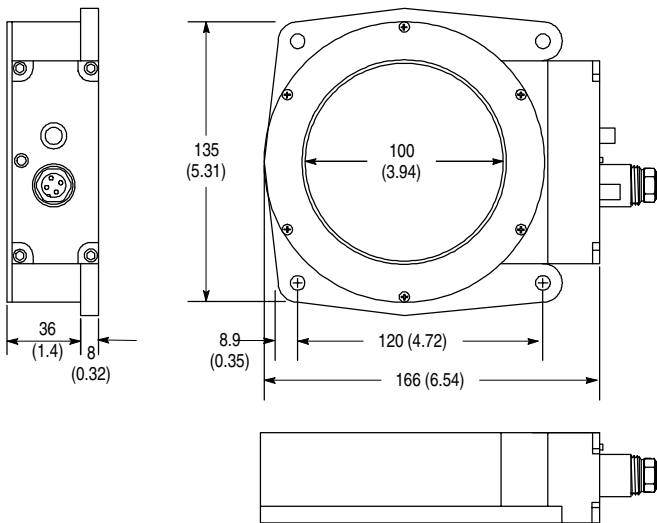


### Wiring Diagrams

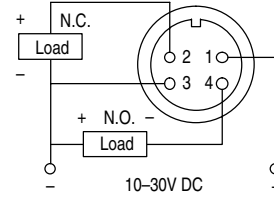
Complementary Normally Open and Normally Closed PNP (Sourcing)



Micro Quick-Disconnect Style (871R-D100NP120-D4 & 871R-D100NN120-D4)



Complementary Normally Open and Normally Closed PNP (Sourcing)





871R DC Cable Style  
30mm Slot Gap  
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### Specifications

<b>Load Current</b>	≤200mA
<b>Leakage Current</b>	≤10μA
<b>Operating Voltage</b>	18–30V DC
<b>Voltage Drop</b>	≤2.4V
<b>Repeatability</b>	≤2%
<b>Hysteresis</b>	15% typical
<b>Transient Noise Protection</b>	Incorporated
<b>False Pulse Protection</b>	Incorporated
<b>Approvals</b>	CE marked for all applicable directives
<b>Enclosure</b>	NEMA 4 IP65 (IEC529)
<b>Connections</b>	Cable: 2m (6.5ft) length 3-conductor #26AWG PVC
<b>LED</b>	None
<b>Operating Temperature</b>	–25°C to +70°C (–13°F to +158°F)
<b>Shock and Vibration</b>	5g, 10–55Hz

### Features

- 3-wire operation
- 3-conductor
- 18–30V DC
- False pulse and transient noise protection
- CE marked for all applicable directives

# Allen-Bradley

**Inductive Proximity Sensors**

**871S 3-Wire DC**

**Slot Style**

**Selection Guide**

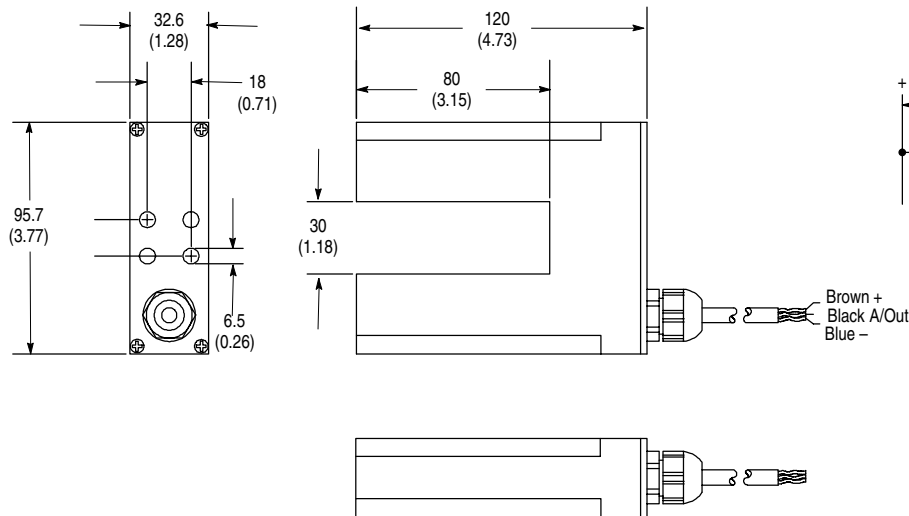
Slot Gap	Output Configuration		Switching Frequency (Hz)	Operating Frequency (KHz)	Catalog Number
					Cable Style
30mm	N.O.	PNP	500	75	871S-D20NP30-E2
				110	871S-DX20NP30-E2

**QD Cordsets and Accessories**

Description	Page Number
Terminal Chambers	5-1

**Dimensions—mm (inches)**

**Cable Style**



**Wiring Diagrams**

**Normally Open  
PNP (Sourcing)**

