

Description

Bulletin 871P inductive proximity can sensors are self-contained solid state devices, designed specifically for sensing size 202 to 704 metal cans without physical contact. These sensors have been specifically designed for the canning industry in terms of both functionality and environmental ratings.

Short- and long-range can sensor models are available in both AC and DC versions. These models contain multiple coils to provide a wide sensing field which allows metal containers to be sensed on canning lines while the gaps between them are ignored. This type of sensor provides a “cans present” or “cans not present” signal and is the standard sensor type used in can line control. Rockwell Automation/Allen-Bradley provides two models for varying can sizes.

A DC powered can motion sensor is also available for applications which require can movement sensing. Designed with the same multiple coils and wide sensing field as the standard can sensor, an extra coil was added as a separate circuit, which can be set to sense the gaps between the cans. The signal from the wide sensing field circuit (which ignores the gaps between the cans) is combined with the signal from the second circuit (which senses the gaps between the cans) to achieve an output indicating true can motion. If cans are present and not moving, the sensor output turns on. If cans are present and moving or if no cans are present, the sensor will remain off.

Depending on the specific canning line setup, this true can motion sensor can help improve line efficiency or address problem areas on canning line conveyor systems by providing control equipment with motion/no motion information.

The 871P can sensor family combines rugged construction and superior sensing capability to provide long lasting durability and performance in hostile manufacturing and filling environments.

Allen-Bradley can sensors are designed to withstand repeated 1200psi washdowns common in the food and beverage industries and are mounted on industry standard brackets.

Features

- Short circuit protection
- Overload protection
- Transient noise protection
- False pulse protection
- Reverse polarity protection (DC models)
- Stainless steel housing
- NEMA 6P, IP67 enclosure
- 1200psi (8270kPa) washdown

Styles

Short-Range AC 2-Wire Inductive Can page 2–136

Long-Range AC 2-Wire Inductive Can page 2–136

Short-Range DC 4-Wire Inductive Can page 2–138

Long-Range DC 4-Wire Inductive Can page 2–138

Motion DC 4-Wire Inductive Can page 2–140

Accessories

Quick-Disconnect Cables page 5–1

Mounting Bracket page 2–193

General Information

Metric/English Conversion Chart page 11–1

871P Can Sensors 2-Wire AC



871P AC Short-Range
76 x 36 x 58mm
page 2-137



Features

- 2-wire operation
- 3-conductor connection
- 30–150V AC
- Normally open
- Short- and long-range models
- Stainless steel housing
- 1200psi (8270kPa) washdown
- False pulse, transient noise, short circuit, and overload protection

Specifications

Outputs	Normally Open
Load Current	300mA
Minimum Load Current	15mA
Leakage Current	<1.5mA
Inrush Current	<5A (20ms)
Operating Voltage	30 to 150V AC RMS
Line Frequency	40 to 60Hz
Voltage Drop	<15V @300mA
Repeatability	≤2%
Hysteresis	10% typical
False Pulse Protection	Incorporated
Transient Noise Protection	Incorporated
Short Circuit Protection	Incorporated
Overload Protection	Incorporated
Approvals	UL listed and CE marked for all applicable directives
Enclosure	NEMA 1, 3, 4, 4X, 6, 6P, 12, 13, IP67 (IEC 529), 1200psi (8270kPa) washdown
Connections	3-pin mini style
LEDs	Red: Output Energized
Operating Temperature	-20°C to +70°C (0°F to +160°F)
Housing Material	Stainless steel, plastic face
Mounting	2 stainless steel studs

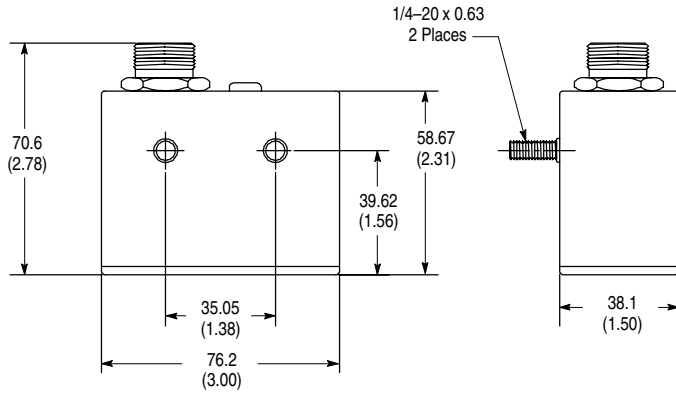
Selection Guide

Style	Container Sizes	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Catalog Numbers Mini QD Style
Short	202-401	Steel: 19mm (0.75in) Aluminum: 13mm (0.50in)	Y	N.O.	25	871P-AC19N76-N3
Long	202-704	Steel: 29mm (1.15in) Aluminum: 15mm (0.60in)				871P-AC29N140-N3
Recommended Standard QD Cordset (-6F = 1.8m (6ft))						889N-F3AFC-6F

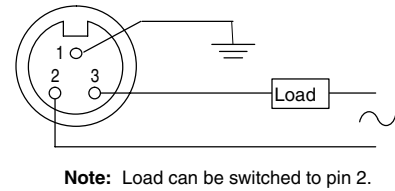
QD Cordsets and Accessories

Description	Page Number
Other Cordsets Available	5-8
Terminal Chambers	5-19

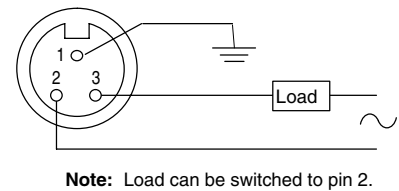
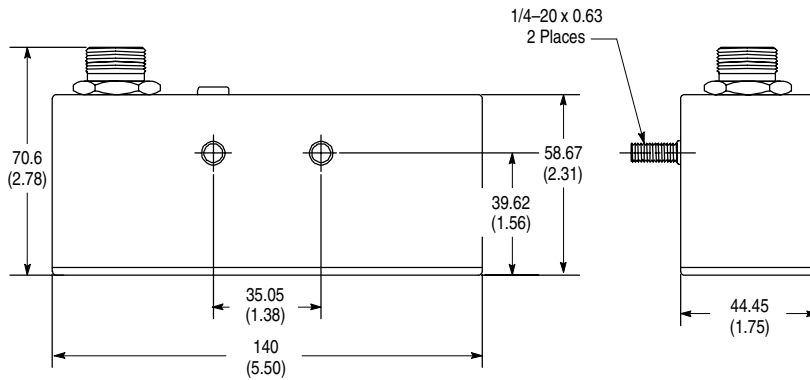
Dimensions—mm (inches)
Short-Range Mini QD Style



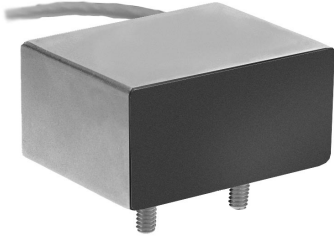
Wiring Diagram



Long-Range Mini QD Style



871P Can Sensors 4-Wire DC



871P DC Short Range
76 x 36 x 58mm
page 2-139

Features

- 4-conductor plus shield or 4-pin mini connection
- 10–30V DC
- Normally open NPN and PNP outputs
- Short- and long-range models
- Stainless steel housing
- 1200psi (8270kPa) washdown
- False pulse, transient noise, reverse polarity, short circuit, and overload protection

Specifications

Outputs	Normally Open NPN and PNP
Load Current	300mA
Operating Voltage	10–30V DC
Operating Current	25mA (off), 55mA (on)
Voltage Drop	≤2.5V
Repeatability	≤2%
Hysteresis	3%–15%
False Pulse Protection	Incorporated
Transient Noise Protection	Incorporated
Short Circuit Protection	Incorporated
Overload Protection	Incorporated
Reverse Polarity Protection	Incorporated
Enclosure	NEMA 1, 3, 4, 4X, 6, 6P, 12, 13, IP67 (IEC 529), 1200psi (8270kPa) washdown
Connections	A2: 2m shielded PVC jacketed cable, 4-wire, #22AWG, 1/2" NPT N4: 4-pin mini quick-disconnect
LEDs	Red: Output Energized
Operating Temperature	–20°C to +70°C (0°F to +160°F)
Housing Material	Stainless steel, plastic face
Mounting	2 stainless steel studs

Selection Guide

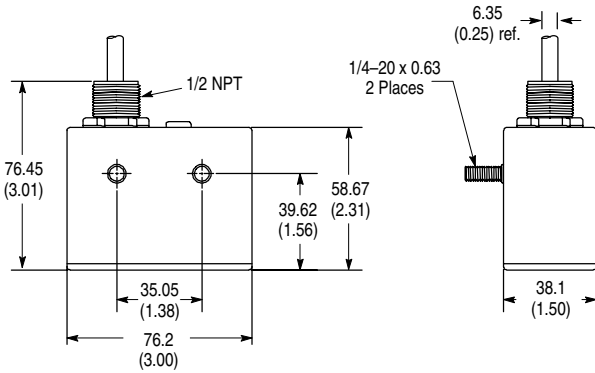
Style	Container Sizes	Nominal Sensing Distance mm (inches)	Shielded	Output Configuration	Switching Frequency (Hz)	Catalog Numbers		
						Cable Style	Mini QD Style	
Short	202-401	Steel: 19mm (0.75in) Aluminum: 13mm (0.50in)	Y	Normally Open NPN and PNP	35	871P-DC19NB76-A2	871P-DC19NB76-N4	
Long	202-704	Steel: 29mm (1.15in) Aluminum: 15mm (0.60in)				871P-DC29NB140-A2	871P-DC29NB140-N4	
Recommended Standard QD Cordset (-6F = 1.8m (6ft))							889N-F4AFC-6F	

QD Cordsets and Accessories

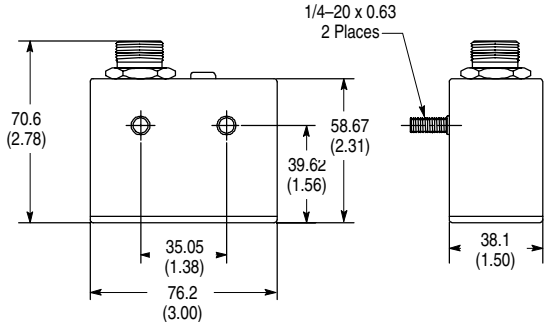
Description	Page Number
Other Cordsets Available	5-8
Terminal Chambers	5-19

Dimensions—mm (inches)

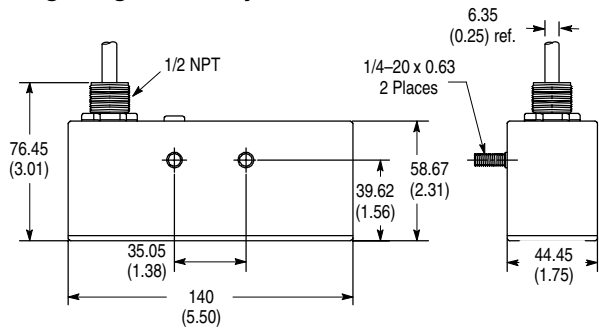
Short-Range Cable Style



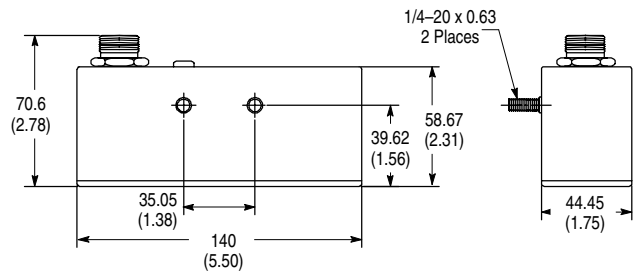
Short-Range Mini QD Style



Long-Range Cable Style

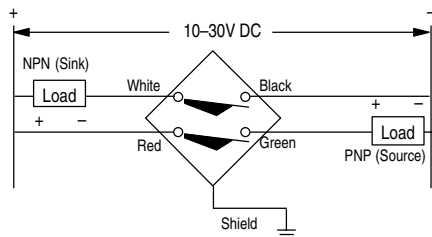


Long-Range Mini QD Style

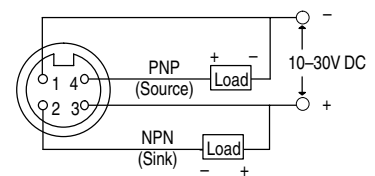


Wiring Diagram

Cable Style



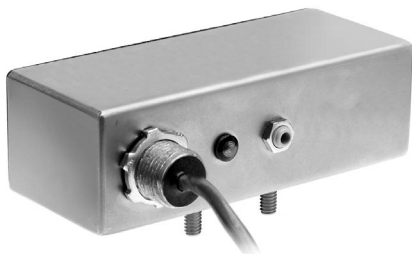
Mini QD Style



Note: Red and black wires must be connected for proper operation.



871P Can Sensors 4-Wire DC Motion



871P DC Motion Style
140 x 45 x 58mm
page 2-141

Features

- 4-conductor plus shield or 4-pin mini connection
- 10–30V DC
- Normally open NPN and PNP outputs
- Stainless steel housing
- 1200psi (8270kPa) washdown
- Dual function output LED
Dim blink: cans moving
Bright steady: no motion
- Adjustable sensing distance
- False pulse, transient noise, reverse polarity, short circuit, and overload protection

Specifications

Outputs	Normally Open NPN and PNP
Load Current	300mA
Operating Voltage	10–30V DC
Operating Current	25mA (off), 55mA (on)
Voltage Drop	≤2.5V
Repeatability	≤2%
Hysteresis	3%–15%
Output Time Delay	0.5 sec after motion stops
False Pulse Protection	Incorporated
Transient Noise Protection	Incorporated
Short Circuit Protection	Incorporated
Overload Protection	Incorporated
Reverse Polarity Protection	Incorporated
Enclosure	NEMA 1, 3, 4, 4X, 6, 6P, 12, 13, IP67 (IEC 529), 1200psi (8270kPa) washdown
Connections	A2: 2m shielded PVC jacketed cable, 4-wire, #22AWG, 1/2" NPT N4: 4-pin mini quick-disconnect
LED	Red: Output Energized Dim Blink: Cans moving Bright Steady: No motion
Potentiometer	Sensing range adjust
Operating Temperature	–20°C to +70°C (0°F to +160°F)
Housing Material	Stainless steel, plastic face
Mounting	2 stainless steel studs

Selection Guide

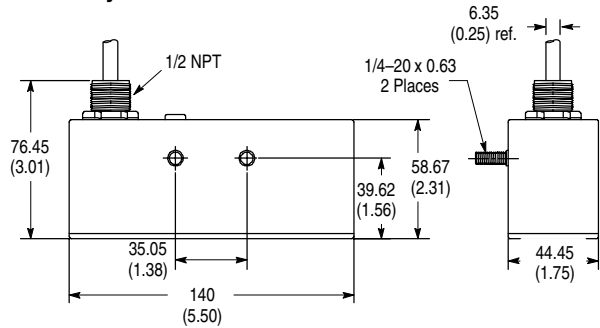
Container Sizes	Nominal Presence Sensing Distance mm (inches)	Nominal Motion Sensing Distance mm (inches)	Shielded	Output Configuration	Catalog Numbers	
					Cable Style	Mini QD Style
202-704	Steel: 29mm (1.15in) Aluminum: 15mm (0.60in)	Steel: 19mm (0.75in) Aluminum: 13mm (0.50in)	Y	Normally Open NPN and PNP	871P-DD29NB140-A2	871P-DD29NB140-N4
Recommended Standard QD Cordset (-6F = 1.8m (6ft))						889N-F4AFC-6F

QD Cordsets and Accessories

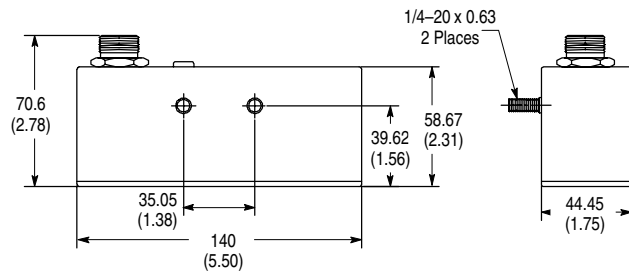
Description	Page Number
Other Cordsets Available	5-8
Terminal Chambers	5-19

Dimensions—mm (inches)

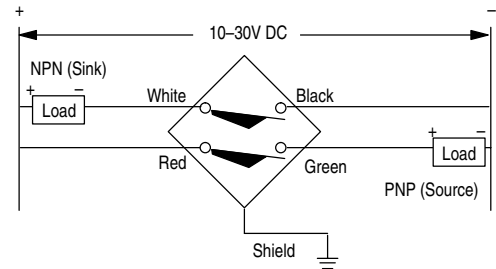
Cable Style



Mini QD Style



Wiring Diagram



Note: Red and black wires must be connected for proper operation.

